Board Staff Interrogatory #068

Ref: Exh F1-2-1, Table 2

Issue Number: 6.1
Issue: Operating Costs
Regulated Hydroelectric
Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

Under hydroelectric base OM&A, the application notes that the Niagara Plant Group 2011 actual costs include an extraordinary credit of $19M related to the reversal of a provision for the environmental cleanup of Lake Gibson (DeCew Falls GS). That credit represented over 1/3 of the total Base OM&A approved by the Board for the Niagara Plant Group as the Board approved $53.5M and actual costs were $33.7M.

a) Please identify if that $19M was reallocated for other purposes. If so, please explain.
b) Does OPG foresee the potential for a similar extraordinary credit in the current test period?

Response

The accounting for the provision for the environmental clean-up of Lake Gibson is described in Ex. F1-2-1, section 3.1.4, page 4, lines 20-31.

a) The extraordinary credit relating to the reversal of Lake Gibson provision was not reallocated for other purposes.
b) OPG does not anticipate any similar provision reversals in the test period.
Board Staff Interrogatory #069

Ref: Exh F1-1-1, Table 2

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

Please refer to the table below prepared by Board staff.

<table>
<thead>
<tr>
<th></th>
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<tr>
<td>Base OM&amp;A</td>
<td>100.0</td>
<td>106.0</td>
<td>102.9</td>
<td>113.2</td>
<td>113.4</td>
<td>113.7</td>
<td>105.5</td>
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<td>Project OM&amp;A</td>
<td>39.8</td>
<td>21.6</td>
<td>20.3</td>
<td>16.0</td>
<td>24.5</td>
<td>32.1</td>
<td>24.4</td>
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<td>Allocation of Corporate Costs</td>
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<td>32.3</td>
<td>36.6</td>
<td>38.8</td>
<td>42.1</td>
<td>39.6</td>
<td>34.8</td>
</tr>
<tr>
<td>Allocation of Centrally Held Costs</td>
<td>19.0</td>
<td>25.1</td>
<td>33.1</td>
<td>47.2</td>
<td>49.6</td>
<td>48.7</td>
<td>31.1</td>
</tr>
<tr>
<td>Asset Service Fee</td>
<td>3.6</td>
<td>3.4</td>
<td>3.3</td>
<td>3.1</td>
<td>2.9</td>
<td>3.0</td>
<td>3.4</td>
</tr>
<tr>
<td>TOTAL</td>
<td>193.8</td>
<td>188.4</td>
<td>196.2</td>
<td>218.3</td>
<td>232.5</td>
<td>237.1</td>
<td>199.2</td>
</tr>
</tbody>
</table>

a) Please confirm that OM&A expense for the newly regulated hydroelectric plants averaged about $199.2M annually between 2010 and 2013.

b) What material changes underpin the $35M or 17% increase, as compared to the historical average, in OM&A expense in 2014 and 2015?

Response

a) Confirmed.

b) The Total OM&A for the newly regulated stations, as shown in Ex. F1-1-1, Table 2, is composed of five line items, each of which is described in separate exhibits in prefiled evidence, along with their related variance explanations.

Base OM&A is described in Ex. F1-2-1. The increase in Base OM&A costs that occurred between 2012 and 2013 is due to increases in labour rates in 2013, unfilled vacancies in 2012, and other organizational changes affecting support costs resulting from the Business Transformation Initiative (see Ex. F1-2-2, section 4).
Project OM&A is described in Ex. F1-3-1. The increase in Project OM&A costs from 2013 to 2014 - 2015 is mainly due to the start of major unit overhauls at Lower Notch GS and Otto Holden GS. For further detail, please see response to Board Staff Interrogatory #70.

Allocations of Corporate Costs are described in Ex. F3-1-1. The increase in corporate cost allocations between 2011 and 2014 are mainly due to transfers of staff from the HTO Business Unit to Corporate Support Services, and other resource shifts as part of the Business Transformation Initiative (see Ex. F3-1-2, section 3).

Allocations of Centrally Held Costs are described in Ex. F4-4-1. These include Pension/OPEB, insurance, performance incentives, IESO non-energy charges, and other costs. The increase in centrally held costs from 2010 to 2013 is primarily as a result of higher pension and OPEB-related costs (see Ex. F4-4-1, section 3). Also contributing to increasing centrally held costs in the test period are IESO charges (see Ex. F4-4-1, section 6), and other costs (Ex. F4-4-1, section 7).

Asset Service Fees are described in Ex. F3-2-1. Asset Service Fees do not contribute to increased costs in the test period.
Board Staff Interrogatory #070

Ref: Exh F1-3-1 (Table 1), F1-3-2

Issue Number: 6.1
Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

As noted in the evidence, project OM&A costs for Newly Regulated Hydroelectric decline in the 2013 bridge year and that is followed by a significant increase in the test years -- increases by 100% from $16 million to $32.1 million by 2015. The application indicates the start of 2 unit overhauls in the Central and Northeast Hydro Plant Groups – Lower Notch GS and Otto Holden GS (as well as SAB PGS) – are the primary contributors to that increase and that there were no unit overhauls in 2013. Please explain why those unit overhauls are being initiated in the test period and none were undertaken in the bridge year.

Response

OPG’s hydroelectric project prioritization process does not differentiate between facilities that are regulated and facilities that are unregulated. The project prioritization process used for the test period is the same process that OPG applied to the newly regulated facilities prior to these facilities coming under regulation. As more fully described below and in evidence, and based on OPG’s project prioritization process, it is appropriate to initiate and undertake work at Lower Notch, Otto Holden and SAB PGS during the test period.

Project OM&A can vary significantly from year to year based on the number and size of projects (see Ex. F1-3-1). Most OM&A projects are sustaining investments in production equipment (e.g., unit overhauls) or aging civil structures. OPG’s Hydro-Thermal Operations Business Unit (“HTO”) uses a structured portfolio approach to identify and prioritize projects (Ex. F1-1-1, Appendix A). Investment requirements and project timing are determined through annual engineering reviews, periodic plant condition assessments, and the reliability performance of the generating stations. The hydroelectric project portfolio is approved through OPG’s business planning process.

Over the six year period 2010 - 2015, Project OM&A for the newly regulated facilities ranges from $16.0M in 2013 to $39.8M in 2010, with an average of $25.7M (Ex. F1-3-1, Table 1). The 2013 Project OM&A budget does include several unit overhaul projects for newly regulated hydroelectric stations - at Des Joachims, Pine Portage, Chats Falls, Ragged Rapids, Indian Chute, Sidney, and others. The increased expenditures in the test period for the newly regulated stations ($24.5M in 2014, and $32.1M in 2015) are related to the start of major work on overhauls at Lower Notch GS in 2014 in the Northeast Plant Group, and at Otto Holden GS in 2015 in the Ottawa-St. Lawrence Plant Group (Sir Adam Beck PGS is in the previously regulated segment). Other projects also contribute to increased planned expenditures in the test period (Ex. F1-3-2, Section 3).
Board Staff Interrogatory #071

Ref: Exh F1-5-1, Decision of the Court of Appeal for Ontario Docket C55602, C55641, C55633

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

This exhibit provides a listing of purchased services – regulated hydroelectric OM&A contracts for 16 vendors.

Please identify every expense that was committed to prior to the test period. Please also provide all of the information that OPG relied on when OPG committed to each of those expenses including the cost that has been committed for each of those expenses in the test years and the associated total cost for each expense. Please provide that information broken down by year, including before and after the test period, where applicable.

Response

For vendors in excess of the $1.0M threshold described in Ex. F1-5-1, the total OM&A purchased service expenditures for 2013 is shown below in Chart 1, along with the currently committed costs for 2014 in Chart 2, and 2015 in Chart 3. The related annual spending commitments for each vendor and the year(s) the commitments were made are also listed. In total for the regulated hydroelectric stations, OPG spent $19.1M in 2013 with these vendors, and is currently committed to spend $7.0M in 2014, and $1.8M in 2015.

As described in Ex. F3-3-1, purchased services are approved as per OPG’s Organizational Authority Register. For Project OM&A, procurement contracts can only be executed after a Business Case Summary (“BCS”) for the project is approved. As per the Filing Guidelines, section 2.5, OPG has filed the BCSs for projects greater than $20M. In Ex. F1-3-3, Attachment 1, the BCS for the Chats Falls GS – Main Dam Concrete Rehabilitation (CHAF0035) forms the justification for the GDB Constructeurs contract in 2012 and 2013, and the BCS for Sir Adam Beck PGS - Unit PG3 Overhaul (SABP0053) forms the justification for the Alstom contact in 2014.
### Chart 1

<table>
<thead>
<tr>
<th>Vendor Name</th>
<th>Description/Nature of Activities</th>
<th>Tendering Process</th>
<th>Rationale if Single Source</th>
<th>Total Spend 2013 ($M)</th>
<th>Year Spending Committed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles Jones Industrial Limited</td>
<td>Commodity contractor for the supply of tools and shop equipment.</td>
<td>✓</td>
<td></td>
<td>$ 1.2 M</td>
<td>2011-2013</td>
</tr>
<tr>
<td>E.S. Fox</td>
<td>Wide range of construction activities including mechanical/electric equipment repairs.</td>
<td>✓</td>
<td></td>
<td>$ 1.1 M</td>
<td>2012-2013</td>
</tr>
<tr>
<td>Newman Brothers LTD</td>
<td>Wide range of construction activities at Niagara plant group, including, Sir Adam Beck GS 2 Headworks and Tailrace Deck rehabilitation and construction of Stanley distribution building,</td>
<td>✓</td>
<td></td>
<td>$ 1.1 M</td>
<td>2012-2013</td>
</tr>
<tr>
<td>M Sullivan and Sons Limited</td>
<td>Provide a wide range of construction services including major equipment overhauls, concrete repair and powerhouse repair.</td>
<td>✓</td>
<td></td>
<td>$ 1.7 M</td>
<td>2012-2013</td>
</tr>
<tr>
<td>Flynn Canada LTD</td>
<td>Construction work for the removal and replacement of the Sir Adam Beck GS 1 roof.</td>
<td>✓</td>
<td></td>
<td>$ 1.5 M</td>
<td>2012</td>
</tr>
<tr>
<td>Rankin Construction INC.</td>
<td>Engineering, procurement and construction engagement for the Niagara region water works canal.</td>
<td>✓</td>
<td></td>
<td>$ 2.7 M</td>
<td>2012</td>
</tr>
<tr>
<td>The Barclay Construction Group Inc</td>
<td>A variety of construction work including tailrace rehabilitation, cofferdams, concrete and grouting work.</td>
<td>$1.2 M</td>
<td>2011-2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDB Constructeurs 1468792 Ontario Inc</td>
<td>Engineering, procurement and construction engagement for Chat Falls G.S. concrete rehabilitation.</td>
<td>$8.6 M</td>
<td>2012</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total 2013 Spend ($M) = 19.1
<table>
<thead>
<tr>
<th>Vendor Name</th>
<th>Description/Nature of Activities</th>
<th>Tendering Process</th>
<th>Rationale if Single Source</th>
<th>Total Spend 2014 ($M)</th>
<th>Year Spending Committed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles Jones Industrial Limited</td>
<td>Commodity contractor for the supply of tools and shop equipment.</td>
<td>✔</td>
<td></td>
<td>$0.002 M</td>
<td>2013</td>
</tr>
<tr>
<td>E.S. Fox</td>
<td>Wide range of construction activities including mechanical/electric equipment repairs.</td>
<td>✔</td>
<td></td>
<td>$0.04 M</td>
<td>2012</td>
</tr>
<tr>
<td>M Sullivan and Sons Limited</td>
<td>Provide a wide range of construction services including major equipment overhauls, concrete repair and powerhouse repair.</td>
<td>✔</td>
<td></td>
<td>$0.725 M</td>
<td>2013</td>
</tr>
<tr>
<td>Voith Hydro Inc.</td>
<td>Engineering and engineered equipment supplier</td>
<td>✔</td>
<td></td>
<td>$2.2 M</td>
<td>2010-2013</td>
</tr>
<tr>
<td>Rexel Canada Electrical Inc</td>
<td>Commodity contractor for the supply of tools and shop equipment.</td>
<td>✔</td>
<td></td>
<td>$0.48 M</td>
<td>2013</td>
</tr>
<tr>
<td>Alstom Power &amp; Transport Canada Inc</td>
<td>Engineering and engineered equipment supplier</td>
<td>✔</td>
<td>Alstom holds proprietary rights to the original designs for the Dariaz turbines at PGS, and performed a similar overhaul of Unit PG6 in 2008.</td>
<td>$3.5 M</td>
<td>2013</td>
</tr>
</tbody>
</table>

4  Total 2014 Committed Spend ($M) = 7.0
### Chart 3

#### 2015 Committed Purchase of Services – Regulated Hydroelectric OM&A Contracts

<table>
<thead>
<tr>
<th>Vendor Name</th>
<th>Description/Nature of Activities</th>
<th>Tendering Process</th>
<th>Rationale if Single Source</th>
<th>Total Spend 2015 ($M)</th>
<th>Year Spending Committed</th>
</tr>
</thead>
<tbody>
<tr>
<td>M Sullivan and Sons Limited</td>
<td>Provide a wide range of construction services including major equipment overhauls, concrete repair and powerhouse repair.</td>
<td>✔</td>
<td></td>
<td>$1.8 M</td>
<td>2012-2013</td>
</tr>
</tbody>
</table>

4 Total 2015 Committed Spend ($M) = 1.8
Board Staff Interrogatory #72


Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

The Auditor General’s Report includes a number of findings associated with staff training. With respect to Hydro/Thermal Training, the findings included that there is no regulatory oversight (unlike nuclear) and that hydro/thermal training has never been evaluated by OPG or third parties. Further, 30% of the courses OPG requires had not been completed in 2012. The findings noted that last-minute cancellations of scheduled courses have been an issue in every year going back to prior to 2010 when OPG’s Hydro/Thermal Training Decision Making Committee raised concerns and, recommended that plant managers should try to reduce them to optimize the use of training resources.

OPG’s response in the Auditor General’s Report stated that OPG will continue with its review of the nature, timing and delivery methods of mandatory training requirements for hydro/thermal staff. In OPG’s Backgrounder that identifies actions OPG is taking to address the findings, there is no mention of any actions related to training.

a) When does OPG intend to complete a review of the Hydro/Thermal training program, given the Committee noted above began raising concerns in 2010?

b) Please provide further discussion on any actions that OPG is taking, or is planning to take, to improve cost effectiveness and success rates of its hydro/thermal training programs.

Response

a) The formal review of OPG’s training organization was completed through OPG’s Business Transformation (“BT”) initiative in early 2012.

b) As a result of OPG’s BT initiative, OPG undertook the following to steps improve the cost effectiveness and success rates of its hydro/thermal training program:

i. OPG established a single, centre-led training organization for hydro/thermal, nuclear and leadership training in People & Culture (Ex. A4-1-1, pg 7).

ii. Consolidated numerous training data systems into a single Training Information Management Systems (“TIMS”).

Witness Panel: Hydro / Energy Markets
iii. Adopted non-classroom based training technologies (e.g., computer assisted training) to reduce Hydro Thermal Operations (“HTO”) staff travel for training purposes.

iv. Ensured a consistent approach to training across HTO that focuses on “core” training and clearly identifies “discretionary” training.

v. Where it is safe to do so, eliminate or reduce the frequency of requalification training.

vi. Provide credit for prior training completed by incoming staff and contractors.

In response to the Auditor General’s Report, the Senior Vice President, Hydro Thermal Operations has mandated the number of cancellations is not to exceed 3% for all staff scheduled to attend formal training programs.
**AMPCO Interrogatory #034**

**Ref:** Exhibit F1, Tab 4, Schedule 1 Gross Revenue Charge and Other Water Agreement Costs

**Issue Number:** 6.1

**Issue:** Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

**Interrogatory**

Preamble: Ontario Regulation 124/02 allows deductions to GRC for eligible capacity of new, redeveloped or upgraded stations. OPG is preparing an application to the Ministry of Natural Resources (MNR) for a GRC deduction pertaining to production increases at the Sir Adam Beck plants as a result of the new Niagara Tunnel. Until approval is received, GRC is at the full rate and no deduction has been included in the calculation of GRC costs.

a) Please provide an update on the status of the application and provide the GRC deduction amount that OPG has applied for.

b) Please explain why timing of the approval is so uncertain.

c) Please explain why the application was not submitted earlier to MNR to allow for the GRC deduction to be applied during the test period.

**Response**

a) MNR is unable to provide an update on when the application will be reviewed. Just over 11 per cent of annual production would be eligible for GRC deduction, if approved.

b) OPG cannot comment on processes internal to MNR.

c) Vital information supporting the application was not available until 2013. Results of the analysis undertaken to confirm the projection of average annual incremental production attributable to the third tunnel were approved in March 2013. Flow capacity tests were undertaken in July 2013 to confirm the Guaranteed Flow Amount.
AMPCO Interrogatory #035

Ref: Exhibit F1, Tab 5, Schedule 1, Chart 1

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

a) Please provide the Total 2013 spend.
b) Please confirm the purchased services that only have spending in the test years.

Response

a) The total OM&A purchased service expenditures in 2013 for vendors in excess of the $1.0M threshold as described in Ex. F1-5-1 is $19.1M.

b) Ex. F1-5-1 presents historical OM&A purchased service information for each major supplier as required by the Filing Guidelines, section 2.7.1. This level of detail is not available for the test period as not all planned purchased service expenditures have been contracted for. However, planned purchased service expenditures in Base OM&A in the test period are shown in Ex.F1-2-1, Tables 2 and 3, column (c). In addition, the planned Project OM&A expenditures presented in Ex. F1-3-1 include major maintenance work, some of which will be executed using external purchased services, but the values of which are yet to be estimated.

Additional detail for 2013 and the test period for major purchased services is provided in Ex. L-6.1-1 Staff-071.
CCC Interrogatory #016

Ref: Ex. A1/T3/S1/p. 6

Issue Number: 6.1  
Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

Please define what OPG considers to be “controllable costs” and what OPG considers to be “non-controllable costs”. Please set out all of the ways in which OPG seeks, on an ongoing basis to minimize its controllable costs.

Response

OPG regards all costs as controllable except those that are externally imposed (e.g., Gross Revenue Charge for hydroelectric generation) and those that have been previously committed (e.g., labour costs established by collective agreements). OPG's efforts to control its costs are discussed throughout the Application. Some prominent examples include its Business Transformation (“BT”) Initiative (Ex. A4-1-1) and the nuclear initiatives which together with BT have allowed OPG to limit the growth of nuclear base OM&A to 1% in 2014 and 0.2% in 2015 (Ex. F2-2-1).
CCC Interrogatory #017

Ref: Ex. F1/T1/S1/Table 1

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

Please complete Table I by providing forecast costs for 2010, 2011, 2012 and 2013.

Response

See revised F1-1-1 Table 1 below.
**CCC Interrogatory #018**

**Ref:** Ex. F1/T1/S1/Table 2

**Issue Number:** 6.1

**Issue:** Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

**Interrogatory**

Please complete Table 2 by providing forecast costs for 2010, 2011, 2012 and 2013.

**Response**

See revised F1-1-1 Table 2 below.

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<tbody>
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<td>1</td>
<td>Base O&amp;M&amp;A</td>
<td>93.7</td>
<td>100.0</td>
<td>103.7</td>
<td>100.9</td>
<td>108.8</td>
<td>102.9</td>
<td>113.2</td>
<td>113.4</td>
<td>113.7</td>
</tr>
<tr>
<td>2</td>
<td>Project O&amp;M&amp;A</td>
<td>37.1</td>
<td>39.8</td>
<td>27.3</td>
<td>21.8</td>
<td>20.6</td>
<td>26.3</td>
<td>16.0</td>
<td>24.5</td>
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<td>3</td>
<td>Allocation of Corporate Costs</td>
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<td>31.4</td>
<td>N/A</td>
<td>32.3</td>
<td>N/A</td>
<td>36.6</td>
<td>38.6</td>
<td>42.1</td>
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<td>33.1</td>
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<td>5</td>
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<td>N/A</td>
<td>3.4</td>
<td>N/A</td>
<td>3.3</td>
<td>3.1</td>
<td>2.0</td>
<td>3.0</td>
</tr>
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<td>6</td>
<td>Total O&amp;M&amp;A</td>
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<td>193.8</td>
<td>N/A</td>
<td>108.4</td>
<td>N/A</td>
<td>196.2</td>
<td>218.2</td>
<td>232.5</td>
<td>237.2</td>
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<td>7</td>
<td>Gross Revenue Charge</td>
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<td>54.9</td>
<td>74.9</td>
<td>67.7</td>
<td>74.9</td>
<td>65.6</td>
<td>75.6</td>
<td>75.6</td>
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<td>Other Operating Cost Items:</td>
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<td></td>
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<tr>
<td>9</td>
<td>Depreciation and Amortization</td>
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<td>58.3</td>
<td>N/A</td>
<td>58.9</td>
<td>N/A</td>
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<td>61.4</td>
<td>62.2</td>
<td>63.1</td>
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<td>10</td>
<td>Income Tax</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
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<td>Capital Tax</td>
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<td>N/A</td>
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<tr>
<td>12</td>
<td>Total Operating Costs</td>
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<td>307.2</td>
<td>N/A</td>
<td>314.3</td>
<td>N/A</td>
<td>320.6</td>
<td>355.5</td>
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<td>421.2</td>
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</table>
CCC Interrogatory #019

Ref: Ex. F1/T3/S1/Table 1

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

Please complete Table 1 by providing forecast costs for 2010, 2011, 2012 and 2013.

Response

Forecast costs for regulated hydroelectric Project OM&A are discussed in Ex F1-3-2, and the related data is shown on Ex. F1-3-2, Tables 1 and 2.
LPMA Interrogatory #007

Ref: Exhibit F1, Tab 1, Schedule 1

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

a) Please update Chart 2c to reflect actual data for 2013.

b) Please updates Tables 1 and 2 to reflect actual data for 2013.

Response

a) See response to Ex. L-6.2-2 AMPCO-036, part a.

b) See response to Ex. L-1.0-1 Staff-002.
LPMA Interrogatory #008

Ref: Exhibit F1, Tab 2, Schedule 1

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

Please update Table 4 to reflect actual FTE's for 2013.

Response

A revised Ex. F1-2-1, Table 4 is attached.
<table>
<thead>
<tr>
<th></th>
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<tr>
<td></td>
<td><strong>Niagara Plant Group and Saunders GS:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Niagara Plant Group Staff FTEs</td>
<td>254.1</td>
<td>238.7</td>
<td>254.2</td>
<td>238.1</td>
<td>251.4</td>
<td>233.1</td>
<td>232.8</td>
<td>216.9</td>
<td>230.8</td>
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<td>2</td>
<td>Saunders GS Staff FTEs</td>
<td>68.8</td>
<td>67.8</td>
<td>68.8</td>
<td>64.6</td>
<td>68.8</td>
<td>67.0</td>
<td>68.8</td>
<td>65.0</td>
<td>68.8</td>
<td>68.8</td>
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<tr>
<td>3</td>
<td>Total Direct FTEs - Niagara Plant Group and Saunders GS</td>
<td>322.9</td>
<td>306.5</td>
<td>323.0</td>
<td>302.7</td>
<td>320.2</td>
<td>300.1</td>
<td>301.6</td>
<td>281.9</td>
<td>299.6</td>
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<td>4</td>
<td>Allocated Central Office Staff FTEs</td>
<td>N/A</td>
<td>53.2</td>
<td>N/A</td>
<td>66.8</td>
<td>N/A</td>
<td>43.7</td>
<td>45.2</td>
<td>39.6</td>
<td>43.5</td>
<td>41.3</td>
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<td>5</td>
<td>Total Staff FTEs - Niagara Plant Group and Saunders GS</td>
<td>N/A</td>
<td>359.7</td>
<td>N/A</td>
<td>369.4</td>
<td>N/A</td>
<td>343.8</td>
<td>346.8</td>
<td>321.5</td>
<td>343.1</td>
<td>340.9</td>
</tr>
<tr>
<td></td>
<td><strong>Newly Regulated Hydroelectric:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>Ottawa-St.Lawrence Plant Group Staff FTEs</td>
<td>N/A</td>
<td>178.2</td>
<td>N/A</td>
<td>178.8</td>
<td>N/A</td>
<td>178.8</td>
<td>168.6</td>
<td>170.2</td>
<td>168.6</td>
<td>162.6</td>
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<td>7</td>
<td>Central Hydro Plant Group Staff FTEs</td>
<td>N/A</td>
<td>103.0</td>
<td>N/A</td>
<td>111.6</td>
<td>N/A</td>
<td>103.0</td>
<td>104.8</td>
<td>102.6</td>
<td>101.7</td>
<td>101.6</td>
</tr>
<tr>
<td>8</td>
<td>Northeast Plant Group Staff FTEs</td>
<td>N/A</td>
<td>105.2</td>
<td>N/A</td>
<td>112.0</td>
<td>N/A</td>
<td>112.6</td>
<td>116.3</td>
<td>109.9</td>
<td>117.3</td>
<td>108.2</td>
</tr>
<tr>
<td>9</td>
<td>Northwest Plant Group Staff FTEs</td>
<td>N/A</td>
<td>117.3</td>
<td>N/A</td>
<td>125.4</td>
<td>N/A</td>
<td>127.2</td>
<td>128.5</td>
<td>119.2</td>
<td>132.3</td>
<td>129.8</td>
</tr>
<tr>
<td>10</td>
<td>Total Direct FTEs - Newly Regulated Hydroelectric</td>
<td>N/A</td>
<td>503.7</td>
<td>N/A</td>
<td>527.8</td>
<td>N/A</td>
<td>521.6</td>
<td>518.3</td>
<td>501.9</td>
<td>520.0</td>
<td>502.2</td>
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<tr>
<td>11</td>
<td>Allocated Central Office Staff FTEs</td>
<td>N/A</td>
<td>80.6</td>
<td>N/A</td>
<td>89.6</td>
<td>N/A</td>
<td>79.4</td>
<td>78.5</td>
<td>82.1</td>
<td>79.6</td>
<td>80.0</td>
</tr>
<tr>
<td>12</td>
<td>Total Staff FTEs - Newly Regulated Hydroelectric</td>
<td>N/A</td>
<td>584.3</td>
<td>N/A</td>
<td>617.4</td>
<td>N/A</td>
<td>600.9</td>
<td>596.8</td>
<td>584.0</td>
<td>599.5</td>
<td>582.2</td>
</tr>
<tr>
<td>13</td>
<td>Total Staff FTEs (line 5 + line 12)</td>
<td>N/A</td>
<td>944.0</td>
<td>N/A</td>
<td>986.8</td>
<td>N/A</td>
<td>944.7</td>
<td>943.6</td>
<td>905.5</td>
<td>942.6</td>
<td>923.0</td>
</tr>
</tbody>
</table>

Notes:
1. Staff FTEs include staff deployed on Base OM&A, Project OM&A and capital projects. Staff FTEs include regular and non-regular staff.
2. The Central Office Allocated Staff FTEs 2012 Actual have been corrected from those reported to the OEB in April 2013 with a net increase of 10 FTEs for Engineering staff.
3. FTEs have been allocated using the same percentages as Base OM&A costs. Allocated FTEs were not computed for budget purposes prior to 2012-2014 business planning.
4. Ottawa-St. Lawrence Plant Group values are for the balance of the Plant Group, i.e. Saunders GS FTEs are excluded.
LPMA Interrogatory #009

Ref: Exhibit F1, Tab 2, Schedule 1

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

a) Please provide the average annual percentage increase in the labour cost (including overtime) per FTE associated with the Base OM&A in each of 2010 through 2015, including 2013 actuals.

b) Please provide the associated dollar impact on the Base OM&A associated with the percentage per FTE requested in part (a) above for each of 2010 through 2015.

c) Please provide a table that shows for each of 2010 through 2015 (including actual 2013) the total labour related costs (shown in Table 1), the total staff FTE's (shown in Table 4) and the resulting labour cost per FTE. Please confirm that the total labour related costs shown in Table 1 include overtime.

Response

a) As required by the Filing Guidelines section 2.7.1, labour costs and FTEs for the regulated hydroelectric facilities have been provided in “Appendix 2K”, which is included in the application as Ex. F4-3-1, Attachment 6. “Appendix 2K” shows the total labour costs, including Base OM&A, Capital and OM&A Project work, and allocated central support costs, that correspond to the FTE’s shown in Ex. F1-2-1 Table 4. The direct Plant Group Base OM&A labour costs shown in Ex. F1-2-1 Table 1 are approximately 75% of the total regulated hydroelectric labour costs shown in “Appendix 2K”. Given the foregoing, the percentages and cost impacts summarized in Table 1 below are based on data presented in “Appendix 2K”. Actual 2013 data for “Appendix 2K” is not available.

Further information regarding labour costs is available in Ex. F4-3-1, Compensation and Benefits.

b) See Table 1 below.

c) Labour costs shown in Ex. F1-2-1 Table 1 include overtime. See response to part a) and Table 1 below.
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>(d)</td>
<td>(e)</td>
<td>(f)</td>
</tr>
<tr>
<td>1</td>
<td>Previously Regulated Hydroelectric (Appendix 2K, line 13)</td>
<td>359.7</td>
<td>369.4</td>
<td>343.8</td>
<td>346.8</td>
<td>343.1</td>
<td>340.9</td>
</tr>
<tr>
<td>2</td>
<td>Newly Regulated Hydroelectric (Appendix 2K, line 19)</td>
<td>584.3</td>
<td>617.4</td>
<td>600.9</td>
<td>596.8</td>
<td>599.5</td>
<td>582.2</td>
</tr>
<tr>
<td>3</td>
<td>Total</td>
<td>944.0</td>
<td>986.8</td>
<td>944.7</td>
<td>943.6</td>
<td>942.6</td>
<td>923.1</td>
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<td>4</td>
<td>Total of Base Salary &amp; Wages, Overtime, Incentive Pay, Fiscal Year Adjustment, and Total Benefits (M$)</td>
<td>50.4</td>
<td>54.5</td>
<td>51.8</td>
<td>57.1</td>
<td>58.4</td>
<td>59.0</td>
</tr>
<tr>
<td>5</td>
<td>Newly Regulated Hydroelectric (Appendix 2K, line 137)</td>
<td>79.2</td>
<td>87.9</td>
<td>91.5</td>
<td>102.1</td>
<td>105.8</td>
<td>104.1</td>
</tr>
<tr>
<td>6</td>
<td>Total</td>
<td>129.6</td>
<td>142.4</td>
<td>143.3</td>
<td>159.2</td>
<td>164.2</td>
<td>163.1</td>
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<tr>
<td>7</td>
<td>Labour Costs per FTE (k$)</td>
<td>140.1</td>
<td>147.5</td>
<td>150.7</td>
<td>164.6</td>
<td>170.2</td>
<td>173.1</td>
</tr>
<tr>
<td>8</td>
<td>Previously Regulated Hydroelectric (line 4 / line 1 * 1000)</td>
<td>135.5</td>
<td>142.4</td>
<td>152.3</td>
<td>171.1</td>
<td>176.5</td>
<td>178.6</td>
</tr>
<tr>
<td>9</td>
<td>Weighted Average (line 6 / line 3 * 1000)</td>
<td>137.3</td>
<td>144.3</td>
<td>151.7</td>
<td>168.7</td>
<td>174.2</td>
<td>176.7</td>
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<tr>
<td>10</td>
<td>Annual Increase in Labour Costs per FTE (%)</td>
<td>5.3%</td>
<td>2.1%</td>
<td>9.3%</td>
<td>3.4%</td>
<td>3.4%</td>
<td>1.7%</td>
</tr>
<tr>
<td>11</td>
<td>Previously Regulated Hydroelectric (year over year)</td>
<td>5.0%</td>
<td>7.0%</td>
<td>12.4%</td>
<td>3.2%</td>
<td>3.2%</td>
<td>1.3%</td>
</tr>
<tr>
<td>12</td>
<td>Weighted Average (year over year)</td>
<td>5.1%</td>
<td>5.1%</td>
<td>11.2%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>1.4%</td>
</tr>
<tr>
<td>13</td>
<td>Estimated Cost Impact of Labour Costs per FTE (M$)</td>
<td>2.7</td>
<td>1.1</td>
<td>4.8</td>
<td>1.9</td>
<td>1.9</td>
<td>1.0</td>
</tr>
<tr>
<td>14</td>
<td>Previously Regulated Hydroelectric (change in line 7 * line 1 /1000)</td>
<td>4.2</td>
<td>5.9</td>
<td>11.2</td>
<td>3.2</td>
<td>3.2</td>
<td>1.4</td>
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<tr>
<td>15</td>
<td>Total (change in line 9 * line 3 / 1000)</td>
<td>6.9</td>
<td>7.0</td>
<td>16.1</td>
<td>5.2</td>
<td>5.2</td>
<td>2.3</td>
</tr>
</tbody>
</table>
LPMA Interrogatory #010

Ref: Exhibit F1, Tab 3, Schedule 1

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

a) Please provide the average annual percentage increase in the labour cost (including overtime) per FTE associated with the Project OM&A costs in each of 2010 through 2015, including 2013 actuals.

b) Please provide the associated dollar impact on the Project OM&A associated with the percentage per FTE requested in part (a) above for each of 2010 through 2015.

c) Please add a line to Table 1 that shows the total OM&A labour (including overtime) for Project Work broken out as a separate line item, similar to what has been done for Table 1 in Exhibit F1, Tab 2, Schedule 1.

d) Please provide a table that shows for each of 2010 through 2015 (including actual 2013) the total labour related costs (requested in part (c) above), the total staff FTE's associated with Project OM&A and the resulting labour cost per FTE.

Response

The total Labour costs per FTE for Project OM&A are not available. Project OM&A activities are executed using a combination of OPG regular staff, OPG-hired temporary staff, and external staff hired by contractors. Labour costs related to contracted services are included in the totals for OM&A Purchased Services (see Ex. F1-5-1). However, since vendors are normally not required to disclose their labour costs in fixed price contracts, this information is not available to OPG. OPG’s internal Project OM&A labour costs per FTEs are essentially the same as for Base OM&A since they are determined by collective agreements and standard OPG labour costing methodologies. See response to Ex. L-06.1-13 LPMA-009.
LPMA Interrogatory #011

Ref: Exhibit F1, Tab 4, Schedule 1

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

a) Has OPG proposed a variance account related to the potential deduction allowed under Ontario Regulation 124/02 for eligible capacity of new, redeveloped, or upgraded stations if a decision from the Ministry of Natural Resources is received before the end of the test periods? If not, why not?

b) Has OPG estimated the potential deduction that might be available for the test periods? If so, please provide the amounts.

c) Would it be possible that a decision from the Ministry of Natural Resources, even if not received before the end of the test periods, could be applied retroactively to when OPG files the application?

d) What is the status of the OPG application to the Ministry of Natural Resources for the GRC deduction pertaining to production increases at the Sir Adam Beck plants as a result of the new Niagara tunnel that commenced operation in March 2013?

Response

a) No, OPG has not proposed a variance account related to the potential deduction allowed under Ontario Regulation 124/02 for eligible capacity of new, redeveloped, or upgraded stations. s per Ex F1-T4-S1, page 3, lines 22-23, it is unlikely a decision will be received from the Ministry before the end of the test period. Accordingly, OPG’s forecast GRC costs are appropriate.

b) If approved by the MNR, just over 11 per cent of annual production would be eligible for a GRC deduction. Based on the original production forecast used for the forecast GRC costs in Ex. F1-4-1, the estimated potential GRC deductions for the test periods are $19M for 2014 and $20.3M for 2015.

c) Yes.

d) MNR is unable to provide an update on when the application will be reviewed.
Ref:

(a): Exh F1-2-1. Base OM&A — Regulated Hydroelectric

(b): Exh F1-2-1. Tables: Table 2, Base OM&A by Major Components - Previously Regulated Hydroelectric ($M) and Table 3, Base OM&A by Major Components - Newly Regulated Hydroelectric($M)

(c): Exh F1-3-1. Tables: Table 1. Project OM&A - Previously Regulated Hydroelectric and Newly Regulated Hydroelectric ($M),

(d): Exh N1-1-1, Page 2, Line 12-15 and Page3 , Chart 1:

The main remaining changes from the 2014-2016 BusinessPlan, which net to an approximate $33.0M (including $26M in OM&A indicated in Chart 1 on page 3) increase in revenue requirement over 2014-2015, are identified below. However, OPG is not seeking to recover these amounts in the revised payment amounts and riders...

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

a) Tables 2 and 3 in Ref (b) provide Base OM&A cost for previously and newly regulated hydroelectric facilities by major components including External Purchased Services. Please describe major services included in the Base OM&A cost for the External Purchased Services component.

b) Please provide a break out for the total costs for External Purchased Services provided in Table 2 and Table 3 of Ref (b) by major services identified in a) for the test year period. Please provide a separate break out for previously regulated facilities and newly regulated facilities.

c) What is the share of the labour component for External Purchased Services expense for previously regulated and newly regulated hydroelectric facilities, provided in Table 2 and 3 of Ref (b) for the test year period?

d) Please provide the share of labour purchased service of the total Project OM&A expense previously and newly regulated hydroelectric facilities provided in Table 1 of Ref (c) for the test year period.

e) What are the 2014-2016 Business Plan changes, if any, impacting Base OM&A expense for previously and newly regulated hydroelectric facilities included in Table2 and Table 3 of Ref (b)
and Project OM&A expense included in Table 1 of Ref (c)? If there are any, are those changes reflected in the $26 million OM&A cost change identified in Ref (d) of which OPG is not seeking to recover in the revised payment amounts and riders?

Response

a) External purchased services included in Base OM&A (see Ex. F1-2-1, Tables 2 and 3) generally include many minor items related to regulatory activities or specialized skills and equipment, such as: consulting engineering, dam safety, managed systems (e.g., health and safety, environmental), maintenance of specialized equipment, other specialty services (e.g., sampling, core testing, etc.), and some site services (e.g., cleaning, snow removal, etc.).

b) The requested information regarding details for Base OM&A external purchased services is not readily available. Trending of total OM&A purchased services is described in AMPCO Interrogatory #58 (Ex. L-6.8-2 AMPCO-058) part h. As per the Filing Guidelines, section 2.7.1, OPG reports information for total OM&A purchased services based on a vendor threshold of $1.0M in Ex. F1-5-1. Additional detail for the bridge and test years for major purchased services has been provided in Board Staff Interrogatory #71 (Ex. L-6.1-1 Staff-071). The actual spending for 2013 and the currently committed amount for 2014 and 2015 are summarized by major service category in Table 1 below.

<table>
<thead>
<tr>
<th>Category</th>
<th>2013 Actual</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>16.4</td>
<td>0.7</td>
<td>1.8</td>
</tr>
<tr>
<td>Equipment</td>
<td>1.5</td>
<td>5.7</td>
<td>0</td>
</tr>
<tr>
<td>Tools</td>
<td>1.2</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>19.1</strong></td>
<td><strong>7.0</strong></td>
<td><strong>1.8</strong></td>
</tr>
</tbody>
</table>

Note: 2010-2012 OM&A Purchased Services by Major Service are shown in PWU Interrogatory # 14.

c) Since external vendors are normally not required to disclose their labour costs in fixed price contracts, this information is not available to OPG.

d) See response to part c.

PWU Interrogatory #014

Ref:
(a): Exht F1-5-1, OM&A Purchased Services — Regulated Hydroelectric, page3.

Issue Number: 6.1
Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

a) The reference indicates that total expenses for OM&A Purchased Services for Regulated hydroelectric facilities are $31.9M, $20.9M and $21.6M for 2010, 2011, 2012, respectively. Please provide a breakout of the 2010, 2011 and 2012 OM&A Purchased Service expenses for regulated hydroelectric facilities by major service category (e.g. construction, engineering, materials, tools, equipment, technical support, etc).

Response

The requested detail by major service category for OM&A purchased services is shown in Table 1 below.

Table 1
OM&A Purchased Services in Ex. F1-5-1 by Major Service ($M)

<table>
<thead>
<tr>
<th>Category</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>25.5</td>
<td>16.4</td>
<td>14.2</td>
</tr>
<tr>
<td>Engineering</td>
<td>1.1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Equipment</td>
<td>3.3</td>
<td>1.9</td>
<td>6.2</td>
</tr>
<tr>
<td>Tools</td>
<td>0</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Total</td>
<td>29.9</td>
<td>19.5</td>
<td>21.6</td>
</tr>
</tbody>
</table>

Note: Totals for 2010 and 2011 are corrected from those shown in Ex. F1-5-1, Table 1. NYPA Joint Works expenditures were inadvertently included in the previous totals.
SEC Interrogatory #082

Ref: [F1/1/1/p.5-10]

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

Please provide revised Charts 1a, 1b, 2c and 2d to include 2013 targets and actuals.

Response

See response to Ex. L-6.2-2 AMPCO-036 part a.
SEC Interrogatory #083

Ref: F1/2/1/p.4, F1/2/2/p.3

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

Please provide a breakdown of OM&A costs for each year between 2012-2015 for the Niagara Bridge Divestiture Program.

Response

The Niagara Bridge Divestiture Program is included in the Base OM&A cost for the Niagara Plant Group in 2013 ($3.1M) and 2014 ($5.8M). No costs are included for 2012 or 2015.
Ref: Exh F-1-1-1

Issue Number: 6.1

Issue: Is the test period Operations, Maintenance and Administration budget for the regulated hydroelectric facilities appropriate?

Interrogatory

The application, in Attachment 1 at page 11, provides a graphic figure. Please confirm that the Capital Expenditures in the chart are in as-spent or nominal dollars. If so please provide a chart with the Capital Expenditures shown in real dollars, preferably $2013 or $2012.

Response

The Historical Hydro Capital Expenditure graph on page 11 of Ex. F1-1-1, Attachment 1 is presented in nominal dollars. As requested, the graph has been revised below in constant 2013 dollars by adjusting the nominal dollar amount by the Consumer Price Index.
Hydro Capital Expenditures vs EFOR (1991 - 2024)
(adjusted using CPI to 2013 constant dollars)
Board Staff Interrogatory #073

Ref: Exh F1-1-1, page 9

Issue Number: 6.2

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the regulated hydroelectric facilities reasonable?

Interrogatory

Chart 2c in the application identifies the OM&A unit energy cost (“UEC”) targets for 2010 – 2015 for the regulated hydroelectric stations. Please explain why the UEC for the Central Hydro stations is about 5 fold higher than the other newly regulated stations.

Response

The relative OM&A unit energy costs between plant groups reflect their economies of scale, and the age and condition of their generating stations. The OM&A unit energy costs for Central Hydro are higher mainly due to the smaller size (i.e., lack of economies of scale) of the Central Hydro stations.

The Central Hydro Plant Group includes 25 small, newly regulated generating stations, ranging in capacity from 1 MW to 10 MW, with a total capacity of only 107 MW and an average age over 90 years. In contrast, the other hydro plant groups are dominated by medium and large sized hydroelectric stations, with an average age of approximately 70 years (see Ex. A1-4-2, Charts 1 and 2). Plant age and condition has impacts on both Base OM&A and Project OM&A costs.

The costs for Central Hydro Plant Group represent the required resources to safely operate and maintain these stations in compliance with environmental and other regulatory requirements. The Central Hydro OM&A costs are comparable to the other plant groups (see Ex. F1-2-1, Table 1, and Ex. F1-3-1, Table 1). However, the annual energy production for Central Hydro is only 0.5 TWh (see Ex. E1-1-1, Table 1).
Board Staff Interrogatory #074

Ref: Exh F1-1-1, Chart 1b and Chart 2b

Issue Number: 6.2

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the regulated hydroelectric facilities reasonable?

Interrogatory

Chart 1b summarizes the target and actual Equivalent Forced Outage Rate (“EFOR”) for the hydroelectric plants for the period 2010-2012. Chart 2b summarizes targets for 2013-2015.

a) What are the actual EFOR for 2013?

b) Why are the 2013-2015 EFOR targets for SAB 1, SAB PGS, RH Saunders and Northeast PG higher than the 2012 targets?

Response

a) Exhibit F1-1-1, Chart 2b below has been revised to include 2013 Actual EFOR results. The EFOR results for 2013 were at or below target, except for the Northwest and Central Hydro Plant Groups. In the Northwest Plant Group, Aguasabon GS Unit G2 experienced a 31 week outage due a turbine runner failure. In the Central Hydro Plant Group, extended unit outages were experienced at the Crystal Falls, McVittie, and Lakefield Generating Stations.
b) Equivalent Forced Outage Rate ("EFOR") targets are set as a part of the annual business planning process based on an analysis of historical performance. The targets may include expected improvements from investments or recent past performance issues and trends in the generating stations. A recent analysis of developments at the Sir Adam Beck I, PGS, and Saunders Generating Stations, and the Northeast Plant Group indicates that there has been some deterioration in equipment condition, resulting in an upward adjustment to the EFOR targets.
Board Staff Interrogatory #075

Ref: Exh F1-1-1, page 18

Issue Number: 6.2

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the regulated hydroelectric facilities reasonable?

Interrogatory

The results of the Navigant Consulting OM&A unit energy cost benchmarking study are provided in Chart 4. The application explains why the SAB PGS unit energy costs are much higher than OPG’s other hydroelectric stations. However, the chart shows that the SAB PGS is in the 4th quartile for each year and it is benchmarked relative to other PGS facilities. The unit energy cost also increased from $65.2/MWh to $128.2/MWh over the 3 year period.

a) Please explain why SAB PGS is consistently in the lowest quartile amongst PGS plants.

b) Please also explain why the unit energy cost for SAB PGS almost doubled over the 3 year period.

c) Please identify the unit energy cost for 2013.

Response

a) Sir Adam Beck PGS unit energy costs are in the fourth quartile primarily due to the unique operation of the station, and its design and age relative to all other pumped storage stations. The Sir Adam Beck PGS is benchmarked against pumped storage stations that are more modern, less complex in design, have much larger units (i.e., economies of scale), and operate differently than Sir Adam Beck PGS. In fact, the Sir Adam Beck PGS is the smallest station among the 15 peer group plants included in the Navigant Consulting study.

In addition to its role in pumping water for use during peak periods (which is typical for PGS stations), Sir Adam Beck PGS is used to: 1) control the cross-over elevation of the Sir Adam Beck canals, 2) assist in automatic generation control, and 3) provide for flexibility and optimization of operations at the Sir Adam Beck complex. Additionally, Sir Adam Beck PGS is an older station with a complex technical design, lower head, and frequent pump-generate changeovers, all of which result in more frequent failures and less efficient operations.

The benchmarking performance of the Sir Adam Beck PGS was also explored in EB-2010-0008. For further detail, see EB-2010-0008, Ex. F1-1-1, section 4.2.4, and Issue 6.2, Board Staff Interrogatory 42 (Ex. L-1-42).

b) The primary reason for the increase is variability in PGS production output. In 2011, the Sir Adam Beck PGS experienced a 7 week, full station outage to perform a detailed inspection.
of the PGS reservoir as part of the definition phase of the reservoir refurbishment project (see Ex. D1-1-2, section 3.1.1). This resulted in production dropping from 115 GWh in 2009 to 75 GWh in 2011, thus increasing the unit energy cost. The outage not only resulted in lower production but also created a need to allocate more resources to the PGS, increasing costs by approximately 15%. Finally, as described in the notes to Ex. F1-1-1 Chart 4, the Canadian dollar was much stronger in 2011 as compared to 2009, adding about 10% to the unit energy costs which are reported in U.S. dollars.

c) The unit energy costs for 2013 are not available. The unit energy costs presented in Ex. F1-1-1, Chart 4 are calculated by Navigant Consulting using proprietary methodology. OPG expects the 2013 Navigant benchmarking results will be available in December 2014.
AMPCO Interrogatory #036

Ref: Exhibit F1, tab 1, Schedule 1, Page 5

Issue Number: 6.2

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the regulated hydroelectric facilities reasonable?

Interrogatory

a) Please include 2013 Target and/or 2013 Actual in the charts 1a, 1b, Chart 2c and Chart 2d.

b) Page 18 – Chart 4 -Please provide the unit energy cost for 2012.

c) Page 18 –Chart 4 – Please explain why SAB II has moved from Q1 in 2009 to Q2 in 2011.

d) Page 18 – Chart 4 – Please explain why SAB I moved from the lower range of Q4 in 2009 to the upper range of Q4 in 2011.

e) Page 9 – please explain why the combined (total Hydroelectric) plant met the AIR targets in 2010 and 2012 but not in 2011.

Response

a) As requested, Ex. F1-1-1, Charts 1a, 1b, 2c, and 2d, updated for 2013 actuals, are attached below.

b) The requested 2012 Unit Energy Costs ("UEC") are attached below in an update to Ex. F1-1-1, Chart 4.

c) Navigant Consulting uses a methodology that applies currency exchange rates and regional wage adjustments to costs reported to them in Canadian dollars. While in 2011 SAB II UEC moved from Q1 to Q2, this was mainly due to the Canadian dollar increasing in value over these two years (+18.6%). The currency exchange impact was partially offset by a regional wage adjustment that resulted in a net increase of +11.4%. Over these two years, the underlying UEC in Canadian dollars went up by only 5.6% which was very much in line with the increases in the median and average costs for this peer group. SAB II placed #8 among 27 plants in the peer group. The station’s 2011 UEC was about 1% higher than the last plant in Q1.

d) The main contributing factor was a stronger Canadian dollar (same as for SAB II above). The other major factor affecting SAB I is the fact that SAB I is adjacent to SAB II but its generators are older and less efficient than those at SAB II. Consequently, SAB II generators get dispatch priority and SAB I only gets water in excess of SAB II capacity. Compared to 2009, SAB I generated 15% less energy in 2011 which increased its UEC.

Witness Panel: Hydro / Energy Markets
e) AIR targets are determined based upon the results of the top quartile of participating companies in the Canadian Electricity Association. The 2011 AIR target of 1.54 was very aggressive compared to the 2010 target of 2.50 and the 2012 target of 1.66. Although Hydroelectric experienced a year-over-year reduction in incidents from 2010 to 2011, it was unable to meet the target of 1.54 when normalized by injuries per 200 000 hours.
### Ex. F1-1-1, Chart 1a (Updated for 2013 Actuals)

Regulated Hydroelectric Facilities – History and Targets for Availability (%)

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Note: High availability factor is good.
## Regulated Hydroelectric Facilities – History and Targets for EFOR (%)

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<td>8.8</td>
<td>4.7</td>
<td>4.1</td>
</tr>
<tr>
<td>Chats Falls GS</td>
<td>3.1</td>
<td>0.8</td>
<td>1.5</td>
<td>0.7</td>
<td>1.2</td>
<td>1.4</td>
<td>1.7</td>
<td>0.4</td>
</tr>
<tr>
<td>Chenaux GS</td>
<td>1.4</td>
<td>0.2</td>
<td>0.7</td>
<td>0.0</td>
<td>0.6</td>
<td>0.1</td>
<td>0.6</td>
<td>0.3</td>
</tr>
<tr>
<td>Des Joachims GS</td>
<td>0.9</td>
<td>1.0</td>
<td>0.3</td>
<td>0.1</td>
<td>0.4</td>
<td>0.5</td>
<td>0.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Mountain Chute GS</td>
<td>13.9</td>
<td>41.6</td>
<td>9.4</td>
<td>1.0</td>
<td>5.0</td>
<td>3.7</td>
<td>8.1</td>
<td>8.0</td>
</tr>
<tr>
<td>Otto Holden GS</td>
<td>0.9</td>
<td>0.3</td>
<td>0.4</td>
<td>0.3</td>
<td>0.4</td>
<td>0.4</td>
<td>0.7</td>
<td>0.4</td>
</tr>
<tr>
<td>Stewartville GS</td>
<td>5.8</td>
<td>6.3</td>
<td>2.5</td>
<td>0.9</td>
<td>3.0</td>
<td>2.5</td>
<td>4.2</td>
<td>4.4</td>
</tr>
<tr>
<td><strong>Otaawa St. Lawrence PG</strong></td>
<td>2.6</td>
<td>2.5</td>
<td>3.5</td>
<td>0.8</td>
<td>2.4</td>
<td>1.2</td>
<td>3.5</td>
<td>1.4</td>
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<tr>
<td><strong>Newly reg. - large plants</strong></td>
<td>1.9</td>
<td>2.4</td>
<td>2.4</td>
<td>1.1</td>
<td>1.8</td>
<td>1.3</td>
<td>2.6</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>CHPG - small plants</strong></td>
<td><strong>4.3</strong></td>
<td><strong>3.4</strong></td>
<td><strong>3.4</strong></td>
<td><strong>5.2</strong></td>
<td><strong>3.4</strong></td>
<td><strong>8.1</strong></td>
<td><strong>3.4</strong></td>
<td><strong>8.1</strong></td>
</tr>
</tbody>
</table>

Note: Low EFOR is good.
Ex. F1-1-1, Chart 2c (Updated for 2013 Actuals)
OM&A Unit Energy Cost Targets ($/MWh)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Niagara Plant Group</td>
<td>4.1</td>
<td>4.0</td>
<td>4.7</td>
<td>3.2</td>
<td>4.1</td>
<td>4.8</td>
<td>5.2</td>
<td>4.5</td>
<td>5.2</td>
<td>4.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saunders GS</td>
<td>2.3</td>
<td>2.4</td>
<td>2.6</td>
<td>2.4</td>
<td>2.8</td>
<td>2.4</td>
<td>3.4</td>
<td>3.1</td>
<td>3.5</td>
<td>3.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total - Niagara and Saunders</td>
<td>3.5</td>
<td>3.4</td>
<td>4.0</td>
<td>2.9</td>
<td>3.6</td>
<td>4.0</td>
<td>4.6</td>
<td>4.0</td>
<td>4.6</td>
<td>4.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ottawa-St. Lawrence Plant Group</td>
<td>7.6</td>
<td>8.7</td>
<td>8.5</td>
<td>7.5</td>
<td>8.2</td>
<td>8.8</td>
<td>8.1</td>
<td>7.1</td>
<td>8.2</td>
<td>10.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Hydro Plant Group</td>
<td>53.5</td>
<td>45.4</td>
<td>53.1</td>
<td>52.3</td>
<td>48.0</td>
<td>50.5</td>
<td>52.8</td>
<td>42.9</td>
<td>64.6</td>
<td>58.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast Plant Group</td>
<td>12.5</td>
<td>20.9</td>
<td>9.4</td>
<td>11.9</td>
<td>10.9</td>
<td>12.0</td>
<td>11.3</td>
<td>12.1</td>
<td>12.8</td>
<td>12.0</td>
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<td></td>
</tr>
<tr>
<td>Northwest Plant Group</td>
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<td>8.4</td>
<td>10.4</td>
<td>7.9</td>
<td>9.7</td>
<td>7.6</td>
<td>9.2</td>
<td>8.2</td>
<td>8.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total - Newly Regulated</td>
<td>10.6</td>
<td>14.0</td>
<td>10.5</td>
<td>11.1</td>
<td>10.4</td>
<td>11.3</td>
<td>10.4</td>
<td>10.2</td>
<td>11.1</td>
<td>11.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Above OM&A Unit Energy costs are consistent with OEB filing guidelines: SBG, NYPA water transactions, and related Gross Revenue Charge are excluded from the target levels. Northwest PG 2010 OM&A costs include a $11.3M First Nations settlement provision, and $9M of shoreline remediation projects for other First Nations. Niagara PG 2011 OM&A cost include an extraordinary credit of $19.0M related to the reversal of a provision for the environmental cleanup of Lake Gibson (DeCew Falls GS).

Ex. F1-1-1, Chart 2d (Updated for 2013 Actuals)
All Injury Rate (number of medical treatment injuries / 200,000 hours worked)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Niagara</td>
<td>2.50</td>
<td>0.96</td>
<td>1.54</td>
<td>0.00</td>
<td>1.66</td>
<td>1.01</td>
<td>1.56</td>
<td>0.54</td>
</tr>
<tr>
<td>Ottawa St. Lawrence (incl. Saunders)</td>
<td>2.50</td>
<td>1.30</td>
<td>1.54</td>
<td>2.52</td>
<td>1.66</td>
<td>1.28</td>
<td>1.56</td>
<td>1.81</td>
</tr>
<tr>
<td>Northeast</td>
<td>2.50</td>
<td>1.51</td>
<td>1.54</td>
<td>3.31</td>
<td>1.66</td>
<td>2.49</td>
<td>1.56</td>
<td>1.56</td>
</tr>
<tr>
<td>Northwest</td>
<td>2.50</td>
<td>5.78</td>
<td>1.54</td>
<td>1.60</td>
<td>1.66</td>
<td>1.65</td>
<td>1.56</td>
<td>3.51</td>
</tr>
<tr>
<td>Central Hydro</td>
<td>2.50</td>
<td>2.00</td>
<td>1.54</td>
<td>0.91</td>
<td>1.66</td>
<td>0.00</td>
<td>1.56</td>
<td>5.00</td>
</tr>
<tr>
<td>Hydro Total</td>
<td>2.50</td>
<td>1.98</td>
<td>1.54</td>
<td>1.78</td>
<td>1.66</td>
<td>1.40</td>
<td>1.56</td>
<td>1.92</td>
</tr>
</tbody>
</table>

Note: The above AIR statistics are Plant Group totals that include both regulated and unregulated stations.
### Ex. F1-1-1, Chart 4 (Updated for 2012)

**Navigant Consulting Hydroelectric Benchmarking Results (USD/MWh)**

<table>
<thead>
<tr>
<th>Station/Group Name</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2012 Quartile</th>
<th>Peer Group (Navigant 2012 data)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DeCew Falls I</td>
<td>Not Available</td>
<td>Not Available</td>
<td>50.7 (Q4)</td>
<td>25.9 (Q4)</td>
<td>Q4: 24.5 to 88.1</td>
<td>40 micro plants (&lt; 30 MW)</td>
</tr>
<tr>
<td>DeCew Falls II</td>
<td>3.3 (Q1)</td>
<td>3.0 (Q1)</td>
<td>3.1 (Q1)</td>
<td>4.8 (Q1)</td>
<td>Q1: 2.1 to 5.2</td>
<td>54 small plants (30 to 150 MW)</td>
</tr>
<tr>
<td>SAB I</td>
<td>6.5 (Q4)</td>
<td>8.0 (Q4)</td>
<td>9.1 (Q4)</td>
<td>8.3 (Q4)</td>
<td>Q4: 5.6 to 8.9</td>
<td>13 med-large plants (400 to 700 MW)</td>
</tr>
<tr>
<td>SAB II</td>
<td>1.7 (Q1)</td>
<td>1.96 (Q1)</td>
<td>2.0 (Q2)</td>
<td>2.3 (Q2)</td>
<td>Q2: 2.1 to 2.7</td>
<td>27 large plants (700 MW or more)</td>
</tr>
<tr>
<td>SAB PGS</td>
<td>65.2 (Q4)</td>
<td>90.1 (Q4)</td>
<td>128.2 (Q4)</td>
<td>94.0 (Q4)</td>
<td>Q4: 24.7 to 281</td>
<td>15 PGS plants</td>
</tr>
<tr>
<td>Saunders</td>
<td>2.2 (Q2)</td>
<td>2.65 (Q2/3)</td>
<td>2.4 (Q2)</td>
<td>2.5 (Q2)</td>
<td>Q2: 2.1 to 2.7</td>
<td>27 large plants (700 MW or more)</td>
</tr>
<tr>
<td>OPG plants (excl. PGS)</td>
<td>2.4 (Q1)</td>
<td>2.76 (Q1)</td>
<td>2.9 (Q1)</td>
<td>3.1 (Q1)</td>
<td>Q1: 0.6 to 4.1</td>
<td>186 plants</td>
</tr>
<tr>
<td>OPG plants (incl. PGS)</td>
<td>2.8 (Q1)</td>
<td>3.2 (Q1)</td>
<td>3.4 (Q1)</td>
<td>3.6 (Q1)</td>
<td>Q1: 0.6 to 4.3</td>
<td>212 plants</td>
</tr>
</tbody>
</table>

Notes:
- The above energy costs exclude: gross revenue charges, water rental fees, and capital and OM&A investment costs. Hydro common cost and corporate allocations are included.
- Plant labour costs are normalized to US rates using Regional Wage Adjusters for skilled Trades.
- The costs are expresses in US dollars using International Monetary Fund report (International Financial Statistics). The following factors have been applied to 2009 = 0.85631, 2010 = 0.96562, 2011 = 1.01516, 2012 = 0.99907
- In 2009 and 2010 DeCew Falls I was out of service. In these years, it is excluded from composite indices (OPG index)
SEC Interrogatory #084

Ref: F1/1/1/p.12

Issue Number: 6.2

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the regulated hydroelectric facilities reasonable?

Interrogatory

Please provide copies of all documents, reports, presentations, and any other analysis for hydroelectric benchmarking undertaken by OPG, including without limitation those conducted by:

(a) EUCG Inc.
(b) Navigant Consulting (GKS Hydro Benchmarking)
(c) Canadian Electrical Association (“CEA”)

Response

OPG does not have any benchmarking reports prepared specific to OPG's hydroelectric facilities by third parties as contemplated by this interrogatory. OPG conducts benchmarking specific to its hydroelectric facilities using data provided confidentially by these parties. The result of this work is reflected in OPG's evidence.

One of the most important factors in successful benchmarking is the ability to collect significant number of data points (plants) to ensure conclusions derived from the data are representative. OPG’s participation in EUCG, Navigant and CEA benchmarking programs ensures comparisons with a broad representative population and data. All three organizations extensively vet the data submitted by utilities for consistency, continuity and reasonableness.

Additional value of participation in the programs comes from interfacing with other utilities at annual or semiannual meetings. It not only allows for better insight into the reported numbers, but also for comparing maintenance or operational best practices that may be applicable to their utilities to reduce costs and/or improve reliability.

The following is additional information to what has already been provided respecting the benchmarks provided by OPG in the Ex. F1-1-1 evidence:

- We have shown costs at the top level of aggregation (i.e., total OM&A) since accuracy is generally better when costs are aggregated at the higher levels (due to allocations required for the more granular analyses), and total OM&A cost best correlates to electricity rates and overall cost metrics used by most utilities. Notwithstanding this, OPG also examines subcategories of total OMA such as operations, maintenance, and administration.
We have presented costs per unit of energy because this cost is most closely linked to electricity rates.

We have excluded Gross Revenue Charge and water rental fees as these costs are not under OPG control, are not applicable in other jurisdictions, vary with production, and would overshadow controllable costs.

In Chart 4, we created “OPG data points” by combining appropriate costs for all six or five OPG plants and dividing it by the sum of MWh generation, to provide overall comparisons. This is consistent with the past two applications.

We have used availability factor (“AF”) and equivalent forced outage rates (“EFOR”) to rank reliability of OPG plants. The reason is that these are standard measures used in the industry.

Since there are often “trade offs” between cost efficiency and reliability performance, we have prepared Chart 6 from the data. This shows OPGs previously and newly regulated plants in availability versus cost quadrants (four quadrants are created by appropriate medians).

With regard to employee safety, we have shown standard Canadian industry safety measures: All Injury Rate (“AIR”) and Accident Severity Rate (“ASR”) (from CEA Incident Statistics Report).
SEP Interrogatory #005

Ref: Exh F-1-1-1

Issue Number: 6.2

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the regulated hydroelectric facilities reasonable?

Interrogatory

At page 11 the application lists three sources of benchmarking data. Are there other sources? If so, what considerations led to the selection of the three sources cited? Does OPG perform checks on the validity and accuracy of data on non-OPG hydroelectric operations or retain independent assistance in carrying out such checks?

Response

Yes, OPG is aware of other sources of benchmarking data.

OPG selected EUCG and Navigant for benchmarking cost performance, and CEA for benchmarking reliability and safety performance based on the following considerations:

- EUCG is a global association of utility professionals and member companies that is recognized as the electric energy industry source for performance information. EUCG's Hydroelectric Productivity Committee (“HPC”) administers a large database containing multi-year cost and performance records that includes data on approximately 300 plants corresponding to approximately 70,000 MW of hydroelectric capacity. In addition, the HPC fosters information exchange on best practices among participants.

- Navigant Consulting administers the Generation Knowledge System - Hydro (“GKS-Hydro”), a large, proprietary database containing performance data pertaining to participating utilities. Participating utilities can custom query the database and have access to Navigant’s annual report of the GKS-Hydro compiled data that provides a third party benchmarking assessment of participants.

- The Canadian Electricity Association (“CEA”) is an association of Canadian utilities. Members include integrated electric utilities, independent power producers, transmission and distribution companies, power marketers and the manufacturers and suppliers of materials, technology and services. OPG uses the CEA’s hydro reliability and safety database products for benchmarking. The CEA provides data for major utilities that operate in similar environmental and climatic conditions.

EUCG, Navigant and the CEA conduct data review meetings intended to validate the accuracy of database entries. OPG participates in the data review meetings, is able to query other participants and respond to data review meeting findings.
1 OPG does not retain independent assistance to check the validity and accuracy of data of non-
2 OPG hydroelectric operations.
Board Staff Interrogatory #076

Ref: Exh F2-5-1, ExhF2-6-1, Decision of the Court of Appeal for Ontario Docket C55602, C55641, C55633

Issue Number: 6.3

Issue: Operating Costs

Nuclear

Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

Please identify every expense that was committed to prior to the test period. Please also provide all of the information that OPG relied on when OPG committed to each of those expenses including the cost that has been committed for each of those expenses in the test years and the associated total cost for each expense. Please provide that information broken down by year, including before and after the test period, where applicable.

Response

OPG understands this question to request committed costs related to the cited exhibits, Ex. F2-5-1 (nuclear fuel costs) and Ex. F2-6-1 (Other Purchase Services – Nuclear Operations).

OPG Nuclear committed costs in the test period consist of payments to be made under nuclear fuel contracts as set out in Ex. F2-5-1 and contractually committed payments to contractors as set out in Ex. F2-6-1. Purchased Services may also include non-discretionary but non-contractual payments as discussed below.

Nuclear Fuel

The individual components that make up the cost of a fuel bundle are uranium concentrate, uranium conversion and fuel bundle manufacturing costs. All three components are subject to committed costs.

The date of contract negotiations, date of first delivery and nuclear fuel costs for uranium concentrate committed contracts with deliveries in 2014 or 2015 are shown in Table 1 below. The provision of post-test period uranium concentrate committed costs is not relevant for the determination of the revenue requirement in this application.
Table 1

Summary of Uranium Concentrate Committed Contracts

<table>
<thead>
<tr>
<th>Contract</th>
<th>Date of Contract Negotiations</th>
<th>Date of First Delivery</th>
<th>2013 Actual</th>
<th>2014 (Forecast)</th>
<th>2015 (Forecast)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2006 1st half</td>
<td>2007</td>
<td>13.1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>2006 1st half</td>
<td>2010</td>
<td>27.6</td>
<td>29.2</td>
<td>29.5</td>
</tr>
<tr>
<td>C</td>
<td>2006 1st half</td>
<td>2011</td>
<td>8.7</td>
<td>10.4</td>
<td>10.7</td>
</tr>
<tr>
<td>D</td>
<td>2007 2nd half</td>
<td>2009</td>
<td>20.3</td>
<td>18.2</td>
<td>15.3</td>
</tr>
<tr>
<td>F</td>
<td>2010 2nd Q</td>
<td>2012</td>
<td>15.0</td>
<td>15.3</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>2010 2nd Q</td>
<td>2015</td>
<td></td>
<td>15.0</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>2012 4th Q</td>
<td>2013</td>
<td></td>
<td>12.0</td>
<td>12.5</td>
</tr>
<tr>
<td>K</td>
<td>2013 3rd Q</td>
<td>2015</td>
<td>10.7</td>
<td></td>
<td>12.1</td>
</tr>
<tr>
<td>L</td>
<td>2013 3rd Q</td>
<td>2015</td>
<td></td>
<td></td>
<td>12.0</td>
</tr>
<tr>
<td>M</td>
<td>2013 4th Q</td>
<td>2013</td>
<td>9.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td>105.3</td>
<td>85.1</td>
<td>107.1</td>
</tr>
</tbody>
</table>

[1] Contract reference is consistent with Table 2 Summary of Contracts in Ex. L-6.5-1 Staff-094.

All nuclear fuel purchase contracts are the result of a competitive process as described in Ex. F3-3-1 and the authorization of these contracts follows the Organizational Authority Register ("OAR") approval process which involves OPG's Chief Supply Officer, Chief Financial Officer and Chief Executive Officer once the procurement process is completed. The decision to procure uranium concentrate was made consistent with the objectives of OPG's uranium concentrate procurement program to ensure that an adequate supply of uranium is available to meet the operational requirements of OPG's nuclear units, while minimizing the price, and market and credit risks associated with this supply.

In addition to uranium concentrate contracts, OPG has a 10 year supply contract with the domestic supplier of uranium conversion services for the period 2012 - 2021 inclusive ($20.6M in 2013, $23.1M in 2014 and $23.8M in 2015). This contract was entered into in 2011 following the expiry of the prior 10 year contract. OPG also has a multi-year supply contract with the two domestic CANDU fuel bundle manufacturers to supply OPG's requirements through the test period ($54.9M in 2013, $56.1M in 2014 and $58.2M in 2015). In 2011, OPG negotiated an extension to the fuel bundle supply contract through to 2018 in order to secure the supply of the modified fuel design for Darlington stations (see Ex. F2-5-1).

Purchased Services

Exhibit F2-6-1 lists vendors exceeding the threshold of one per cent of OM&A expense before taxes, or $16M, during 2010 – 2012. There are five vendors listed (AECOM, Black and Macdonald, AMEC-NSS, Babcock and Wilcox and CANDU Owners Group) with average annual billings of $90M over the three years 2010 - 2012. As of November 2013, outstanding purchase orders for these five vendors totaled approximately $110.0M. There are other vendors below the
$16.0M threshold with existing purchase orders as of November 2013. The vast majority of the work activities per these purchase orders would be undertaken in 2014/15.

As noted in Ex. F2-6-1, most of these vendors operate under master service agreements where they bid competitively on individual work packages or may be sole sourced as the individual work packages arise. OPG’s decision to commit to contractor services is therefore driven by the underlying need to compete work activities. For example, OPG would not be able to complete its Outage OM&A activities without using the services of contractors (or incurring expenditures on overtime or non regular staff). Committed Base OM&A programs resourced through "Purchased Services" (e.g., COG Reactor Safety) are discussed in Ex. L-6.3-15 PWU-018. The list of forecast OMA projects is found at Ex. F3-2-3. For these reasons, the amount of outstanding purchase orders as of November 2013 is a conservative estimate of the committed costs to these vendors in 2014/2015.

Purchased Services also include some non contractual but non-discretionary payments such as OPG’s nuclear operating license fees ($39M in 2014 and $38M in 2015) payable to the CNSC, payment of CNSC nuclear operating fees, water taxes, memberships (WANO, EUCG, EPRI), payments to municipalities for fire protection, emergency management, etc.
Board Staff Interrogatory #077

Ref: Exh F2-3-3 Attachment 1 Tab 11 – Fuel Life Extension Project, F2-3-3 Table 1 and Table 5

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

On February 6, 2014, OPG updated its evidence, including the Business Case Summary (“BCS”) for project 10-800014 Fuel Life Extension Project (F2-3-3 Attachment 1 Tab 11).

a) Please describe how this project is separate from project 10-62444 Fuel Life Channel Management. Is this new extension project contingent on the work done on or the outcomes of the earlier project?
b) Please confirm that the costs for the Fuel Life Channel Management and Fuel Life Extension projects are entirely separate.
c) Please update F2-3-3 Table 1 OM&A Project Listing – Nuclear Projects ≥ $20M Total Project Cost to include project 10-800014 Fuel Life Extension Project. Also, please insert a column between 2013 Budget and 2014 Plan and show 2013 actuals (audited or unaudited) for each project.
d) Please update F2-3-3 Table 5 to include project 10-800014 Fuel Life Extension Project.

Response

a) The purpose of the Fuel Channel Life Extension (“FCLE”) project 10-80014 is to determine, with high confidence, that fuel channel life can achieve the following business objectives:

i) Operate the Darlington units to the revised refurbishment schedule without any idle time or life management outages, which requires achieving high confidence in fitness-for-service of the Darlington fuel channels to 235,000 Effective Full Power Hours (“EFPH”),

ii) Add additional value by operating all Pickering units to the end of 2020 without a life management outage on any unit, which requires achieving high confidence in fitness for service of the Pickering fuel channels to 261,000 Effective Full Power Hours.

These objectives are different from the Fuel Channel Life Management (“FCLM”) project 10-62444 which was undertaken in conjunction with Pickering Continued Operations project to establish if OPG could extend the nominal operating life of Pickering units to 2018-2020. This required the FCLM project to determine with high confidence, by the end of 2012, if Pickering fuel channels could operate to 247,000 EFPH (initially 240,000 EFPH). In addition, the FCLM project objective was to establish, with high confidence, that Darlington can operate to 210,000 effective full power hours to support the start date for the first Darlington unit refurbishment.
b) Confirmed.

c) and d) F2-3-3 Table 1 and F2-3-3 Table 5 have been updated for the FCLE project in Attachment 1.
### Table 1
OM&A Project Listing - Nuclear Projects ≥ $20M Total Project Cost

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Facility</th>
<th>Project Name</th>
<th>Project No.</th>
<th>Category</th>
<th>Start Date</th>
<th>Final Completion Date</th>
<th>Total Project Cost$ (M$)</th>
<th>Partial/Devmt Release (M$)</th>
<th>Initial Full Release (M$)</th>
<th>Superceding Full Release (M$)</th>
<th>2010 Actual (M$)</th>
<th>2011 Actual (M$)</th>
<th>2012 Actual (M$)</th>
<th>2013 Budget (M$)</th>
<th>2013 Actual (M$)</th>
<th>2014 Plan (M$)</th>
<th>2015 Plan (M$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DN</td>
<td>Environment Qualification Component Replacements</td>
<td>38457</td>
<td>Regulatory</td>
<td>Oct-04</td>
<td>Jun-12</td>
<td>63.1</td>
<td>63.1</td>
<td>5.8</td>
<td>0.9</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2</td>
<td>ENG</td>
<td>Probabilistic Risk Assessment Upgrade</td>
<td>62440</td>
<td>Regulatory</td>
<td>Jan-09</td>
<td>Dec-13</td>
<td>51.1</td>
<td>37.9</td>
<td>11.2</td>
<td>11.1</td>
<td>8.7</td>
<td>8.3</td>
<td>8.8</td>
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<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>3</td>
<td>ENG</td>
<td>Fuel Channel Life Management</td>
<td>62444</td>
<td>Sustaining</td>
<td>Aug-09</td>
<td>Jun-15</td>
<td>39.9</td>
<td>34.4</td>
<td>5.7</td>
<td>10.1</td>
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<td>9.2</td>
<td>1.6</td>
<td>0.3</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>4</td>
<td>PB</td>
<td>Boiler Tab &amp; Divider Plate Repair (Pickering 7 &amp; Pickering 8)</td>
<td>40641</td>
<td>Sustaining</td>
<td>Mar-07</td>
<td>Dec-12</td>
<td>39.4</td>
<td>20.5</td>
<td>11.7</td>
<td>2.3</td>
<td>12.8</td>
<td>0.3</td>
<td>(0.2)</td>
<td>0.0</td>
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<tr>
<td>5</td>
<td>PA</td>
<td>Locking Tabs - Boiler Divider Plate (Pickering 1 &amp; Pickering 4)</td>
<td>49248</td>
<td>Sustaining</td>
<td>Jun-07</td>
<td>Dec-17</td>
<td>23.9</td>
<td>1.2</td>
<td>0.5</td>
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<tr>
<td>6</td>
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<td>Subtotal</td>
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<td></td>
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<tr>
<td>7</td>
<td>DN</td>
<td>Boiler Primary Side Cleaning (follow-up to 38296)</td>
<td>38935</td>
<td>Sustaining</td>
<td>Jun-08</td>
<td>Deferred</td>
<td>1.7</td>
<td>2.1</td>
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<td>0.0</td>
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</tr>
<tr>
<td>8</td>
<td>DN</td>
<td>Environment Qualification Discovery Work and Scope Reduction</td>
<td>38458</td>
<td>Regulatory</td>
<td>Feb-09</td>
<td>Jun-11</td>
<td>51.2</td>
<td>76.0</td>
<td>27.3</td>
<td>4.8</td>
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<tr>
<td>9</td>
<td>PB</td>
<td>Steam Generator Water Lancing</td>
<td>40645</td>
<td>Sustaining</td>
<td>May-07</td>
<td>Dec-10</td>
<td>18.3</td>
<td>25.0</td>
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<td>0.0</td>
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<td>0.0</td>
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<td>Primary Heat Transport Liquid Relief Valve Modifications To Prevent Waterhammer</td>
<td>38933</td>
<td>Regulatory</td>
<td>Dec-08</td>
<td>Dec-23</td>
<td>21.6</td>
<td>10.9</td>
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<td>1.7</td>
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<td>2.1</td>
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<td>0.3</td>
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<tr>
<td>12</td>
<td>ENG</td>
<td>Severe Accident Management Guidelines Implementation Improvements</td>
<td>62449</td>
<td>Regulatory</td>
<td>Mar-12</td>
<td>Dec-15</td>
<td>25.4</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>ENG</td>
<td>Fuel Channel Life Extension</td>
<td>80014</td>
<td>Value Enhancing</td>
<td>Nov-13</td>
<td>Jun-18</td>
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<td>41.2</td>
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<td></td>
</tr>
</tbody>
</table>

Notes:
1. Projects with expenditures during Test Period AND Completed/Deferred Projects (from EB-2010-0008 or subsequent).
2. "Total Project Cost" reflects BCS amounts, with the exception of Completed/Deferred Projects (for which actual costs are shown).
<table>
<thead>
<tr>
<th>Line No.</th>
<th>Project Number</th>
<th>Business Case Summary (BCS) Title</th>
<th>BCS Approval Date</th>
<th>Project Stage</th>
<th>BCS Status</th>
<th>Status in EB-2010-0008</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>(d)</td>
<td>(e)</td>
<td>(f)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>38457</td>
<td>Darlington Environment Qualification Component Replacements</td>
<td>Jan-08</td>
<td>Execution</td>
<td>Full</td>
<td>Full</td>
</tr>
<tr>
<td>2</td>
<td>62440</td>
<td>Probabilistic Risk Assessment Upgrade</td>
<td>Apr-12</td>
<td>Execution</td>
<td>Full</td>
<td>Partial</td>
</tr>
<tr>
<td>3</td>
<td>62444</td>
<td>Fuel Channel Life Management</td>
<td>Aug-11</td>
<td>Execution</td>
<td>Partial</td>
<td>Partial</td>
</tr>
<tr>
<td>4</td>
<td>40641</td>
<td>Pickering B Boiler Tab &amp; Divider Plate Repair (Pickering 7 &amp; Pickering 8)</td>
<td>Dec-10</td>
<td>Execution</td>
<td>Partial</td>
<td>Full</td>
</tr>
<tr>
<td>5</td>
<td>49248</td>
<td>Pickering A Locking Tabs - Boiler Divider Plate (Pickering 1 &amp; Pickering 4)</td>
<td>Dec-11</td>
<td>Execution</td>
<td>Superceding</td>
<td>Full</td>
</tr>
<tr>
<td>6</td>
<td>38935</td>
<td>Darlington Boiler Primary Side Cleaning (follow-up to 38296)</td>
<td>Apr-09</td>
<td>Cancelled</td>
<td>Developmental</td>
<td>Developmental</td>
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<tr>
<td>7</td>
<td>38458</td>
<td>Darlington Environment Qualification Discovery Work and Scope Reduction</td>
<td>Apr-10</td>
<td>Complete</td>
<td>Full</td>
<td>Full</td>
</tr>
<tr>
<td>8</td>
<td>40645</td>
<td>Pickering B Steam Generator Water Lancing</td>
<td>May-07</td>
<td>Complete</td>
<td>Full</td>
<td>Full</td>
</tr>
<tr>
<td>9</td>
<td>38933</td>
<td>Darlington Primary Heat Transport Liquid Relief Valve Modifications To Prevent Waterhammer</td>
<td>Jul-11</td>
<td>Execution</td>
<td>Partial</td>
<td>N/A</td>
</tr>
<tr>
<td>10</td>
<td>62449</td>
<td>Severe Accident Management Guidelines Implementation Improvements</td>
<td>Jul-12</td>
<td>Developmental</td>
<td>Full</td>
<td>N/A</td>
</tr>
<tr>
<td>11</td>
<td>80014</td>
<td>Fuel Channel Life Extension</td>
<td>Nov-13</td>
<td>Execution</td>
<td>Partial</td>
<td>N/A</td>
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</table>
Board Staff Interrogatory #78

Ref: Exh A1-3-1 (page 4-5); N1-1-1 (Chart 11)

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

The application notes it is important to consider OPG’s payment amounts within the context of the greater Ontario electricity industry as a whole. For the first six months of 2013, OPG’s average revenue was 5.6 cents/kWh, whereas the average revenue for all other electricity generators was 10.1 cents/kWh.

a) Please explain why OPG believes it is appropriate and relevant to compare its payment amounts to those of non-nuclear generators including those with OPA FIT contracts such as wind and solar generators?

b) For the purpose of this application, would it not be also be appropriate to compare OPG’s proposed nuclear payment amounts against other similar nuclear plants, such as Bruce Power’s contracted rates?

c) The chart below shows such a comparison with Bruce Power’s contacted rates adjusted (fuel and inflation) based on the forecast in the Board’s most recent RPP Price Report. Bruce Power’s forecast combined contract rate (Bruce A and Bruce B) is $63.63/MWh and OPG’s proposed payment amount (including riders) is $71.50/MWh. Please provide OPG’s views on why its forecasted 2014-2015 proposed payment amounts for Pickering and Darlington are more than 10% higher than the Bruce combined contract price.

![OPG Proposed Payment Amounts and Forecast Bruce Contracted Rates](chart.png)

Witness Panel: Overview, Regulatory Issues, Business Transformation
Response

a) OPG believes it is important for consumers to understand the cost of its generation portfolio relative to other generators in the Province. The majority of OPG’s operations are regulated and the public has a view into the operations of OPG thorough its public filings and the hearing process at the OEB. The same is not true for other generators. In terms of OPG being a low cost generator in the Province, it is important to provide that overall context. It is reasonable for OPG to compare its payment amounts against non-nuclear generators including those with OPA FIT contracts such as wind and solar generators, since they are all sources of electricity used by consumers in the province to meet their electricity needs.

b) While there would be value in doing a comparison with an organization such as Bruce Power that would only be the case if the comparison were truly “apples to apples”. As all of the terms of the contract with Bruce Power are not publically available, it would be difficult to gain a complete understanding of the Bruce Power deal such that this comparison could be fairly done. As an example, a 2009 report by the Auditor General of Ontario confirmed that Bruce Power receives compensation for its fuel costs for Bruce A outside of the contracted price whereas OPG’s cost of service includes fuel.

c) The values quoted in the chart for Bruce Power did not come from OPG, nor is OPG privy to all of the terms of the Bruce Power contract to be able to compare our cost of service application to their Power Purchase Agreement contract. However, there are several areas that are known to be different:

- The nuclear rate quoted for OPG is inclusive of variance account riders. These reflect costs deferred from previous years to be recovered in the current year. Assuming that the PPA with Bruce Power does not have a similar construct and compensates Bruce Power for costs in the year incurred, the proper comparison should be to the nuclear base rate requested of $67.60 per MWh.

- The rates quoted in the chart above by Board staff for Bruce Power are similar to their rates in 2013 and should be escalated by inflation for 2014 and 2015. Our estimate is for the combined Bruce rate to be in excess of $66 in 2015. The OPG base rate is constant for the years 2014 and 2015.

- OPG is fully responsible for the management of decommissioning and nuclear waste management (collective referred to as “nuclear liabilities”). This includes the nuclear liabilities for the prescribed nuclear assets as well as those of the Bruce site under contract to Bruce Power. The nuclear liabilities are revalued on a regular basis as part of the Ontario Nuclear Funds Agreement (“ONFA”) reference plan update process. Ontario Regulation 53/05 explicitly allows for nuclear base rates to include the increased costs from an approved ONFA reference plan. The base nuclear rates in this application include increases arising from the approved ONFA Reference Plan that impacted nuclear liability costs commencing in 2012 (a variance account has been used to accumulate impacts from 2012 and 2013). The impact on revenue requirement arising from this plan is an increase of approximately $4.53 per MWh.
For the test period there is no mechanism in the lease and its ancillary agreements for OPG to recover from Bruce Power increased costs associated with the nuclear waste generated by operation of the Bruce A and Bruce B generating stations. Where incurred, such increased costs are directed to the Bruce variance account, to be recovered by OPG from the ratepayers. Bruce Power’s power pricing contract with the OPA is not tied to the ONFA Reference Plan to reflect increased costs of nuclear waste liabilities. There are no provisions in the current lease term for OPG to recover directly from Bruce Power increased nuclear waste liability costs.

- The contracted price Bruce Power receives is assumed to allow for recovery of base and supplemental rents that Bruce Power pays to OPG. While the revenue Bruce Power earns from Bruce B price is fixed, there is a condition in the contract that allows for a refund to Bruce Power of supplemental rents should HOEP in the Province be below an average of $30 / MWh in a given year. These additional payment to Bruce Power should be added to the contracted rate in the year such payment occurs.

- OPG is also not privy to any other arrangements or contracts for reimbursement from the OPA that potentially should be added to the stated contract rate in order to do a complete comparison.

- And finally, all Bruce Power units and Darlington units have larger capacity ratings than Pickering. The six units at Pickering are smaller in capacity and as a result, the per MWh rate for Pickering units will be higher than both Darlington and Bruce Power rates, even if operating costs for Pickering facilities were identical on a per unit dollar basis.
Board Staff Interrogatory #079

Ref: Exh F2-1-1 (Table 2), A1-3-2 (Chart 2)

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

A comparison of Nuclear Operations OM&A costs (Base, Project and Outage OM&A) is provided in a manner to reflect the Board Adjustments for 2011 and 2012 consisting of the reductions in nuclear compensation costs of $55M (2011) and $90M (2012), which is identified in A1-3-2 as a Nuclear Deficiency in the “Other” category. Board staff wants to confirm that its understanding of Table 2 is correct. That is, relative to the Board approved amounts following those adjustments, OPG’s actual costs for 2011 were $85.4M higher and actual costs for 2012 were $38M lower. Is that understanding correct?

Response

Board Staff is correct that OPG’s actual 2011 Nuclear Operations OM&A Costs (Base, Project and Outage OMA) were $85.4M higher than the OEB approved amount.

Actual 2012 Nuclear Operations OM&A Costs were $38.0M lower than the OEB approved amount. However, actual 2012 nuclear base and outage OM&A was reduced by a transfer of staff and associated costs ($196.4M) to corporate groups as a result of Business Transformation (Ex. F2-2-1, page 2, line 26.), with a related increase in the allocation of corporate costs back to nuclear.

Actual 2012 Nuclear Operations OM&A costs plus Corporate Allocated Costs were $118.1M higher than the OEB approved Nuclear Operations OMA costs plus OEB approved Corporate Allocated Costs, as shown in Table 1 below.
<table>
<thead>
<tr>
<th>Table 1</th>
<th>2012 Board Approved</th>
<th>2012 Actual</th>
<th>Over/Under Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear Operations OM&amp;A Cost Before Board Adjustments</td>
<td>1556.4</td>
<td>1428.4</td>
<td>(128.0)</td>
</tr>
<tr>
<td>Less: Board Adjustments to Nuclear OM&amp;A</td>
<td>(90.0)</td>
<td>0.0</td>
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</tr>
<tr>
<td>Nuclear Operations OM&amp;A Cost before Business Transformation</td>
<td>1466.4</td>
<td>1428.4</td>
<td>(38.0)</td>
</tr>
<tr>
<td>Add back: Transfer of Nuclear Base and Outage OM&amp;A to Corporate</td>
<td>0.0</td>
<td>198.0</td>
<td>0.0</td>
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<tr>
<td>Nuclear Operations OM&amp;A Cost after Business Transformation</td>
<td>1466.4</td>
<td>1626.4</td>
<td>160.0</td>
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<tr>
<td>Corporate Allocated Costs before Business Transformation</td>
<td>252.3</td>
<td>408.4</td>
<td>156.1</td>
</tr>
<tr>
<td>Less: Transfer in to Corporate of Nuclear Base and Outage OM&amp;A</td>
<td>0.0</td>
<td>(198.0)</td>
<td>0.0</td>
</tr>
<tr>
<td>Corporate Allocated Costs after Business Transformation</td>
<td>252.3</td>
<td>210.4</td>
<td>(41.9)</td>
</tr>
<tr>
<td>Nuclear Operations OM&amp;A and Corporate Allocated Costs</td>
<td>1718.7</td>
<td>1836.8</td>
<td>118.1</td>
</tr>
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</table>
Board Staff Interrogatory #80

Ref: Exh F2-3-1

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

OPG is requesting approval of Nuclear project OM&A expenditures of $113.9M (2014) and $106.4M (2015). The application notes Project OM&A (Portfolio) is made up of: (1) “Portfolio Projects (Allocated)" which is comprised of AISC-approved budgets for all projects that have an approved business case summary ("BCS"); and (2) “Portfolio Projects (Unallocated)" which do not have an AISC-approved budget, do not have an approved BCS and for which detailed expenditure information cannot be provided. Table 1 in that exhibit indicates the majority of Portfolio Project OM&A costs are “Unallocated" ($107.3M of $148.9M or 72%). In the previous application (EB-2010-0008, F2-3-1, p.2), there was no such concept as “Unallocated” costs identified. It was also not identified in the 2013-2015 Nuclear Business Plan (EB-2013-0321, F2-1-1, Attachment 2) that most costs were “unallocated” (i.e., not AISC approved) as only a lump sum for Portfolio Projects was presented to the OPG Board of Directors for approval.

a) Why does OPG believe it would be appropriate for the Board to approve such a significant amount ($107.3M) related to projects that have not been approved internally by OPG's Asset Investment Screening Committee (“AISC") and for which OPG cannot provide detailed expenditure information or an approved BCS?

b) Board staff is unable to find a description of the composition of the AISC in the application. Are there any members of the OPG Board of Directors on the AISC, as it is not identified as one of the OPG Board Committees in the applicable exhibit (A1-4-1)?

c) Please also explain why the Nuclear Business Plan presented to the OPG Board of Directors for approval did not identify that the majority of OM&A Portfolio Project costs had not received approval by the AISC.

Response

a) The inclusion of “Unallocated” projects in the requested OM&A portfolio is not new. This concept was part of the previous rate application (EB-2010-0008, page 14 of Ex. D2-T1-S1), where the “Unallocated” projects were identified as, “Listed Work to be Released". Using Table 1 from EB-2010-0008, Ex. F2-T3-S1, the comparison data of “Unallocated” projects for the two year rate period was ($58.1M of $95.4M or 61%). The approach proposed for this Application is consistent with the approved portfolios from previous applications and OPG's internal process.
The Nuclear Business Plan (EB-2013-0321, Ex. F2-1-1, Attachment 2) on page 34 identifies
the unallocated component of the project portfolio in 2014 and 2015. The Nuclear Business
Plan was approved by OPG's Board of Directors.

OPG believes it is appropriate to approve the budgets as the OEB has previously accepted
the project portfolio management process used by OPG and administered by the AISC.
Portfolio budgets are established during business planning and are based on benchmarking,
station reliability needs, new regulatory requirements and ability to execute the projects. As
part of the managed portfolio process, new projects are identified and prioritized, and
budgets are approved by AISC throughout the year. Once AISC has allocated the project
budget, authorization to execute the project is obtained according the Organizational
Authority Register.

The "Unallocated" portion of the portfolio is further supported by projects that are at the
identification or initiation stages of the project life cycle. A listing of OM&A projects was
reviewed and approved by the AISC as part of the business planning process and is found
on Ex. F2-T3-S3, Table 4 to support the overall funding requirements.

b) The AISC is chaired by the Senior Vice President, Nuclear Engineering and Chief Nuclear
Engineer and consists of Directors from station engineering, nuclear projects and finance.
There are no members from the OPG Board of Directors on this committee.

c) As stated above, the unallocated portfolio was identified as a component of the nuclear
project portfolio approved by OPG's Board of Directors (EB-2013-0321, Ex. F2-1-1,
Attachment 2, page 34).
Board Staff Interrogatory #081

Ref: Exh F2-4-1, F2-4-2, N1-1-1 (page 15)

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

The application notes actual and forecast outage OM&A costs over the period 2010 - 2015 primarily reflect items including preparatory work in 2013 and 2014 for the 2015 Darlington Vacuum Building Outage ("VBO") followed by the four unit VBO outage in 2015. OPG also notes outage OM&A expenditures are forecast to increase by $68.0M in 2015 from 2014 plan levels, "primarily" due to the execution of the VBO at Darlington. In addition, outage OM&A expenditures in 2013 were forecast to increase $96.7M from the 2012 actuals and the main driver of that increase was the impact of Darlington’s 3-year outage cycle which also included preparatory work for the 2015 Darlington VBO. The subsequent OPG Impact Statement stated that 39 additional planned outage days would be required for VBO Outage.

a) Please identify the costs associated with the VBO execution in 2015 and the amounts in 2013 and 2014 related to the VBO preparatory work.
b) Please identify the actual 2013 costs incurred for preparatory work for the 2015 VBO.
c) Please also identify the actual costs associated with the most recently completed VBO for both Pickering and Darlington broken down based on VBO preparatory work and VBO execution.

Response

a) In the 2013 - 2015 Business Plan, the costs associated with the VBO execution in 2015 is $74.3M. The VBO preparatory work is $3.5M in 2013 and $11.1M in 2014.

In the 2014 - 2016 Business Plan, the VBO execution is $84.2M and the VBO preparatory work in 2014 is $11.8M. The primary drivers for the increase in the 2014 - 2016 plan is the additional funding for the Pressure Relief Valve replacement and Emergency Service Water piping replacement. ( 

b) The 2013 actual costs incurred for preparatory work for the 2015 VBO was $0.5M. The 2013 actual VBO costs were lower than plan due to the need to focus on higher priority work activities during Darlington’s two planned outages and forced outages which delayed outage planning work for the VBO. The 2013 planned work will be completed in 2014.

c) The most recently completed VBO at Pickering was in 2010. The cost of preparatory work for the 2010 VBO was $6.5M and the execution cost was $30.1M.
The most recently completed VBO at Darlington was in 2009. The cost of preparatory work for the 2009 VBO was $9.0M and the execution cost was $35.4M. The 2015 VBO costs are significantly higher than the 2009 VBO as the 2015 VBO includes additional scope to allow for the transition to a 12 year station outage frequency which will eliminate a full station outage during the refurbishment project.
Board Staff Interrogatory #82


Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

The Auditor General’s Report includes a number of findings associated with staff training. With regard to nuclear training, those included a completion rate for the ANO training program of only 56% and completion rates for the CRSS (Control Room Shift Supervisor) training programs in 2012 at Darlington and Pickering of, respectively, 0% and 57%, lower than industry rates of 60-65%.

OPG’s response in the Auditor General’s Report stated that it is in the process of implementing enhancements to its nuclear training programs. In OPG’s Backgrounder that identifies actions OPG is taking to address the findings, there is no mention of any actions related to training.

a) What is the approximate cost associated with training a staff person under each of the following programs: (1) NLO 24-month training program; (2) ANO 36-month training program; and (3) CRSS training program?

b) Please identify the “enhancements” that OPG is implementing to its nuclear training programs,

c) Please provide further discussion on any actions that OPG is taking, or is planning to take, to improve appropriateness, cost effectiveness and success rates of its nuclear training programs.

Response

a) The approximate cost associated with training a staff person under the Non-Licensed Operator; the Authorized Nuclear Operator; and the Control Room Shift Supervisor Training programs is $366k, $1,641k and $1,709k, respectively.

b) OPG has implemented enhancements to the certified training programs to improve the completion rates for both Authorized Nuclear Operator and Control Room Shift Supervisor Training Programs. The enhancements include more class and simulator time for trainees, and mentoring and coaching by existing qualified Authorized Nuclear Operators and Shift Managers. For the Non-Licensed Operator Training Program, more structured instructor-led explanations of station operations and standards have been implemented.
c) Additional actions to improve appropriateness and cost effectiveness includes reducing the number of staff trained and qualified for unescorted access at the nuclear stations, thus reducing the number of staff requiring training as well as implementing a structured process for granting training credits for experienced staff from other nuclear locations coming to work at OPG, or when transferring between OPG work locations.
**AMPCO Interrogatory #037**

**Ref:** Exhibit F2, Tab 2, Schedule 1 Base OM&A Nuclear Operations

**Issue Number:** 6.3

**Issue:** Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

**Interrogatory**

a) Page 13, Table 1 – Please add a column to Table 1 to account for 2012 Actuals.

b) Page 16, Table 2 – Please add a column to Table 2 to account for 2013 Actuals.

**Response**

a) Please see Attachment 1

b) Please see Attachment 2
## ATTACHMENT 1

Restated for Impact of Business Transformation 2012

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**Notes:**

1. Includes CNSC adjustment of +$6.5M per EB-2010-0008 Decision and Order, p. 49.
2. Includes Heavy Water Sales Support Costs consistent with test period per EB-2010-0008 Decision and Order, p. 64.
## ATTACHMENT 2

Restated for Impact of Business Transformation 2013

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AMPCO Interrogatory #038

Ref: Exhibit F2, Tab 2, Schedule 1, Table 5 and Table 6

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

Preamble: At Table 6 line 5 the total for Darlington NGS Site and Support Services is $13.5M in 2012. At Table 5 line 5, the total for Darlington NGS Site and Support Services is $18 M. 

a) Please explain the nature of the Business Transformation Transfers in 2013 that explain this increase.

Response

Organization changes resulting from Business Transformation do not result in an increase to Base OM&A costs but rather reflect a re-distribution of costs between organizations. 

As noted in Ex. F2-2-2, page 2 line 30, Business Transformation ("BT") transfers constitute $1.8M of the $4.5M year over year change between 2012 actual expenditures and the 2013 budget for Darlington NGS Site and Support Services. Other contributors include a transfer in of $3.3M for Inventory Obsolescence from Corporate Supply Chain, offset by a transfer out of $1.6M to Nuclear Services relating to the Corrective Action Improvement Program.
AMPCO Interrogatory #039

Ref: Exhibit F2, Tab 2, Schedule 1, Table 1

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

Preamble: Table 1 shows a $37 M increase in Base OM&A Nuclear between 2012 Actual and 2913 Budget. 

a) Please explain the specific Business Transformation activities specifically related to Nuclear Engineering, Nuclear Services, Fleet Operation and Maintenance and Security and Energy Services that contribute to this increase.

Response

The main factors that contributed to the $37M year-over-year increase in Base OM&A (2012 Actual to 2013 Budget) are an increase in pension / OPEB costs of $46.4M offset by the 53rd fiscal week in 2012 (-$15.3M). There were also some internal organization changes within Nuclear Operations in 2013 as a result of Business Transformation which do not impact on overall Base OM&A costs (reference Ex. F2-T2-S2, page 2 of 9).

The following transfers occurred in 2013 that contributed to a re-distribution of costs within nuclear;

Nuclear Engineering
• Transfer in of Fuel Handling Engineering from the stations
• Transfer in of Mechanical Draftspersons from IMS

Nuclear Services
• Transfer in of Corrective Action Improvement Programs from the stations
• Transfer in of Performance Improvement and Root Cause Analysis from Fleet Operations and Maintenance

Fleet Operations and Maintenance
• Transfer in of Operations Support and Maintenance Support from the stations
• Transfer in of Work Management Program from Nuclear Services

Security and Emergency Services
• Transfer in of Fire Protection from the stations
**AMPCO Interrogatory #040**

Ref: Exhibit F, Tab 2, Schedule 2, Page 12, Line 12

**Issue Number:** 6.3

**Issue:** Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

**Interrogatory**

Preamble: For 2013 Plan versus 2013 Budget, Pickering Operations (+$14.4M) primarily reflects higher labour costs due to additional Authorized Nuclear Operators in Training (ANOIT) and Nuclear Operators in Training NOIT staff as no NOITs are forecast to be hired in 2013.

a) Please provide how much of the $14.4M is allocated to ANOIT staff and how much to NOIT staff.

b) Please explain why additional ANOIT and NOIT staffs are required in 2014 given nuclear production is forecasted to decrease in 2014 (20.9 TWh Exhibit N1-T1-S1 Page 13 Table 6) relative to 2013 (21.1 TWh Exhibit E2-T1-S1 Table 1 line 2).

c) Please provide Pickering NGS Production for 2013 Actual.

**Response**

a) The information quoted in the preamble refers to the 2014 Plan versus the 2013 Budget (see Ex. F2 T2-S2, page 2 of 9, lines 12 - 15). $1.9M relates to ANOIT staff and $7.4M relates to NOIT staff. Operator hiring programs are assessed on an annual basis and updated to take attrition into consideration. In 2013, a decision was made to not proceed with the hiring program as planned.

b) Operator staffing levels are independent of planned outage durations and forced losses in any given period for an operating station. Minimum complement staffing requirements are set by the Canadian Nuclear Safety Commission for Authorized Nuclear Operators (“ANOs”) and Nuclear Operators (NOs). In addition, operator support is required to progress major planned outages driven by life cycle plans and extensive inspection campaigns. When hired, 2 years of training are required for a new hire to become a fully qualified NO. When selected, 2.5 years of training are required for a NO to become a fully qualified ANO. Given the length of time it takes to qualify these operators, and, as projected attrition occurs (e.g., through retirement), a sufficient number of replacement operators need to be selected well in advance to meet future needs.

c) Pickering NGS production for 2013 was 19.6 TWh.
AMPCO Interrogatory #041

Ref: Exhibit F2-T4-S1 Page 6

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

Preamble: Darlington units are on a 3 year outage cycle. As a result, there are two unit outages in 2010, and again in 2013. Pickering units are on a 2 year planned outage cycle, such that there are generally three units in outage each year. In addition, to increase reliability for units 1 and 4, mid-cycle outages were added from 2012 to 2014.

a) What is the total OM&A costs (allocated by Base OM&A, Outage OM&A, and Project OM&A) associated with Pickering unit 1 and 4 mid-cycle from 2012 to 2014?

b) Assuming Pickering Unit 1 and Unit 4 were still scheduled to retire in 2016, is the mid-cycle outage from 2012 to 2014 still required?

Response

a) Total OM&A costs for mid-cycle Outages (No Project OM&A cost):

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</tbody>
</table>

b) OPG is planning to operate Pickering Unit 1 and Unit 4 until the end of 2020. The mid-cycle outages in the period of 2012 to 2014 are still required to address maintenance work to improve equipment reliability.
AMPCO Interrogatory #042

Ref: Exhibit F2, Tab 4, Schedule 1, Page 6

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

Preamble: A Darlington VBO was last conducted in 2009. The next planned Darlington VBO scheduled for 2021 has been moved forward to 2015, eliminating the need for a scheduled station containment outage in 2015. OPG is seeking CNSC regulatory approval to eliminate the need for SCO’s going forward. This will change the requirement of a 4 unit station outage at Darlington from a 6 year cycle to a 12 year cycle. This change will result in planned outage days in 2012 and beyond and will reduce complexity and resource demand during the Darlington Refurbishment Project.

a) What is the status of the CSNC regulatory approval to eliminate the need for SCO’s going forward?

b) Assuming the CNSC does NOT approve the elimination of a SCO going forward, when will the next SCO be scheduled for?

c) Does the Darlington NGS refurbishment have an impact on future VBO schedules?

Response

a) Darlington submitted a request to the CNSC for approval to eliminate the SCO in 2021. During the 2015 SCO that has been combined with the VBO, OPG will complete the required testing to demonstrate future SCO’s are not required. It anticipates that the results will support OPG’s request to the CNSC to eliminate the need for any future SCO outages.

b) The next SCO would be required in 2021 if regulatory approval is not obtained. However, if regulatory approval is not obtained, OPG will perform additional inspections or analysis to confirm to the CNSC that future SCO’s are not required.

c) A VBO is required every 12 years regardless of Darlington NGS refurbishment. Eliminating the VBO/SCO in 2021 will have a benefit when Darlington is scheduled to have two units in refurbishment by reducing complexity and resource demands.
AMPCO Interrogatory #043

Ref: Exhibit F2, Tab 4, Schedule 2, Page 2

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

Preamble: OPG’s 2013 Budget Versus 2012 Actual Explanation: “Outage OM&A expenditures in 2013 are forecast to increase (+96.7M) from the 2012 actual. The main drivers of this increase are the impact of Darlington’s 3 year outage cycle requiring two outages in 2013 versus one unit in 2012, and additional inspection and maintenance work, and preparatory work for the 2015 Darlington VBO. Pickering’s Outages costs decrease slightly due to reduced work related to Continued Operations (-$7.9M)

a) Please provide explanation on why Nuclear Support Division increased (+$49.6M a variance of 75%) from 2012 actual to 2013 budget?

b) Please provide explanation on why nuclear support division is $90M in 2014 Plan? Please explain increase since 2012?

c) According to AMPCOs understand Darlington NGS is planning a VBO in 2015. In 2009 during Darlington NGS VBO, Nuclear Support Division was only $8M. Please provide explanation on my Nuclear Support Division is $110.3 in 2015 Plan?

Response

As background for this response, the following should be noted about the trend in Nuclear Support Outage OM&A costs:

- Prior to 2012, Inspection and Maintenance Services (“IMS”) costs were included in the station’s Outage OM&A costs as Other Purchased Services. Post 2012, under Business Transformation, OPG implemented a simplified IMS Cost Model where IMS is now a pure cost centre like all other Nuclear Support Divisions. IMS’ 2012 actual costs and 2013 - 2015 budgets are now shown within Nuclear Support and not as a station cost.

- In addition to IMS, some other station costs reflected previously in Station Outage OM&A were transferred to centre-led Nuclear Support groups (e.g., Engineering, and Radiation Protection). Most of these transfers occurred in 2012, resulting in Nuclear Support Division Outage OM&A costs increasing with a corresponding decrease in Station Outage OM&A costs. Additional organizational transfers occurred for the 2013 Budget (e.g., in the areas of Operations and Maintenance Support, Fuel Handling Engineering and Fire Protection), resulting in an additional increase in Nuclear Support OM&A and a further decrease in

Witness Panel: Nuclear Business Planning, OM&A, Benchmarking
Station Outage OM&A costs. Because of these budget transfers in 2012 and 2013, a variance analysis of changes to Nuclear Support Outage OM&A costs cannot be done in isolation without considering the Station Outage OM&A costs.

a) The overall Nuclear Outage OM&A change from 2012 actual to 2013 budget is shown in the table below:

**Comparison of Outage OM&A - Nuclear ($M) - 2013 Budget vs 2012 Actual**

<table>
<thead>
<tr>
<th>Division</th>
<th>2012 Actual</th>
<th>(c)-(a) Change</th>
<th>2013 Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nuclear Stations:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Darlington NGS</td>
<td>43.7</td>
<td>53.2</td>
<td>96.9</td>
</tr>
<tr>
<td>Pickering NGS</td>
<td>87.9</td>
<td>1.8</td>
<td>89.7</td>
</tr>
<tr>
<td>Pickering Continued Operations</td>
<td>16.2</td>
<td>(7.9)</td>
<td>8.3</td>
</tr>
<tr>
<td><strong>Total Stations</strong></td>
<td>147.8</td>
<td>47.1</td>
<td>194.9</td>
</tr>
<tr>
<td><strong>Support Divisions</strong></td>
<td>66.5</td>
<td>49.6</td>
<td>116.1</td>
</tr>
<tr>
<td><strong>Total Outage OM&amp;A</strong></td>
<td>214.3</td>
<td>96.7</td>
<td>311.0</td>
</tr>
</tbody>
</table>

The Nuclear Support increase of $49.6M is associated with the following outage work:

- Darlington +$32.1M
- Pickering +$13.2M
- Pickering Continued Operations +$ 4.3M

There are two planned outages at Darlington in 2013 compared to one planned outage in 2012. The Nuclear Support cost increase for Darlington Outages is attributable to the extra outage. Most of the increase is for IMS work ($25.9M).

The Nuclear Support costs increase ($13.2M) for Pickering Outages, excluding Continued Operations, is due to the specific outage scope and increased work performed by IMS. In particular, there is more extensive outage scope for P1341, P1351 and P1361 than in the 2012 Pickering planned outages.

The increase for Pickering Continued Operations is entirely due to IMS work to be performed.
b) The overall Nuclear OM&A change from 2012 actual to 2014 plan is shown in the table below:

**Comparison of Outage OM&A - Nuclear ($M) - 2014 Plan vs 2012 Actual**

<table>
<thead>
<tr>
<th>Division</th>
<th>2012 Actual</th>
<th>(c)-(a) Change</th>
<th>2014 Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nuclear Stations:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Darlington NGS</td>
<td>43.7</td>
<td>22.3</td>
<td>65.9</td>
</tr>
<tr>
<td>Pickering NGS</td>
<td>87.9</td>
<td>12.2</td>
<td>100.1</td>
</tr>
<tr>
<td>Pickering Continued Operations</td>
<td>16.2</td>
<td>(10.0)</td>
<td>6.2</td>
</tr>
<tr>
<td><strong>Total Stations</strong></td>
<td>147.8</td>
<td>24.5</td>
<td>172.3</td>
</tr>
<tr>
<td><strong>Support Divisions</strong></td>
<td>66.5</td>
<td>23.9</td>
<td>90.4</td>
</tr>
<tr>
<td><strong>Total Outage OM&amp;A</strong></td>
<td>214.3</td>
<td>48.4</td>
<td>262.7</td>
</tr>
</tbody>
</table>

The following provides a breakdown of the 2014 Nuclear Support Outage OM&A expenditures and how this cumulative effort totals to $90.4M. With the cost model change noted earlier, IMS is now the most significant component of Nuclear Support Outage OM&A costs. Support levels are also higher than pre-BT levels as a result of the BT organizational transfers (e.g., Radiation Protection from the stations to Nuclear Services).

<table>
<thead>
<tr>
<th>Nuclear Support Divisions</th>
<th>2014 Outage OM&amp;A ($M)</th>
<th>Variance from 2012 ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>3.7</td>
<td>2.0</td>
</tr>
<tr>
<td>Projects &amp; Modifications</td>
<td>4.2</td>
<td>2.5</td>
</tr>
<tr>
<td>Nuclear Services</td>
<td>10.4</td>
<td>0.3</td>
</tr>
<tr>
<td>Fleet Operations and Maintenance</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Security &amp; Emergency Services</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>Inspection &amp; Maintenance Services</td>
<td>71.2</td>
<td>18.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>90.4</strong></td>
<td><strong>23.9</strong></td>
</tr>
</tbody>
</table>

This table also presents a breakout of the contribution by each Nuclear Support division of the $23.9M variance since 2012. The Nuclear Support increase of $23.6M is associated with the following outage work:
Witness Panel: Nuclear Business Planning, OM&A, Benchmarking

1. Darlington +$ 4.3M
2. Pickering +$14.9M
3. Pickering Continued Operations +$ 4.7M

These changes mainly reflect a more extensive outage program and scope from increased inspection and maintenance activities. BT Transfers implemented post 2012 (e.g., Fleet Operations and Maintenance and Security & Emergency Services) play a smaller role in the overall increase.

c) A breakdown of the 2015 Nuclear Support Outage OM&A expenditures is provided in the table below, in conjunction with the planned support to the Darlington 2015 VBO:

<table>
<thead>
<tr>
<th>Nuclear Support Divisions</th>
<th>2015 Outage OM&amp;A ($M)</th>
<th>2015 VBO ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>3.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Projects &amp; Modifications</td>
<td>4.8</td>
<td>2.9</td>
</tr>
<tr>
<td>Nuclear Services</td>
<td>15.7</td>
<td>4.6</td>
</tr>
<tr>
<td>Fleet Operations and Maintenance</td>
<td>0.6</td>
<td>0.2</td>
</tr>
<tr>
<td>Security &amp; Emergency Services</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>Inspection &amp; Maintenance Services</td>
<td>85.1</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>110.3</strong></td>
<td><strong>14.2</strong></td>
</tr>
</tbody>
</table>

Based on the organization structure and cost model that existed back in 2009, Nuclear Support to the Darlington 2009 VBO was only $2.8M. As summarized earlier, the increase from 2009 - 2015 is primarily explained as follows:

- the sizable Business Transformation transfers of outage support functions from the Station to the Support Divisions (e.g., Radiation Protection, Fire Protection, Engineering support).
- change in the IMS Cost Model (i.e., IMS 2009 costs would be included in the Darlington Station costs while 2015 costs are classified within the Nuclear Support function).
Ref: Exhibit F2, Tab 4, Schedule 1, Table 3

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

a) Please explain Pickering NGS Outage OM&A increase of +$9.3M, variance of 150 percent increase, in non-Regular Labour from Budgeted Board Approved 2011 to Actual 2011.

b) Given Pickering VBO was scheduled in 2010, please explain justification why non-Regular Labour was more expensive in 2011 (non VBO year) by +$2.8M compared to 2010 (VBO year)?

c) Please explain Pickering NGS Outage OM&A increase of a +$19.3M, variance of 151 percent, in overtime from Budgeted Board Approved 2011 to Actual 2011.

d) Please explain Pickering NGS Outage OM&A increase of $7.5M, variance of 268 percent increase, in non-Regular Labour from Budgeted Board Approved 2012 to Actual 2011.

e) Please explain Pickering NGS Outage OM&A increase of +$14.7M, variance of 123 percent increase, in Overtime from Budgeted board Approved 2012 to Actual 2012.

Response

a) The selection of which incremental labour resource option to employ during an outage is an ongoing resource optimization and balancing process and will depend on the specific circumstances at the time. A greater proportion of funding for incremental labour resources was budgeted by Pickering within Other Purchase Services and then allocated to Non-Regular labour, Overtime or Augmented Services based on the circumstances at the time. While there was an unfavourable $9.3M variance in Pickering Non-Regular Labour costs between 2011 Board Approved and Actual 2011, there was a favourable $32.6M variance in Other Purchased Services. Total incremental labour resource outage costs (i.e., Non Regular labour, Overtime, Augmented Staff and Other Purchase Services) has a favourable variance of $6.7M.

b) Resourcing strategies change depending on the scope of the individual outages. The increase in Non-Regular Labour in a non VBO year was offset by reduction in Other Purchase Services. The Actual 2011 Pickering Outage cost, a non-VBO year, was $128.6M, $31.2M lower than the 2010 VBO year Pickering Outage Actual cost of $159.8M.
c) The $19.3M variance in Overtime costs was funded from Other Purchased Services. Other Purchased Services had a decrease of $32.6M, a variance of 35%, from Board Approved 2011 to Actual 2011. Total incremental labour resource outage costs combined (i.e., Non Regular labour, Overtime, Augmented Staff and Other Purchase Services) had a favourable variance of $6.7M.

d) The interrogatory identifies a variance of $7.5M for Non-Regular Labour Board Approved 2012 to Actual 2011. This variance occurred between Board Approved 2012 to Actual 2012. The $7.5M variance in Pickering Non-Regular Labour costs was funded from Other Purchased Services. Pickering Other Purchased Services had a decrease of $30.4M, a variance of 34% from Board Approved to Actual 2012. Total incremental labour resource outage costs combined (i.e. Non Regular labour, Overtime, Augmented Staff and Other Purchase Services) had a favourable variance of $3.8M.

e) The $14.7M variance in Overtime costs was funded from Other Purchased Services. Other Purchased Services had a decrease of $30.4M, a variance of 34% from 2012 Board Approved to Actual 2012. Total incremental labour resource outage costs combined (i.e. Non Regular labour, Overtime, Augmented Staff and Other Purchase Services) had a favourable variance of $3.8M.

1 F2-4-1 Table 3 indicates a favourable Other Purchase Services variance between 2012 Board Approved and 2012 Actual of $57.8M ($90.5M-$32.7M). The 2012 Board Approved was based on the prior IMS model whereby IMS costs were included as a station Other Purchased Service. The 2012 Budgeted Board Approved Pickering Outage costs also included other Nuclear Support costs for Radiation Protection and Engineering. This interrogatory response restates 2012 Actual Pickering Outage costs and is based on the new IMS cost model, implemented under Business Transformation, in which IMS costs are included as Nuclear Support along with Radiation Protection and Engineering. Restating 2012 Actual Other Purchased Services based on prior IMS cost model, Radiation Protection and Engineering results in a favourable variance of $30.4M. The total Pickering 2012 Outage OM&A cost restated for IMS cost model, Radiation Protection, and Engineering was $123.4M (see also AMPCO 043).
ED Interrogatory #015

Ref: Exhibits F2, F3 and F4

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

a) Please provide the total operating, maintenance and administration costs for the Pickering Nuclear Station ($ per MWh) for each of the following years: 2010, 2011, 2012 and 2013.

b) Please provide OPG’s forecast total operating, maintenance and administration costs for the Pickering Nuclear Station ($ per MWh) for: (i) 2014; and (ii) 2015. Please provide a break-out of these costs according to: (i) operating; (ii) maintenance; and (iii) administration costs.

c) Please provide a comparison of Pickering’s forecast total operating, maintenance and administration costs ($ per MWh) for 2014 and 2015 to the incremental cost of meeting Ontario’s electricity needs by (i) increased energy efficiency, (ii) increased output of Ontario’s existing generating facilities, (iii) reduced electricity exports and (iv) increased water power imports from Quebec. Please show your calculations. Please compare each of the alternatives separately.

Response

a) Non-Fuel Operating Cost per MWh is one of the key performance indicators used by OPG to benchmark financial performance against other utilities (Ex. F2-1-1, Attachment 1). It includes all OM&A costs associated with operating and maintaining each nuclear station, including indirect costs such as corporate costs.

The annual Non-Fuel Operating Costs per MWh for 2010 - 2013 for the Pickering Nuclear Station were:

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pickering</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Fuel Operating Cost per MWh ($ per MWh)</td>
<td>58.75</td>
<td>57.82</td>
<td>55.20</td>
<td>58.54</td>
</tr>
</tbody>
</table>

The Non-Fuel Operating Cost increase in 2013 for Pickering was largely due to reduced production associated with extensions to planned outages.
b) 2014 and 2015 (Ex. F2-1-1, Attachment 2, page 8) Non-Fuel Operating Costs per MWh for the Pickering Nuclear Station are forecast to be:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pickering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Fuel Operating Cost per MWh ($ per MWh)</td>
<td>55.71</td>
<td>53.34</td>
</tr>
</tbody>
</table>

OM&A costs are not budgeted separately as operating, maintenance and administration expenses so a cost breakdown according to these categories is unavailable.

c) See response to ED Interrogatory #009.
ED Interrogatory #016

Ref: Exhibits F2, F3 and F4

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

a) Please provide the total operating, maintenance and administration costs for the Darlington Nuclear Station ($ per MWh) for each of the following years: 2010, 2011, 2012 and 2013.

b) Please provide OPG’s forecast total operating, maintenance and administration costs for the Darlington Nuclear Station ($ per MWh) for: (i) 2014; and (ii) 2015. Please provide a break-out of these costs according to: (i) operating; (ii) maintenance; and (iii) administration costs.

Response

a) Non-Fuel Operating Cost per MWh is one of the key performance indicators used by OPG to benchmark financial performance against other utilities (2012 Nuclear Benchmarking Report Ex. F2-1-1 Attachment 1). It includes all OM&A costs associated with operating and maintaining each nuclear station, including indirect costs such as corporate allocated costs.

The annual Non-Fuel Operating Costs per MWh for 2010 to 2013 for the Darlington Nuclear Station were:

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darlington Non-Fuel Operating Cost per MWh ($ per MWh)</td>
<td>27.12</td>
<td>23.05</td>
<td>24.28</td>
<td>33.61</td>
</tr>
</tbody>
</table>

2013 was a double outage year for Darlington which decreases production and increases OM&A costs, resulting in an increase to the Non-Fuel Operating Cost per MWh for the year.

b) 2014 and 2015 (Ex. F2-1-1, Attachment 2, page 8) Non-Fuel Operating Costs per MWh for the Darlington Nuclear Station are forecast to be:

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darlington Non-Fuel Operating Cost per MWh ($ per MWh)</td>
<td>27.21</td>
<td>32.82</td>
</tr>
</tbody>
</table>

In 2015 Darlington will be executing a 4-unit Vacuum Building Outage which will decrease production and increase OM&A costs, resulting in a significant increase to Non-Fuel Operating Cost per MWh.

OM&A costs are not budgeted to show operating, maintenance and administration expenses separately so a cost breakdown is unavailable for these individual categories.
LPMA Interrogatory #012

Ref: Exhibit F2, Tab 1, Schedule 1

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

Please update Tables 1, 2 and 3 to reflect actual FTEs for 2013.

Response

Attachment 1 is an update of Ex. F2-1-1 Table 3 to reflect actual FTEs for 2013. Table 1 and Table 2 do not reference FTEs and therefore no update can be provided.
Numbers may not add due to rounding.

Table 3
Nuclear Staff Summary - Regular and Non-Regular (FTEs)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>(d)</td>
<td>(e)</td>
<td>(f)</td>
</tr>
<tr>
<td>1</td>
<td>Regular Staff</td>
<td>7,612.4</td>
<td>7,404.9</td>
<td>7,165.4</td>
<td>5,849.7</td>
<td>5,938.4</td>
<td>5,815.3</td>
</tr>
<tr>
<td>2</td>
<td>Less: Business Transformation Transfers to Corporate</td>
<td>(1,064.7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Total Regular Staff</td>
<td>7,612.4</td>
<td>7,404.9</td>
<td>6,100.7</td>
<td>5,849.7</td>
<td>5,938.4</td>
<td>5,815.3</td>
</tr>
<tr>
<td>4</td>
<td>Non-Regular Staff¹</td>
<td>680.1</td>
<td>583.7</td>
<td>436.0</td>
<td>503.9</td>
<td>377.2</td>
<td>428.6</td>
</tr>
<tr>
<td>5</td>
<td>Subtotal Nuclear Operations</td>
<td>8,292.5</td>
<td>7,988.6</td>
<td>6,536.7</td>
<td>6,353.6</td>
<td>6,315.6</td>
<td>6,243.9</td>
</tr>
<tr>
<td>6</td>
<td>Regular Staff</td>
<td>143.3</td>
<td>208.1</td>
<td>210.9</td>
<td>184.6</td>
<td>264.1</td>
<td>276.0</td>
</tr>
<tr>
<td>7</td>
<td>Non-Regular Staff</td>
<td>9.6</td>
<td>18.4</td>
<td>14.2</td>
<td>16.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>8</td>
<td>Subtotal Nuclear Generation Development</td>
<td>152.9</td>
<td>226.5</td>
<td>225.1</td>
<td>200.6</td>
<td>264.1</td>
<td>276.0</td>
</tr>
<tr>
<td>9</td>
<td>Total Nuclear</td>
<td>8,445.4</td>
<td>8,215.1</td>
<td>6,761.8</td>
<td>6,554.2</td>
<td>6,579.7</td>
<td>6,519.9</td>
</tr>
</tbody>
</table>

Notes:
1 All forecast New Build FTE's in 2014 (21 FTE's) and 2015 (21 FTE's) have been excluded for reasons discussed in Ex. F2-8-1.
LPMA Interrogatory #013

Ref: Exhibit F2, Tab 1, Schedule 1

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

a) Please provide the average annual percentage increase in the labour cost per FTE associated with the Nuclear OM&A costs in each of 2010 through 2015, including 2013 actuals.

b) Please provide the associated dollar impact on the Nuclear OM&A (including overtime) associated with the percentage per FTE requested in part (a) above for each of 2010 through 2015.

c) Please add a line to Table 1 that shows the labour related component (including overtime) of the total OM&A shown on line 11.

d) Please provide a table that shows for each of 2010 through 2015 (including actual 2013) the total labour related costs (requested in part (c) above), the total staff FTE's associated with Nuclear OM&A (shown in Table 3) and the resulting labour cost per FTE.

Response

a) The average annual percentage increase in the labour cost per FTE for the period 2010 - 2015 for Nuclear is set out in Table 1 below. The labour cost per FTE in Table 1 is sourced from Appendix 2k (Ex. F4-3-1, Attachment 6). Appendix 2K represents all Nuclear labour costs (including allocated corporate support to Nuclear) and with the exception of labour on capital expenditures would be OM&A costs. OPG is unable to readily break out the total labour Nuclear OM&A costs from total labour Nuclear costs in Appendix 2k. Appendix 2k was not updated for 2013 Actuals (see Ex. L-01.0-1 Staff-002).

b), c) and d) See Table 1 below
### Table 1

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Reference Line</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>in F4-3-1</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Attachment 6</td>
</tr>
<tr>
<td><strong>FTES</strong></td>
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PWU Interrogatory #015

Ref:

(a): Exh A4-1-1, page 1, lines 12-14 (Business Transformation):

To sustain these staff reductions, OPG has moved to a centre-led model to use resources more efficiently and avoid duplication of work. Each business unit has launched a number of initiatives to improve efficiencies and reduce work through *process streamlining*.

(b): Exh A4-1-1, pages 1, lines 14-16 (Business Transformation): OPG states that these initiatives will drive sustainable change in the business, while ensuring that changes do not impact the safety, reliability and environmental sustainability of OPG's operations.

(c): Exh A4-1-1, Page 2, Lines 8-10:

Business Transformation is intended to transform OPG so that it can compete, grow and respond to changing market conditions without compromising continued safe and reliable operations.

(d): Exh F2-1-1, Page 13, Lines 5-6:

... The nuclear staffing plan is a measured approach and will not compromise safety or the ongoing initiatives to improve reliability and implement industry best practices.

**Issue Number**: 6.3

**Issue**: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

**Interrogatory**

a) What is "process streamlining" indicated in Ref (a)? Provide an example of an activity that has changed as a result of process streamlining, and describe how it has changed, together with the savings that have resulted from the change.

b) What criteria does OPG use to define or determine when the continued safe and reliable operations and environmental sustainability have been compromised?
a) Process streamlining involves reviewing OPG processes to improve the time and effort required through such means as; reducing steps in the process, reducing hand-offs between staff/departments, eliminating low value activity, and improving cycle time to complete the process.

One example of process streamlining to be implemented in the near future is the centralization of People & Culture general inquiries into a HR Service Centre. Currently, employees and managers direct many of their inquiries to their local HR generalist, who often needs to call the employee service centre or other OPG groups to help the employee get the answers they are looking for. Answers are sometimes not consistent or timely, depending on the availability of the HR generalist. A new streamlined process has been designed that shifts these inquiries to a HR Service Centre, a centralized group specialized in handling these inquiries. Starting in April 2014, employees and managers will be able call into the HR Service Centre to get faster, more consistent and accurate answers to their inquiries. The new process includes improved monitoring of inquiries, standard scripts for routine questions, and structured escalation process for more complex inquiries. Over the coming 12-24 months this process change is expected to reduce the HR business partner work effort by the equivalent of 13 staff, and the Total Rewards/Solution Centre work effort by another 22 staff.

b) OPG has operational programs and a strong safety culture that allow it to operate its generation facilities safely and within environmental regulations without compromise. OPG’s priority for all of its generating stations is to safely operate its facilities in a manner that minimizes impact on the environment. OPG has various programs and procedures in place to monitor safety and environmental performance.

Nuclear inspection and testing programs are largely driven by maintenance and regulatory requirements, designed to ensure that equipment is performing reliably and safely. Process and procedural compliance is monitored and managed to ensure a strong safety and performance culture at the nuclear stations. Staffing targets continue to be reviewed and adjusted where necessary to reduce operating costs, while ensuring safety is not compromised.

OPG’s hydro-thermal business strives for continuous improvement in the areas of dam, waterways, and public/employee safety, and environmental performance.

OPG’s environmental policy commits the company to establish and maintain an environmental management system, and works to prevent or mitigate adverse effects on the environment with a long-term objective of continual improvement.
PWU Interrogatory #016

Ref:
(a) Exh: A4-1-1, Page 6, Lines 4-8:

OPG recognizes that sustainable change requires a culture shift. Based on this recognition, OPG has worked to define the culture required to meet the objectives of business transformation. Under the direction of the CEO and Executive Leadership Team, five new behaviours were defined as the culture shifts that OPG must accomplish in order to sustain change....

Issue Number: 6.3
Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

a) Please describe the five new behaviours defined as the culture shifts that OPG must accomplish in order to sustain change.

Response

Please refer to Ex. L-01.2-17 SEC 012.
PWU Interrogatory #017

Ref:
(a) Exh: A4-1-1, Page 1, Lines 8-9:

In summary, under BT, OPG will use attrition to reduce its year-end 2015 staff level by 2,000 employees with the potential for further reductions in later years.

(b) Exh: A4-1-1, Page7, Lines7-9:

As part of the business planning cycle each year, the business units review their Plans for streamlining work and ensure that sufficient work is being reduced or eliminated to support their attrition expectations.

Issue Number: 6.3
Issue: 6.3: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

a) Assuming that OPG succeeds in reducing complement by 2000 employees by 2015 through attrition, what mechanisms will OPG employ to ensure that it retains or replaces all critical skills sets? To what extent are any of the functions formerly performed by any of these 2000 employees being replaced by purchased services?

b) Where OPG's current performance with regard to all aspects of safety (e.g. nuclear, public, staff including work protection and hazard material exposure) exceeds regulatory compliance requirements and/or OPG's policy requirements, is there the possibility that some business units' safety performance will move down towards minimum compliance or policy requirements as a result of the need to support their attrition expectations? Please provide explanation in your response.

c) Please describe all safety-related performance metrics that track OPG's business units' safety performance. Please include work protection and hazard material exposure related metrics.

d) Please provide the regulatory standards and/or corporate objectives and the most recent performance levels for all the safety-performance metrics tracked, by the smallest organizational unit available.

e) Where a business unit's current performance with regard to reliability exceeds OPG's policy objectives is there the possibility that performance in some reliability metrics will move down towards minimum reliability requirements as a result of the need to support the attrition expectations? Please provide explanation in your response.

f) Where OPG's current performance with regard to environmental sustainability exceeds
regulatory compliance requirements and/or OPG’s policy requirements, is there the possibility that some business units will move towards minimum compliance or policy requirements as a result of the need to support their attrition expectations? Please provide explanation in your response.

Response

a) OPG will continue to replace critical skill sets. As attrition occurs, line management reviews the work requirements and assesses if the work can be realigned in such a way to avoid filling the position. For critical skill areas where there is a significant lead time for internal training prior to a person being qualified to fill a position, OPG has plans that allow the company to identify internal resources or to bring in external resources with adequate lead time to train and fill those positions. For example, OPG has continued to hire nuclear operators and graduate engineers due to a high expected attrition rate in these critical skill sets.

Although BT’s focus is on reducing costs through a reduction in headcount, the objective of BT is to reduce OPG’s overall costs. As such, it is not part of the BT strategy to replace employees with purchased services.

b) OPG’s Employee Health and Safety Policy states:

OPG shall meet or exceed all applicable health and safety legislative requirements as well as other associated health and safety standards to which OPG subscribes.

This requirement to meet or exceed regulatory requirements, as well as other health and safety requirements, has been maintained consistently in our policy over the past decade, and it is expected that businesses conform to these requirements in their daily operations. The Employee Health and Safety policy is reviewed and approved annually by the OPG Board of Directors.

c) Attachment 1 to this response describes OPG’s safety-related performance metrics as well as OPG’s nuclear safety-related performance metrics.

d) Attachment 2 to this response is a table excerpted from OPG’s Registry of Legal and Other Health and Safety Requirements which lists all the regulatory standards that apply to OPG. Attachment 3 to this response shows OPG’s 2013 performance levels for the safety-related performance metrics as well as additional nuclear safety-related performance metrics.

e) OPG believes that reducing 2000 headcount by the end of 2015 can be achieved without impacting the reliability of our operations. The change initiatives identified to streamline work were largely focused on the support services to the operations rather than direct operations and maintenance of the plants which provides reassurance that the plans are achievable without directly impacting the reliability of the operations.
f) OPG’s Environmental Policy states:

OPG will meet all legal requirements and any environmental commitments that it makes, with the objective of exceeding these legal requirements where it makes business sense.

Consistent with its policy, OPG will assess the business case for beyond compliance programs and continue those programs where it determines that there is a business benefit.
OGP Safety Performance Metrics

All Injury Rate (AIR): measures the number of injuries involving OPG employees that result in lost time or requiring medical treatment, i.e. number of lost time and medical treatment injuries per 200,000 hours worked.

Accident Severity Rate (ASR): measures the number of days lost due to injuries to OPG employees, i.e. number of calendar days lost per 200,000 hours worked.

Lost Time Injury: A work injury or illness resulting in lost days (minimum of one) beyond the date of injury as a direct result of a safety incident. A fatality is not considered a lost time injury.

Lost Days: The number of calendar days that the employee is unable to work beyond the day of injury or illness recommended by a physician or other health care professional. Lost time ends as of the date that the employee is deemed fit to work either full or modified duties or to a maximum of 180 calendar days for any individual case. For cases where the disability will continue beyond the year-end closing date, lost days shall be estimated on the basis of medical opinion as to probable ultimate disability. Lost days are only recorded for the period that the injured person is in the employ of OPG.

Medical Treatment Injury: A work-related injury or illness requiring medical care or treatment beyond First Aid but does not result in days lost from work.

First Aid Injury: A work injury that requires First Aid treatment only – such as cleaning of wounds; use of bandages, butterflies, steri-strips, gauze pads or eye patches; drinking of fluids for heat stress; removal of foreign objects from eyes with irrigation or cotton swab; use of massage or hot and cold therapy – and does not result in loss of time from work.

High MRPH incident is one where death or Permanent Total Disability occurs or has “reasonable potential” to occur. Maximum Reasonable Potential for Harm (MRPH) is an OPG rating system used to determine the potential severity of safety incidents.

Additional Nuclear Safety Performance Metrics

Collective Radiation Exposure (CRE): The sum of all whole body dose equivalent doses assigned to all individuals, including contract staff and visitors, exposed to ionizing radiation at OPG Nuclear's operating stations and associated sites, divided by the number of units in commercial operation or being returned from laid-up state at that station.

Work Protection Level 1 Events: The total number of reported Level 1 events involving a Work Protection violation.

A Level 1 event is an error whose apparent cause results with no remaining Work Protection barriers to protect the worker.

- For a Work Protection Permit the remaining barrier is the Work Protection has not yet been accepted by the Holder
- For a PPT Work Protection the remaining barrier is the verification of the Personnel Protection Tagout (PPT) isolation has not been completed.

A Work Protection event whose apparent cause is discovered or has occurred after the Work Protection Permit (WPP) was accepted by the Holder or after the completion of the PPT verification (no remaining WP barriers to protect the worker) is considered a Level 1 event.
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<tr>
<td>Smoke-Free Ontario Act, 1994 (S.O., 1994, c. 10)</td>
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<td>General – O. Reg. 48/06</td>
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<td>Certification and Training of Elevating Device Mechanics, O. Reg. 222/01</td>
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<td>Certification of Petroleum Mechanics, O. Reg. 216/01</td>
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<td>Codes and Standards Adopted by Reference, O. Reg. 223/01</td>
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<td>Fuel Industry Certificates, O. Reg. 215/01</td>
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<td>Liquid Fuels Handling Code</td>
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<td>Benefit for Loss of Retirement Income, O. Reg. 582/99</td>
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<td>Firefighters, O. Reg. 253/07</td>
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<td>General – O. Reg. 175/98</td>
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<td>Return to Work and Re-employment - Construction Industry, O. Reg. 35/08</td>
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<td>Incident Type</td>
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<tr>
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</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>123</td>
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</tr>
<tr>
<td>Medical Injury</td>
<td>45</td>
<td>45</td>
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<tr>
<td>Days Lost</td>
<td>123</td>
<td>123</td>
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<tr>
<td>Medical Injury First Treatment Lost Days</td>
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<td>Medical Injury Lost Days</td>
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<tr>
<td>Air Injury</td>
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<tr>
<td>Air Injuries in Days Lost</td>
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<tr>
<td>Aircraft Injury</td>
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<tr>
<td>Aircraft Injuries in Days Lost</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

For 2013, the data covers the period from January 1, 2013, to December 31, 2013. For 2014, the data covers the period from January 1, 2014, to December 31, 2014.
### 2013 Nuclear Specific Safety Metrics

<table>
<thead>
<tr>
<th>Actual</th>
<th>Target</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>8</td>
<td>Level 1 Work Protection Events (annual number of events)</td>
</tr>
<tr>
<td>86.26</td>
<td>99.86</td>
<td>Collective Radiation Exposure (person-rem/unit)</td>
</tr>
</tbody>
</table>
PWU Interrogatory #018

Ref:
(a): Exh F2-2-1, Page 4, line 16-19:

Other Purchased Services: The costs of specialized external services, including
collection and maintenance services, personal protective equipment laundry
services, and specialized technical services (e.g. nuclear safety analysis,
research and development, and specialized testing services.)

(b): Exh. F2-2-1, Tables: Table 2— Base OM&A-Nuclear. Table 2 presents Base OM&A
expenses for 2010-2015 including for Other Purchased Services.

(c): Exh F2-3-1, Tables, Table 1 —Project OM&A Summary— Nuclear($M)


The resource types associated with these incremental resources areas follows:
• Other Purchased Services: the cost of contractors performing specialized
inspection and maintenance work or conducting major component
refurbishments.

(e): Exh F2-4-1, Tables: Tables 2 and 3. Outage OM&A — Nuclear by Resource Type
(Tables 2 and 3 present Outage OM&A expense, including Other Purchased Service, for bridge
year and test period and historic years, respectively)

(f): Exh N1-1-1, Page 2, Line 12-15 and Page 3, Chart 1:

The main remaining changes from the 2014-2016 Business Plan, which net to an
approximate $33.0M [including $26M in OM&A indicated in Chart 1 on page 3)
increase in revenue requirement over 2014-2015, are identified below. However,
OPG is not seeking to recover these amounts in the revised payment amounts
and riders...

(g): Exh N1-1-1, Page 12, Lines 3-6

The nuclear production forecast for 2014 and 2015 in the 2014 -2016 Business
Plan is 2.6 TWh lower than the 2013-2015 Business Plan, primarily due to the
addition of 148.5 planned outage days over the two years. As a result, the
forecast production levels for 2014 and 2015 are 49.0 TWh and 46.1 TWh,
respectively.
Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

a) Please provide a breakout of Other Purchased Service amounts for 2013 actual, 2014 plan and 2015 plan provided in Ref (b) by major service identified in Ref (a), e.g., construction and maintenance services, personal protective equipment laundry services, nuclear safety analysis, research and development, specialized testing services, etc.

b) What is the share of the labour component for Other Purchased Services total amounts included in the Base OM&A expense in Ref (b) for the test year period?

c) What is the share of the labour purchased component for total Project OM&A costs included in Ref (c) for the test year period?

d) What is the share of the labour component for Other Purchased Services total amounts included in Outage OM&A expense in Ref (e) for the test year period?

e) Table 2 provided in Ref (b) indicates that Other Purchased Services cost related to nuclear Base OM&A is $95.4M, $126.7 M, $145.9 M and $146.4 M for 2012 Actual, 2013 budget, 2014 Plan and 2015 Plan, respectively. Please explain the reasons for the increase.

f) Table 2 provided in Ref (e) indicates Augmented Staff cost related to the nuclear Outage OM&A expense is $27.8M, $20.2 and $27.6M for 2013 budget, 2014 plan and 2015 plan, respectively, while Table 3 indicates $0.2M in 2011 and $11.6M in 2012. Please explain the reasons for the increase.

g) What are the 2014-2016 Business Plan changes, if any, impacting nuclear Base OM&A expense included in Table 2 of Ref (b) and nuclear Project OM&A expense included in Table 1 of Ref (c)? If there are any, are those changes reflected in the $26 million OM&A cost change identified in Ref (f) of which OPG is not seeking to recover in the revised payment amounts and riders?

h) Does the addition of 148.5 planned outage days over 2014 and 2015 impact the 2014 and 2015 nuclear Outage OM&A expenses included in Table 2 of Ref (e)? If yes, are the resulting Outage OM&A expense changes reflected in the $26 million OM&A cost change indicated in Ref (f).

Response

a) There are many Base OM&A work programs which are, to some extent, resourced by Other Purchased Services. The table below provides the breakdown by function.
- Personal protective equipment laundry services is a subset of the Station Maintenance function (e.g., $10.7M in both 2014 and 2015). The Station Operations and Maintenance functions also include service contracts for peak work such as preventive and corrective maintenance to drive down work order backlogs.
- The Project and Modifications function is representative of construction services over the 2013 - 2015 timeframe.
- The Engineering function includes approximately $10.0M for nuclear safety analysis each year (i.e., in Nuclear Safety and Technology Department). Other examples of large programs in Engineering, which are resourced through Other Purchased Services, include: COG Reactor Safety; EPRI Association Dues; Fuel Channel programs (e.g., AMEC support); and various testing programs (e.g., Pipewall Thinning, Buried Pipe).

Specific Research and Development ("R&D") type costs include $1.5M in 2014 and 2015, but other significant R&D efforts are reflected across the Engineering, Nuclear Services and IMS Functions.

b) The share of the labour component for Other Purchased Services in the Base OM&A expense for the test year period cannot be specifically identified as vendors do not provide the labour and resource breakdowns of their contracted services and OPG’s plans do not include such a breakdown. However, it is assumed that the labour component represents the majority of the cost.

### Nuclear Base OM&A-Other Purchased Services by Function ($M)

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Function</th>
<th>Darlington NGS</th>
<th>Pickering NGS</th>
<th>Total</th>
<th>Darlington NGS</th>
<th>Pickering NGS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Operations &amp; Maintenance</td>
<td>0.3</td>
<td>0.6</td>
<td>0.9</td>
<td>10.8</td>
<td>7.6</td>
<td>18.4</td>
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<td>2</td>
<td>- Operations</td>
<td>14.9</td>
<td>24.7</td>
<td>39.5</td>
<td>27.7</td>
<td>36.3</td>
<td>64.0</td>
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<tr>
<td>3</td>
<td>- Maintenance</td>
<td>0.2</td>
<td>0.0</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
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<tr>
<td>4</td>
<td>Site and Support Services</td>
<td>1.0</td>
<td>4.1</td>
<td>5.0</td>
<td>3.5</td>
<td>6.3</td>
<td>9.8</td>
</tr>
<tr>
<td>5</td>
<td>Tritium Removal Facility</td>
<td>0.4</td>
<td>0.4</td>
<td>0.8</td>
<td>0.8</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>6</td>
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<td>3.2</td>
<td>3.2</td>
<td>3.3</td>
<td>3.3</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>7</td>
<td>Total Stations</td>
<td>16.8</td>
<td>32.5</td>
<td>49.3</td>
<td>42.7</td>
<td>53.7</td>
<td>96.4</td>
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<td>73.1</td>
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<td>8.4</td>
<td>1.3</td>
<td>1.3</td>
<td>2.6</td>
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<td>0.8</td>
<td>1.6</td>
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<td>4.5</td>
<td>2.9</td>
<td>7.4</td>
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<td>1.5</td>
<td>0.4</td>
<td>0.3</td>
<td>0.7</td>
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<td>13</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>14</td>
<td>Other Support</td>
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<td>146.4</td>
<td></td>
<td>146.4</td>
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<td></td>
</tr>
</tbody>
</table>

**Witness Panel:** Nuclear Business Planning, OM&A, Benchmarking
c) As noted above in b), the share of labour component for Other Purchased Services in the Project OM&A costs, for the test year period, cannot be identified. However, it is assumed that the labour component represents the majority of the cost.

d) As noted above in b), the labour component for Other Purchased Services in the Outage OM&A expense, for the test year period, cannot be identified. However, it is assumed that the labour component represents the majority of the cost.

e) The increase and year-over-year changes by function for Other Purchased Services in Base OM&A are summarized in the table below.

Comparison of Nuclear Base OM&A-Other Purchased Services by Function ($M)

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Function</th>
<th>2012 Actual</th>
<th>(c)-(a) Change</th>
<th>2013 Budget</th>
<th>(e)-(c) Change</th>
<th>2014 Plan</th>
<th>(g)-(e) Change</th>
<th>2015 Plan</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>(d)</td>
<td>(e)</td>
<td>(f)</td>
<td>(g)</td>
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<tr>
<td>1</td>
<td>Operations &amp; Maintenance</td>
<td>38.5</td>
<td>23.2</td>
<td>61.7</td>
<td>20.7</td>
<td>82.4</td>
<td>7.4</td>
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<td>- Operations</td>
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<td>8.6</td>
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<td>18.4</td>
<td>4.6</td>
<td>23.0</td>
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<tr>
<td>3</td>
<td>- Maintenance</td>
<td>38.1</td>
<td>14.6</td>
<td>52.8</td>
<td>11.2</td>
<td>64.0</td>
<td>2.8</td>
<td>66.8</td>
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<td>(0.4)</td>
<td>0.1</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>5</td>
<td>Site and Support Services</td>
<td>3.7</td>
<td>6.2</td>
<td>9.8</td>
<td>0.0</td>
<td>9.8</td>
<td>(0.2)</td>
<td>9.7</td>
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<tr>
<td>6</td>
<td>Tritium Removal Facility</td>
<td>0.5</td>
<td>0.4</td>
<td>0.9</td>
<td>(0.2)</td>
<td>0.8</td>
<td>0.4</td>
<td>1.2</td>
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<tr>
<td>7</td>
<td>Pickering Continued Operations</td>
<td>5.8</td>
<td>(2.6)</td>
<td>3.2</td>
<td>0.1</td>
<td>3.3</td>
<td>(3.3)</td>
<td>0.0</td>
</tr>
<tr>
<td>8</td>
<td>Total Stations</td>
<td>48.5</td>
<td>27.6</td>
<td>76.1</td>
<td>20.2</td>
<td>96.4</td>
<td>4.4</td>
<td>100.7</td>
</tr>
</tbody>
</table>

| 9        | Engineering                    | 31.8        | 3.7            | 35.5        | 1.4            | 36.9      | (1.6)          | 35.3      |
| 10       | Projects & Modifications       | 5.2         | (3.2)          | 2.1         | (0.3)          | 1.8       | (0.1)          | 1.7       |
| 11       | Nuclear Services               | 1.3         | 1.0            | 2.3         | (1.0)          | 1.3       | 0.0            | 1.3       |
| 12       | Fleet Operations and Maintenance| 0.5        | 0.4            | 0.9         | (0.1)          | 0.8       | (0.3)          | 0.5       |
| 13       | Security and Emergency Services| 6.6         | (2.1)          | 4.5         | (0.7)          | 3.8       | (0.2)          | 3.6       |
| 14       | Inspection & Maintenance Services| 1.2    | 3.7            | 5.0         | (0.4)          | 4.5       | (1.7)          | 2.9       |
| 15       | Other Support                  | 0.3         | 0.1            | 0.4         | (0.0)          | 0.4       | (0.0)          | 0.3       |
| 16       | Total Support                  | 46.9        | 3.7            | 50.6        | (1.1)          | 49.5      | (3.8)          | 45.7      |
| 17       | Total Base OM&A-Other P/S      | 95.4        | 31.3           | 126.7       | 19.1           | 145.9     | 0.6            | 146.4     |

More significant changes in the above table are due to:

- Increases in the Site Operations and Maintenance programs are representative of expected total resource changes that are required to meet and support peak work program priorities.
• The overall Support increase from 2012 - 2013 is mainly due to Station budgets and accountabilities moving to Support organizations as part of Business Transformation.

Regarding the first point, a review of the annual trends in Other Purchased Services from 2012 - 2015 is best undertaken from an overall perspective to consider Overtime and Augmented Staff. All of these resource types would be deployed to supplement the capability of the workforce provided by Regular Labour, which may vary from plan due to priorities based on work program developments. While business plans attempt to estimate the breakdown of these resource types, the actual mix implemented through detailed operational plans evolve based on business needs.

Here are the Base OM&A year-over-year changes, considering Other Purchased Services, in conjunction with Overtime and Augmented Staff:

**Base OM&A - Nuclear ($M) - Overtime, Augmented Staff & Other Purchased Services**

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>2013 Actual</th>
<th>2013 Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overtime</td>
<td>48.6</td>
<td>30.2</td>
</tr>
<tr>
<td>Augmented Staff</td>
<td>3.1</td>
<td>0.3</td>
</tr>
<tr>
<td>Other Purchased Services</td>
<td>100.0</td>
<td>126.7</td>
</tr>
<tr>
<td><strong>Subtotal - Specific Base RT's</strong></td>
<td>151.7</td>
<td>157.3</td>
</tr>
</tbody>
</table>

f) The year-over-year variances for Outage OM&A Augmented Staff are primarily due to the following:

• In 2011, all IMS Outage costs were included in the Stations under Other Purchased Services. If the 2012 - 2015 approach for IMS had been used for 2011, IMS would include $13.5M in Augmented Staff Outage OM&A costs in 2011 and station costs would be reduced by the same amount.

• Variations from 2012 - 2015 are largely due to changes in IMS. These variations can largely be explained by year-over-year changes in the Darlington Outage Plan (e.g., double outage in 2013) and the need to employ Augmented Staff due to peak work requirements (e.g., 2015 with the additional Darlington VBO).

• Increases elsewhere (i.e., Engineering, Station Work Management) in 2014 and 2015 reflect preparation activities for the Darlington Vacuum Building Outage.

g) The $26M is the cumulative difference in all work programs between the 2014 - 2016 Business Plan and the 2013 - 2015 Business Plan. The requested analysis is not relevant to
h) The $26M is the cumulative difference in all work programs between the 2014 - 2016 Business Plan and the 2013 - 2015 Business Plan. The requested analysis is not relevant to as OPG is not seeking to recover these amounts in the revised payment amounts and riders.
PWU Interrogatory #019

Ref:

(a): Exh F2-6-1, Page 1, Lines 23-24. OM&A Purchased Services — Nuclear Operations. As indicated on page 1, total purchases for the vendors are $119.5M in 2010, $65.9M in 2011 and $84.2M in 2012.

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

a) Please provide a breakout of the 2010, 2011 and 2012 OM&A Purchased Service expenses for nuclear operations by major service category (e.g. construction, engineering, safety analysis, etc).

Response

Note that the reference to Ex. F2-06-01 pertains to a subset of Nuclear Operations Other Purchased Services representing major suppliers with annual billings in excess of $16.0M. The information provided below is for all of Nuclear Operations Other Purchased Services.

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Stations</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operations &amp; Maintenance</td>
<td>45.7 (a)</td>
<td>26.5 (b)</td>
<td>38.7 (c)</td>
<td>10.2 (a)</td>
<td>26.0 (b)</td>
<td>36.2 (c)</td>
<td>13.2 (a)</td>
<td>24.9 (b)</td>
<td>38.1 (c)</td>
</tr>
<tr>
<td>- Maintenance</td>
<td>12.3 (a)</td>
<td>26.5 (b)</td>
<td>38.7 (c)</td>
<td>10.2 (a)</td>
<td>26.0 (b)</td>
<td>36.2 (c)</td>
<td>13.2 (a)</td>
<td>24.9 (b)</td>
<td>38.1 (c)</td>
</tr>
<tr>
<td>- Ops &amp; Mics Other</td>
<td>2.7 (b)</td>
<td>4.2 (b)</td>
<td>6.9 (c)</td>
<td>2.2 (b)</td>
<td>2.9 (b)</td>
<td>5.1 (c)</td>
<td>0.2 (b)</td>
<td>0.1 (b)</td>
<td>0.4 (c)</td>
</tr>
<tr>
<td>Station Engineering</td>
<td>2.1 (b)</td>
<td>3.9 (b)</td>
<td>6.0 (c)</td>
<td>2.5 (b)</td>
<td>5.1 (b)</td>
<td>7.6 (c)</td>
<td>0.0 (b)</td>
<td>0.0 (b)</td>
<td>0.0 (c)</td>
</tr>
<tr>
<td>Support Services</td>
<td>0.1 (b)</td>
<td>2.9 (b)</td>
<td>3.0 (c)</td>
<td>0.3 (b)</td>
<td>5.0 (b)</td>
<td>5.3 (c)</td>
<td>1.3 (b)</td>
<td>2.3 (b)</td>
<td>3.7 (c)</td>
</tr>
<tr>
<td>Other Station Functions</td>
<td>0.5 (b)</td>
<td>1.3 (b)</td>
<td>1.8 (c)</td>
<td>0.2 (b)</td>
<td>1.9 (b)</td>
<td>2.1 (c)</td>
<td>0.6 (b)</td>
<td>0.1 (b)</td>
<td>0.6 (c)</td>
</tr>
<tr>
<td>Pickering Continued Operations</td>
<td>0.5 (b)</td>
<td>0.5 (b)</td>
<td>1.7 (c)</td>
<td>1.7 (b)</td>
<td>1.7 (b)</td>
<td>5.8 (c)</td>
<td>5.8 (b)</td>
<td>5.8 (b)</td>
<td>5.8 (b)</td>
</tr>
<tr>
<td>Total Stations</td>
<td>17.7 (b)</td>
<td>39.3 (b)</td>
<td>56.9 (c)</td>
<td>15.4 (b)</td>
<td>42.5 (b)</td>
<td>58.0 (c)</td>
<td>15.3 (b)</td>
<td>33.2 (b)</td>
<td>48.5 (c)</td>
</tr>
<tr>
<td>Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>28.8 (b)</td>
<td>28.8 (b)</td>
<td>28.8 (c)</td>
<td>31.8 (b)</td>
<td>31.8 (b)</td>
<td>31.8 (c)</td>
<td>0.0 (b)</td>
<td>0.0 (b)</td>
<td>0.0 (c)</td>
</tr>
<tr>
<td>Facilities Management</td>
<td>3.0 (b)</td>
<td>2.1 (b)</td>
<td>2.1 (c)</td>
<td>0.0 (b)</td>
<td>0.0 (b)</td>
<td>0.0 (c)</td>
<td>0.0 (b)</td>
<td>0.0 (b)</td>
<td>0.0 (c)</td>
</tr>
<tr>
<td>Nuclear Programs &amp; Training</td>
<td>4.9 (b)</td>
<td>4.0 (b)</td>
<td>4.7 (c)</td>
<td>0.0 (b)</td>
<td>0.0 (b)</td>
<td>0.0 (c)</td>
<td>0.0 (b)</td>
<td>0.0 (b)</td>
<td>0.0 (c)</td>
</tr>
<tr>
<td>Security &amp; Emergency Services</td>
<td>10.8 (b)</td>
<td>8.6 (b)</td>
<td>9.6 (c)</td>
<td>6.6 (b)</td>
<td>6.6 (b)</td>
<td>6.6 (c)</td>
<td>1.2 (b)</td>
<td>1.2 (b)</td>
<td>1.2 (b)</td>
</tr>
<tr>
<td>Inspection &amp; Maintenance Services</td>
<td>(9.1) (b)</td>
<td>(9.6) (b)</td>
<td>(9.7) (c)</td>
<td>1.2 (b)</td>
<td>1.2 (b)</td>
<td>1.2 (c)</td>
<td>1.2 (b)</td>
<td>1.2 (b)</td>
<td>1.2 (b)</td>
</tr>
<tr>
<td>Other Support Functions</td>
<td>1.7 (b)</td>
<td>2.4 (b)</td>
<td>2.4 (c)</td>
<td>7.8 (b)</td>
<td>7.8 (b)</td>
<td>7.8 (c)</td>
<td>0.0 (b)</td>
<td>0.0 (b)</td>
<td>0.0 (c)</td>
</tr>
<tr>
<td>Total Support</td>
<td>0.0 (b)</td>
<td>0.0 (b)</td>
<td>0.0 (c)</td>
<td>38.9 (b)</td>
<td>38.9 (b)</td>
<td>38.9 (c)</td>
<td>0.0 (b)</td>
<td>0.0 (b)</td>
<td>0.0 (c)</td>
</tr>
<tr>
<td>Total Base OM&amp;A</td>
<td>17.7 (b)</td>
<td>39.3 (b)</td>
<td>57.0 (c)</td>
<td>15.4 (b)</td>
<td>42.5 (b)</td>
<td>58.0 (c)</td>
<td>15.3 (b)</td>
<td>33.2 (b)</td>
<td>48.5 (c)</td>
</tr>
</tbody>
</table>

Notes:
1. Security and Emergency Services was "Security" prior to 2012.
Any comparison between 2011 and 2012 of Other Purchase Services should be cognizant that as part of Business Transformation, certain functions and resources were transferred from Nuclear to centre-led corporate business functions in 2012. This included the transfer of various Nuclear Support functions to Corporate in 2012. Business Transformation also resulted in a consolidation and restructuring of functions within Nuclear, including transfers into Nuclear Support from the stations.

In addition the presentation of Inspection and Maintenance Services ("IMS") costs changed from 2011 to 2012. For 2010 and 2011, Nuclear Station’s Other Purchase Services included the cost of work performed by OPG’s IMS division. For 2012 and thereafter, IMS costs are separately identified as part of services provided by the Nuclear Support division.
SEC Interrogatory #085

Ref:
[A1-3-2/p.4]

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

Please confirm that the Applicant is proposing to reverse the Board’s disallowance of $145 million of nuclear compensation costs from EB-2010-0008 on a going forward basis. Please provide details of all steps the Applicant has taken to reduce nuclear compensation costs by $145 million, and quantify the success of each of those steps in dollars per year of compensation reductions. If no steps have been taken to reduce nuclear compensation costs in response to the Board’s disallowance, please explain why.

Response

The decision of the Court of Appeal for Ontario, issued June 4, 2013, ordered that the matter of the disallowance be remitted back to the OEB to be heard in accordance with the principles set out in the court’s decision. The OEB has sought leave to appeal that decision. The re-hearing of the matter has not yet taken place.

This Application concerns the 2014/2015 test period. Accordingly, the reference to the disallowance of costs from a prior period is not relevant. That said, as reflected in the evidence filed in this Application, OPG has taken steps to reduce its compensation costs through its Business Planning process, through Business Transformation and through its efforts in collective bargaining. These actions, including the savings achieved, are described in detail in Ex. A4-1-1 (Business Transformation) and in Ex. F4-3-1 (collective bargaining). OPG’s efforts to reduce compensation costs have not been specifically directed to reducing nuclear compensation costs by $145 million, instead they have been focused on overall cost control across all business units.
SEC Interrogatory #0086

Ref: [A1-6-1/p.9]

Issue Number: 6.3
Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

Please file the legislation referred to in Section 8.2.

Response

The Nuclear Liability Act (Canada) can be found at:


Proposed changes to this legislation are included in Bill C-22 “An Act respecting Canada’s offshore oil and gas operations, enacting the Nuclear Liability and Compensation Act, repealing the Nuclear Liability Act and making consequential amendments to other Acts” which can be found at:

SEC Interrogatory #087

Ref: N1-1-1 -Attachment 4 / A2-2-1-Attachment 1 / OPG_F4-03-01 Attachment 6

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

The headcount reductions for Nuclear Operations and Nuclear Projects for 2013 through 2015 have changed significantly in the updated business plan. Please provide an explanation for the variance. Please reconcile the 2014-16 Nuclear Business Plan FTEs with those shown in the updated Appendix 2k

Response

The table below provides a comparison of Nuclear Operations and Nuclear Projects headcount changes for 2013 - 2015 consistent with the above references.

<table>
<thead>
<tr>
<th></th>
<th>2013-2015 Business Plan (Reference A2-2-1 Attachment 1)</th>
<th>2014-2016 Business Plan (Reference N1-1-1 - Attachment 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Budget Business Plan</td>
<td>Forecast Business Plan</td>
</tr>
<tr>
<td>Nuclear Operations</td>
<td>5,325</td>
<td>5,195</td>
</tr>
<tr>
<td>Nuclear Projects</td>
<td>713</td>
<td>701</td>
</tr>
<tr>
<td>Total</td>
<td>6,038</td>
<td>5,896</td>
</tr>
</tbody>
</table>

Plan over Plan Difference

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear Operations</td>
<td>397</td>
<td>468</td>
<td>475</td>
</tr>
<tr>
<td>Nuclear Projects</td>
<td>-408</td>
<td>-382</td>
<td>-379</td>
</tr>
<tr>
<td>Total</td>
<td>-11</td>
<td>86</td>
<td>96</td>
</tr>
</tbody>
</table>
On a plan over plan basis, the overall nuclear headcount increases in 2014 and 2015. This increase is primarily associated with resources required to support Darlington Refurbishment and additional operator hiring demands.

With respect to support for Darlington Refurbishment, staff resources are shown within the nuclear operations headcount but the costs of these staff are charged to the Refurbishment project and included in the approved Refurbishment project estimate.

With respect to operator hiring, OPG monitors staffing levels in various work groups to ensure that there is sufficient staff to achieve its business objectives. Additional operator hiring was required to maintain adequate staffing levels based on anticipated attrition, the length of training required for operators, and the experience needed by these staff to become competent to perform their work (see L-06.8-19 SEP-010).

Within the total headcount provided in the tables above, there is a redistribution of resources between Nuclear Operations and Nuclear Projects. This redistribution reflects organization changes that don’t increase overall headcount.

Below is a summary of the major organization changes (headcount and budgets were transferred to Nuclear Operations with an equal and offsetting reduction in Nuclear Projects).

<table>
<thead>
<tr>
<th>Transfer from Nuclear Projects to Nuclear Operations</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection &amp; Maintenance Services</td>
<td>373</td>
<td>363</td>
<td>363</td>
</tr>
<tr>
<td>Nuclear Decommissioning</td>
<td>8</td>
<td>10</td>
<td>11</td>
</tr>
</tbody>
</table>
**SEC Interrogatory #088**

**Ref:**
[N1-1-1 -Attachment 5]

**Issue Number: 6.3**

**Issue:** Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

**Interrogatory**

**6.3-SEC-88**

Please explain what the OM&A “ceilings” refer to in the 2014-16 Nuclear Business Plan (page 20 of plan).

**Response**

OPG Nuclear employs a portfolio management approach to assess and prioritize all nuclear operations projects. OPG sets a target of expenditures based on historical investment patterns, project execution capabilities, and high-level comparative benchmark data.

The OM&A Project Portfolio is made up of:
- “Portfolio Projects Allocated”, which is equal to the sum of the AISC-approved budgets for all projects that have an approved business case summary (“BCS”).
- “Portfolio Projects Unallocated”, which is the remaining budget available to cover the cost of project work that is progressing through the review and approval process.
- “Infrastructure”, which includes management oversight and direction, minor modifications at each of the stations, conceptual funding to undertake project initiation work, and project write-offs for cancelled projects.

The OM&A Project “ceiling” is the budget limit for the OM&A Project Portfolio described above.
Ref: Attachment 5

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

The Auditor General Report found that there was an imbalance between overstaffed (support) and understaffed (operations) in OPG’s Nuclear operations. Please explain how this is addressed in the rate proposal.

Response

The Auditor General relied upon the findings of the 2011 and 2013 Goodnight Consulting staff benchmark reports which identified various functional areas as over or under benchmarked (Auditor General Report page 160).

OPG Nuclear used the Goodnight Consulting findings in its 2013 - 2015 business planning to develop targets and implement improvement plans that addressed over or under benchmarked functional areas. OPG noted at Ex.F2-1-1, page 12 of 18 that in response to the Goodnight study “the 2013 - 2015 Nuclear business planning guidelines were updated to include staff adjustments where possible. For example, additional resources were budgeted for plant and technical engineering which were significantly below benchmark, while the resource budgets were reduced by similar amounts for areas such as Operations and Maintenance Support groups which were over benchmark”.

OPG’s evidence at Ex. F2-1-1, page 13 of 18 also states that “OPG is using the Goodnight study to monitor attrition reductions to assess those functions identified as being at or below benchmark. One of the challenges of using an attrition-based model to reduce FTEs is that attrition does not always occur in areas that are over the benchmark. As such, a controlled hiring process was implemented to ensure critical functions do not fall too far below functional benchmarks so that they can continue to meet performance expectations and mitigate risks”. Please also refer to L-06.4-17 SEC-094 which outlines the process by which OPG uses the findings of the Goodnight staffing benchmark report.

OPG believes its current and ongoing business planning strategy which relies on the findings of Goodnight Consulting, addresses the comments made in the Auditor General’s report on staff imbalances.
SEC Interrogatory #090

Ref:
[F2-1-1/Table 1]

Issue Number: 6.3
Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory
Please update Table 1 to show 2013 actuals (unaudited).

Response
Please see response to Ex. L-1.0-1 Staff-002.
SEC Interrogatory #091

Ref: F2-2-2

Issue Number: 6.3
Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory
For Base Nuclear OM&A please provide a cost driver table showing the sources of the increase as between 2012 Board approved - adjusted for Business transformation (i.e. $1,032.2) to 2014 forecast (i.e. $1,151).

Response
The following is a summary of the cost changes between the 2012 Board Approved ($1,030.2M) and the 2014 forecast amount ($1,151.1M).

<table>
<thead>
<tr>
<th></th>
<th>$M</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012 Board Approved (Restated)</td>
<td>$1,030.2</td>
</tr>
<tr>
<td>2014 Plan</td>
<td>$1,151.1</td>
</tr>
<tr>
<td>Change</td>
<td>$120.9</td>
</tr>
</tbody>
</table>

Summary of Changes
- Labour Escalation & Payroll Burdens $89.2
- 53rd Fiscal Week in 2012 -$15.3
- Obsolescence Provision Increase $4.0
- Low & Intermediate Level Waste - Accounting Change $3.1
- Increases in CNSC Fees & Water Taxes $7.8
- Other Programmatic Changes $32.0
- Total Changes $120.9

Other Programmatic Changes is primarily maintenance efforts to reduce backlogs and other work program activities (e.g., Asbestos Abatement), pressure tube surveillance and equipment reliability activities.

An accounting change reclassified variable Low & Intermediate Level Waste costs from depreciation expense to Base OM&A.
Ref: F2-2-1

Issue Number: 6.3

Issue: Is the test period Operations, Maintenance and Administration budget for the nuclear facilities appropriate?

Interrogatory

There are numerous references to security, emergency preparedness, and Fukushima programs in the referenced exhibit.

a) With respect to emergency generation facilities that would be called upon, for safety reasons, in the event of the loss of external electrical supply, please provide a breakout of the OM&A expenses, by facility and by year, of the amounts allocated for (i) inspection, (ii) internal monitoring, (iii) external monitoring, (iv) routine testing of the generators, and (v) crash testing the generators.

b) To OPG’s knowledge, did any diesel generators at the Fukushima facility fail before the tsunami hit?

c) To OPG’s knowledge, did any diesel generators at the Fukushima facility fail due to failure of the crankshaft as a result of axial vibration?

d) Does OPG have any concerns with respect to its own emergency generators, e.g., regarding bearings, axial vibration, etc., should these generators be called upon to go from stationary to full load in a matter of seconds and remain under full load for a number of hours?

Response

a) OM&A expenses to support Inspection, Maintenance and Testing of on-site Emergency Mitigating Equipment (“EME”) Pumps and Generators is $350k per site ($700k combined). OM&A expenses to support Inspection Maintenance and Testing of off-site EME Pumps and Generators is $100k.

    Total OM&A to inspect, maintain and test all EME (on-site and off-site) is $800k per year.

b) OPG is not aware if any diesel generators at the Fukushima facility failed before the tsunami hit.

c) OPG is not aware if any diesel generators at the Fukushima facility failed due to failure of the crankshaft as a result of axial vibration.

Witness Panel: Nuclear Projects
d) Both Darlington and Pickering have mature System Performance Monitoring and Preventive Maintenance Programs in place. The Emergency Power Generators ("EPGs") are performance tested routinely to ensure availability targets are met. Darlington’s EPG #1 and #2 vibrations and Pickering’s EPG #1, #2 and #3 vibrations are all within acceptable ranges.
Board Staff Interrogatory #083

Ref: Exh F2-1-1 (Attachment 1), OPG Letter December 5, 2013

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

OPG’s response to the Board’s request for information to be provided that disaggregates information related to Pickering A and Pickering B noted that such cost related information could not be provided. The Board’s request was not limited to cost related information. Board staff observes that all of the metrics included in the WANO NPI should be available, as page 77 shows the WANO NPI for all 6 units at Pickering A and Pickering B separately. Please provide information that is disaggregated for all of the non-cost-related metrics identified in the benchmarking report where such information is available, particularly those that reflect and impact performance and reliability (e.g., capability factors, backlogs, etc.).

Response

The following is the disaggregated, non-cost related metrics identified in the benchmarking report where the information is readily available.
### 2012 Benchmarking Report Metrics For Pickering A and B

(2011 Actuals)

<table>
<thead>
<tr>
<th>Metric</th>
<th>Pickering A</th>
<th>Pickering B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Safety</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rolling Average Collective Radiation Exposure (Person-rem per unit)</td>
<td>136.49</td>
<td>96.86</td>
</tr>
<tr>
<td>Airborne Tritium Emissions (Curies) per Unit</td>
<td>3,790</td>
<td>1,953</td>
</tr>
<tr>
<td>Fuel Reliability (microcuries per gram)</td>
<td>0.000290</td>
<td>0.000118</td>
</tr>
<tr>
<td>2-Year Reactor Trip Rate (# per 7,000 hours)</td>
<td>1.04</td>
<td>0.38</td>
</tr>
<tr>
<td>3-Year Auxiliary Feedwater System Unavailability (#)</td>
<td>0.0061</td>
<td>0.0036</td>
</tr>
<tr>
<td>3-Year Emergency AC Power Unavailability (#)</td>
<td>0.0152</td>
<td>0.0084</td>
</tr>
<tr>
<td>3-Year High Pressure Safety Injection Unavailability (#)</td>
<td>0.0004</td>
<td>0.0000</td>
</tr>
<tr>
<td><strong>Reliability</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WANO NPI (Index)</td>
<td>52.8</td>
<td>72.7</td>
</tr>
<tr>
<td>Rolling Average Forced Loss Rate (%)</td>
<td>21.39</td>
<td>4.81</td>
</tr>
<tr>
<td>Rolling Average Unit Capability Factor (%)</td>
<td>65.1</td>
<td>76.2</td>
</tr>
<tr>
<td>Rolling Average Chemistry Performance Indicator (Index)</td>
<td>1.17</td>
<td>1.06</td>
</tr>
</tbody>
</table>

1. 2010 Data is used because 2011 results were unavailable at the time of benchmarking.

Witness Panel: Nuclear Business Planning, OM&A, Benchmarking
Ref: Exh F2-1-1 (Attachment 1), N1-1-1

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

The Nuclear Business Plan sets out “Value for Money” targets for the 2015 test year. The Impact Statement identifies reductions in production and an increase in OM&A costs. Please identify the impact on the “Value for Money” targets of the impact statement.

Response

The 2015 Value for Money target will be impacted by the reduction in the nuclear production forecast and the corresponding lower fuel bundle costs as described in the Impact Statement (Ex. N1-1-1 Section 2.3.1 pages 12-16). The Impact Statement includes a reduction of 2.0 TWh in the nuclear production forecast for 2015 and a corresponding decrease of $7.4 M in nuclear fuel bundle costs. The 2015 Value for Money targets exclude OPEB and Pension costs to align with industry standards (Ex. F2-1-1 Attachment 2 page 8, footnote 1).

The revised 2015 Value for Money targets are summarized in the table below:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pickering</td>
<td>Darlington</td>
<td>Pickering</td>
<td>Darlington</td>
</tr>
<tr>
<td>Total Gen Cost</td>
<td>60.25</td>
<td>42.78</td>
<td>-0.6</td>
<td>-1.4</td>
</tr>
<tr>
<td>Non-Fuel Cost</td>
<td>53.34</td>
<td>32.82</td>
<td>-0.6</td>
<td>-1.4</td>
</tr>
<tr>
<td>Fuel Cost</td>
<td>5.93</td>
<td>5.28</td>
<td>-0.6</td>
<td>-1.4</td>
</tr>
<tr>
<td>CC per MW DER</td>
<td>6.98</td>
<td>34.82</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Board Staff Interrogatory #085

Ref: Exh F2-1-1, Attachment 1, page 58

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

The updated 2012 Nuclear Benchmarking Report indicates the number of 1-Year On-line Corrective Maintenance Backlogs continued to be an issue. Relative to the best quartile at 33, Pickering is almost 5 times higher at 160 and Darlington is over 3.5 times higher at 121. In previous applications, OPG has requested funds to specifically address the backlog issue given their impact on performance. Please provide the number of 1-Year On-line Corrective Maintenance Backlogs for 2012 and 2013.

<table>
<thead>
<tr>
<th>1-Year On-line Corrective Maintenance Backlog</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Quartile</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>2008</td>
</tr>
</tbody>
</table>

Response

The 2008 1-year On-line Corrective Maintenance Backlogs benchmark data is not comparable with the 2011 benchmark data.

OPG benchmarks on-line corrective maintenance backlogs using data provided by the Institute of Nuclear Power Operations ("INPO") AP-928 workgroup. In June 2010, INPO established a new industry standard for classifying work order backlogs, as referenced in Footnote 2 in Ex. F2-1-1, Attachment 1, page 3. As a result, the 2011 data is measured under a different standard than the 2008 data.

The new standard resulted in an increase in on-line corrective maintenance backlog orders.

OPG’s 1-Year On-line Corrective Maintenance Backlogs compared to industry benchmarks for 2012 and 2013 (Best Quartile and Median data for 2013 is currently not available from INPO) is shown below:
The trend since 2011 indicates that Darlington has made continued progress towards reducing the number of backlogs with on-going initiatives related to work prioritization and scheduling. Pickering steadily reduced backlogs over the last four months of 2013 having faced competing priorities earlier in the year. Moreover, the most critical corrective backlogs were reduced by over 30% from 2012 to 2013.

<table>
<thead>
<tr>
<th></th>
<th>Best Quartile</th>
<th>Median</th>
<th>Pickering</th>
<th>Darlington</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>8</td>
<td>28</td>
<td>118</td>
<td>66</td>
</tr>
<tr>
<td>2013</td>
<td>N/A</td>
<td>N/A</td>
<td>124</td>
<td>32</td>
</tr>
</tbody>
</table>

Pickering steadily reduced backlogs over the last four months of 2013 having faced competing priorities earlier in the year. Moreover, the most critical corrective backlogs were reduced by over 30% from 2012 to 2013.
**Board Staff Interrogatory #086**

**Ref:** Exh F2-1-1, Attachment 1, page 72

**Issue Number:** 6.4

**Issue:** Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

**Interrogatory**

Similar to the previous benchmarking report, this updated 2012 Nuclear Benchmarking Report notes that “The minimum expenditure threshold for capitalization at OPG for generating assets is $200k per unit whereas the majority of the companies in the industry have adopted minimum capitalization thresholds that are significantly lower.” Why does OPG continue to maintain a capitalization threshold that is significantly higher than the majority of the companies in the nuclear generation industry?

**Response**

OPG’s current capitalization threshold of $200k per generating unit is the same as that used in EB-2010-0008 and EB-2007-0905. The circumstances have not changed to warrant a modification to this capitalization threshold. As previously noted by OPG in its response to Board Staff IR 55 in EB-2010-0008, while OPG’s process considers the materiality thresholds of other companies, OPG does not necessarily adjust its own thresholds in response. OPG’s threshold of $200k remains appropriate and is in accordance with generally accepted accounting principles. The response to EB-2010-0008 Board Staff 55 provides specific factors considered by OPG with respect to the threshold.

Furthermore, as previously noted in Undertaking J3.9 in EB-2010-0008, a primary consideration of OPG’s capitalization policy is the nature of the expenditure and its ability to satisfy certain criteria, making the materiality threshold secondary to the nature and purpose of the expenditure. The criteria that OPG uses to capitalize expenditures are listed in Ex. D4-1-1, Section 2.0. OPG’s finding in response to Undertaking J3.9 in EB-2010-0008 was that, based on a high-level review, it was unable to identify instances in which these criteria could be met for typical work programs or activities below the threshold of $200k.

Finally, as noted in Ex. D4-1-1, section 2.0 and EB-2010-0008, Ex. A2-2-1, section 5.1, OPG does apply a lower capitalization threshold of $25k per item to minor fixed assets, which include certain portable assets used in the construction, transport and maintenance/service activities.
Board Staff Interrogatory #087

Ref: Exh F2-1-1, Attachment 1, page 51

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

With respect to “Observations – Rolling Average Unit Capability Factor (CANDU)”, OPG’s report states the following:

Factors Contributing to Performance

- Top performing plants achieve low forced loss rates through effective implementation and integration of equipment reliability and human performance programs aligned with industry best practices.
- OPG Nuclear has established a structured cross-functional equipment reliability program based on top industry standards and supported by virtually every department in the organization. The implementation of the program involves focusing the workforce and processes on critical equipment across the fleet.
- OPG is currently working on reducing maintenance backlogs, optimizing the preventive maintenance program and obtaining spare parts for critical equipment.
- Darlington has established a fuel handling reliability project and developed new fuel bundles to prevent unit derating.
- Pickering has established short mid-cycle outages to complete critical maintenance activities to improve the reliability of the plant.

a) With respect to the third bullet on “reducing maintenance backlogs, optimizing the preventative maintenance program and obtaining spare parts for critical equipment”:
   i. When did OPG initiate these initiatives, and what is the current status of these programs? Does the statement imply that OPG was not adequately doing these activities previously?
   ii. Please indicate programs documented in the application evidence that are part of these initiatives?
   iii. What is the total cost, and the net cost or savings of these? Where is this shown in the application evidence?

b) With respect to the fourth bullet on Darlington’s fuel handling reliability project and development of new fuel bundles to prevent unit derating:
   i. Please provide further description of what this project is and the planned benefits of this.
ii. What is the cost for this project and what are the expected net costs or savings? Where is this reflected in the application evidence, particularly with respect to the test years' capital and/or operating costs?

iii. When was this project initiated and what is the current status?

c) With respect to the last bullet, on short mid-cycle outages at Pickering to complete critical maintenance activities:

i. Please provide further description of this project and how it is intended to improve reliability of Pickering operations?

ii. Does the statement imply that OPG was not adequately doing these activities previously?

iii. What is the total cost and net cost (or savings) of this project? Where is this reflected in the application evidence, particularly with respect to the 2014-2015 test years?

Response

a) Parts i) and ii) - OPG has an ongoing commitment to reduce maintenance backlogs, to optimize preventive maintenance, and to obtain spare parts for critical equipment which will contribute to improved Unit Capability Factor. In 2009 (2010-2014 Business Plan) there was a renewed focus on these initiatives with the implementation of top-down, bottom-up business planning.

Managing equipment reliability and maintenance backlogs is an ongoing activity that is a part of the base program of a nuclear plant. Within this ongoing activity there may be specific focus areas which are identified as initiatives.

Please refer to Ex. F2-1-1 for a listing of initiatives, with year of initiation and current status. These programs are documented in the “Focus Areas” pages in the submitted 2013-2015 Nuclear Business Plan (Page 6: Corrective Maintenance Backlog Reduction (2013-NFI-04), and improved Forced Loss Rate (2013-NFI-02); Page 10: various initiatives under Pickering-Major Focus Areas under Reliability and Value for Money; Page 14: various initiatives under Darlington-Major Focus Areas under Reliability and Value for Money).

iii) The costs of these programs are part of the Base, Outage, Project OM&A and Project Capital under Pickering, Darlington, and Nuclear Engineering. Base costs are not specifically separated. Two key initiatives to improve Unit Capability Factors are: Forced Loss Rate (2013-NFI-02) and Corrective Maintenance Backlog Reduction (2013-NFI-04).

Forced Loss Rate initiative (2013-NFI-02) costs total $47.2M:

• $10.5M for Pickering Unit 1 and Unit 4 Turbine Governor upgrade
• $36.7M for various plant modifications and equipment reliability projects.
Corrective Maintenance backlog reduction 2013-NFI-04 costs a total $10.7M as part of Pickering FLR Reliability Improvement Plan for reducing backlogs. No incremental funding was allocated in Darlington’s budget for 2013-NFI-04. These programs are implemented to enable to achieve Business Plan targets.

b) 1. Darlington Fuel Handling Reliability Projects:
   i. Darlington initiated several Fuel Handling Reliability improvement projects to achieve a Fuel Handling Reliability Index of 92% by end of 2015, these include:
      • Fuel Handling Computer replacement $17.5M Capital.
      • Fuel Handling Electrical Inverter replacements $9.2M Capital.
      • Fuel Handling Equipment Reliability Project $3.2M OM&A.
   ii. See paragraph (b) (1) (i) above.
   iii. See paragraph (b) (1) (i) above.

2. Darlington’s development of a new fuel design was to avoid unit derating:
   i. This project was initiated to improve safety margins to extend 100% full power operation beyond 2013 (in the absence of the new fuel design, the units would have been derated).
   ii. The cost for the modified fuel bundle project was $6.0M. The net benefit is approximately $450M in generation revenue that would have been otherwise lost due to unit derates. This project is identified under OM&A Project Listing – Nuclear in F2-3-3 table 2 (line 16).
   iii. The modified fuel bundle project was initiated in 2009, with full scale implementation beginning in 2012. Complete conversion to the new fuel type (in the units) is anticipated by the end of 2014.

c)  i) Please see response to Ex. L-5.5-17 SEC_075.
    ii and iii) No. Please see Ex. L-6.3-2 AMPCO_041.
Board Staff Interrogatory #088

Ref: Exh A4-1-1

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

As part of the Business Transformation initiative, 1,064.7 Nuclear FTEs were transferred from OPG’s Nuclear group to the Corporate group (F2-1-1, Table 3). For example, OPG created a Nuclear Center-Led Engineering Organization and transferred line authority for Design Engineering, Reactor Safety, Performance & Components Engineering, Fuel Handling, Tritium Removal Facility, Nuclear Waste Management Division Engineering, etc. (A4-1-1, Attachment 1).

Please explain how OPG has taken that transfer of over 1,000 nuclear FTEs into account in the following staffing benchmarking reports:

- National Utility Survey report prepared for OPG by Aon Hewitt, which is intended to assess OPG’s relative competitiveness in relation to Target Total Cash Compensation and Pension and Benefits (F5-4-1); and
- Nuclear Staffing Benchmarking Analysis report prepared by Goodnight Consulting (F5-1-1, Part a) and Part b).

Response

The transfer of 1064.7 nuclear FTEs to corporate organizations had no effect on OPG’s competitiveness analysis prepared by AON Hewitt or on the Nuclear Staffing Benchmarking Analysis report.

Corporate FTEs supporting Nuclear are counted as Nuclear FTEs pre and post Business Transformation, as the analysis benchmarks functional FTEs regardless of the organization in which the FTE resides. For example, the first Goodnight Report included 232 nuclear Training FTEs. These FTEs were subsequently transferred to a corporate group due to Business Transformation but are still included in the 2013 Goodnight FTEs numbers for OPG Nuclear.
Ref: Exh F4-3-1 (Attachment 6), F2-1-1

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

There is a significant difference between the OPG Nuclear staffing number that is used for benchmarking purposes and the staffing numbers that are used to support the proposed nuclear revenue requirement for the test years. At page 3 of Exh A4-1-1, OPG states “The transferred resources continue to provide functional support to Nuclear notwithstanding a change in reporting to the corporate centres” in relation to the Business Transformation reorganization. The figure used for benchmarking is 5,587 FTEs for 2013 while the figure supporting the revenue requirement is 8,234 FTEs for 2015 (after 476 FTE reductions since 2013). The latter is comprised of “Nuclear” staff (6,519) and “Allocated Corporate Support to Nuclear” staff (1,714). “Nuclear” staff alone exceeds the FTEs used for benchmarking purposes by about 1,000 FTEs.

a) Please explain the significant difference of about 2,600 FTEs (2015) and 3,000 FTEs (2013) between the FTE figure used for benchmarking purposes and the FTEs used for revenue requirement purposes.

b) Please also provide a table for 2013 showing how the 5,587 FTE benchmarking figure was derived relative to the 8,710 FTEs in 2013 (F4-3-1), with each adjustment used to normalize against comparators (e.g., 35 hour OPG work week vs. 40 hours for comparators, CANDU technology, etc.) as well as all other adjustments including how many nuclear staff were included in that benchmarking figure that were transferred to the Corporate group as part of the Business Transformation reorganization.

c) If Corporate staff that continue to provide support to OPG’s nuclear operations was excluded from the benchmarking figure, please explain if Corporate staff in comparator nuclear generators providing similar nuclear-oriented support functions was similarly removed from the comparator staffing numbers. If such an adjustment was made for OPG and not comparators, why is that appropriate given about 20% of staff supporting OPG’s nuclear operations (and revenue requirement) are now in the Corporate group? In addition, if it was done for comparators, please explain how that adjustment was made for those that only have nuclear generation, such as Bruce Power.

d) The application (F2-1-1, p.2) also notes that initial results in 2011 indicated OPG Nuclear was 17% above its industry peers and the updated 2013 study shows the gap has narrowed to 8%. To what extent, if any, was that gap reduced due to the Business Transformation reorganization? What would the gap be if the Business Transformation initiative had not been undertaken?

e) The Goodnight Report notes the following were excluded from the benchmark number: Security, Information Management (provides direct support to Nuclear), Legal and Long Term Leave FTEs. How did Goodnight exclude FTEs from comparators in those functions?
f) The Goodnight Report also notes that “Major Projects/One time initiatives” were excluded and “CANDU-Specific (i.e. unique to CANDU design) Exclusions” were also made. Was the assumption made that none of the other generators in the comparator group have one-time initiatives and there are no FTEs that need to be excluded due to the PWR-Specific technology as the report discusses only FTE exclusions from OPG?

Response

a) The purpose of the benchmarking study was intended to provide directional and strategic guidance to OPG with respect to how OPG’s nuclear staffing levels benchmark to other utilities with pressurized water reactors (“PWRs”). Because of the unique design of the CANDU, the study could only make comparisons in functional areas where similar functions existed for PWRs. OPG nuclear benchmark FTEs differ from the nuclear revenue requirement FTEs because Goodnight Consulting analysis only included those FTEs that are benchmarkable, whereas the revenue requirement includes all FTEs. For example, CANDU specific FTEs are not included in the Goodnight Consulting analysis (Ex. F5-1-1, Part A, pp 14 - 16 provides a full listing of these functions unique to CANDU design) but are included in the revenue requirement FTE totals.

In addition, only fully dedicated corporate FTEs are included in the Goodnight Consulting analysis while both fully dedicated and partially-dedicated Corporate FTEs are allocated to Nuclear regulated business per the approved allocation methodology discussed in Ex. F3-1-1.

b) OPG is unable to provide a detailed comparison table between the 5,587 OPG nuclear FTEs that were benchmarked by Goodnight in 2013 versus the 8,710 FTEs in 2013 as set out in Ex. F4-3-1, Attachment 6. The difference is approximately 3,100 FTEs in 2013 (5,587 versus 8,710) per the following:

- 2,272 FTEs – FTEs not included in the Goodnight Benchmark because they are in functions that are not benchmarkable (see a) above)
- 815 FTEs – the difference between the total of direct and indirect Nuclear Corporate FTEs (1,903) and only the direct Corporate FTEs (1,088) that were included in Goodnight Benchmark (see a) above)
- 53 FTEs – difference between all non-regular FTEs (435) and the contractor FTEs (382) included in Goodnight Benchmark

Goodnight did not adjust the OPG FTE benchmark figure of 5,587 to normalize for comparators (e.g., 35 hour OPG work week vs. 40 hours for comparators, CANDU technology, etc.). Those adjustments were made by Goodnight to derive the PWR benchmark (5,157 FTEs).
c) A total of 188 direct corporate supports were included in OPG nuclear benchmark FTEs per Goodnight Benchmarking methodology (1,088 in the 2013 update due to Business Transformation). Goodnight did not include OPG corporate support functions that do not provide direct nuclear support in order to be consistent with support functions that were similarly removed from the comparator staffing numbers.

d) The reduction from 17% to 8% was not impacted by the physical reorganization as corporate support included in benchmark FTEs is based on direct functional support regardless of organizational charts. The goal of the Business Transformation is to simplify and/or eliminate work thereby enabling OPG to leverage attrition of its employees to reduce the overall size of the workforce. If Business Transformation was not undertaken, much of the Nuclear improvement would not have been achieved.

e) Goodnight Consulting has established a set of standardized industry work functions that reflect all of the activities required to support nuclear plant operations. These work functions are grouped into process areas used to collect information from energy utilities across the industry. “Security” and “Information Management” are two individual work functions tracked separately by Goodnight. The “Security” function was excluded consistent with OPG’s security confidentiality requirements. The “Information Management” function that provides direct support to Nuclear was also excluded as a majority of this service is provided via an outsourced contract that cannot be readily translated by Goodnight into an accurate number of baseline FTEs. No industry benchmark data is available for the “Legal” function and personnel on “Long Term Leave”. This systematic approach to benchmarking enables Goodnight to exclude FTEs from comparators by function as required.

f) Major project staffing such as the Darlington Refurbishment project was excluded from the steady-state operations benchmark which is more useful and comparable in these types of analyses. Industry data collected by Goodnight reflects the same principles by excluding major US initiatives (e.g., PWR Vessel Head replacements) that are temporary in nature and do not represent the baseline staff required to support ongoing nuclear power plant operations. As such, “Major Projects/One Time initiatives” were excluded due to the unique and varying nature of such initiatives/projects and the resulting lack of comparable data across the industry.
PWU Interrogatory #020

Ref:

Contractor Information Was Converted From Hours or Costs into FTEs
• OPG provided (July-August 2011 YTD) contractor data in either contractor billed YTD costs, or cumulative contractor YTD hours
• Cumulative contractor billed YTD dollar values were first divided by an average hourly cost that include wages plus benefits, and then by a value to prorate the YTD data into annual hours
• Cumulative contractor YTD hours were also divided by the same value to prorate the YTD data into annual hours
• The YTD data was assessed to determine an appropriate annual level of baseline contractor utilization, which resulted in the establishment of 382 baseline contractor FTEs

Issue Number: 6.4
Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

a) Please provide the total contractor billed YTD cost that was used for the Nuclear Staffing Benchmarking Analysis and also an estimate of the equivalent contractor annual cost

Response

As described in the evidence, (reference Ex. F1-1-1 Part a, page 18), OPG provided (July – August 2011 YTD) contractor data in either billed YTD costs, or cumulative contractor YTD hours.

The establishment of 382 baseline contractor FTEs is summarized in the table below;
Hours were available from OPG source systems for the first three contracted types:

- Non-regular staff: temporary OPG staff backfilling for regular staff absences
- Staff augmentation contractors: professional staff providing specialized skills
- Other purchased services: maintenance / construction trades services

Where hours were not available, dollars were used and converted using an average hourly cost that included wages plus benefits. Other purchased services associated with specialized contractors, such as nuclear safety analysis, made up this portion of the contractor FTE’s (reference line 4 in the table above).

The total contractor YTD dollars billed up to August 2011 were $22.9M. Extrapolated to the end of the year, the same level of effort would have been estimated at $34.0M.

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Non-Regular / Temporary Staff</td>
<td>14</td>
<td>119</td>
<td>133</td>
<td></td>
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</tr>
<tr>
<td>2) Augmented Staff</td>
<td>-</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Other Purchased Services - Maint Trades</td>
<td>40</td>
<td>79</td>
<td>119</td>
<td></td>
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<tr>
<td>4) Other Purchased Services - Specialized Services</td>
<td>6</td>
<td>114</td>
<td>120</td>
<td>$22.9</td>
<td>$34.0</td>
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<tr>
<td>Total Contractor FTEs</td>
<td>60</td>
<td>322</td>
<td>382</td>
<td></td>
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</tr>
</tbody>
</table>
PWU Interrogatory #021

Ref:

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

a) The 2013 Nuclear Staffing Benchmarking Update (i.e. Ref (b)) applies Benchmark Ratios for the calculation of the 2-Unit CANDU Staffing Benchmarks for the following positions: Admin/Clerical, Budget/Finance, Human Resources, Information Management, Management and Safety/Health. Please describe with demonstration how the Benchmark Ratios displayed on page 27 of Ref (b) were calculated.
b) Please describe with demonstration how the Ratio Adjustments provided on page 27 of Ref (b) were calculated.
c) Please confirm that the 2011 Nuclear Staffing Benchmarking Analysis provided in Ref (a) uses the same Benchmark Ratios for calculating 2-Unit CANDU Staffing Benchmarks (as displayed on page 28 of Ref (a)) and 4-Unit CANDU Staffing Benchmarks (as displayed on page 30 of Ref (a)).
d) Please explain the discrepancies between the Benchmark Ratios used for the determination of the 2013 2-Unit CANDU Staffing Benchmarks (as shown on page 27 of Ref (b)) and 2013 4-Unit CANDU Staffing Benchmarks (as shown on page 29 of Ref (b)) for the five functional staffing areas indicated in question (a) above. Should the Benchmark Ratios used for determining the 2013 2-Unit CANDU Staffing Benchmarks and the 2013 4-Unit CANDU Staffing Benchmarks be the same?
e) What is the rationale for the Benchmark Ratios used for calculating 2013 4-Unit CANDU Staffing Benchmarks (as displayed on page 29 of Ref (b)) being the same as those used in the 2011 Nuclear Staffing Benchmarking Analysis (i.e. page 28 and 30 of Ref (a))? 

Response

a) Benchmark ratios were used to calculate the number of people required to support the FTE Raw Adjustments of 75 described in b) below.
b) The ratios are derived as a percentage of the total 2-Unit U.S. PWR benchmark. For example, 39 Admin/Clerical FTEs divided by 987 FTEs equals 3.95% (refer to Ex. F5-1-1, Part b, pg. 27).

The ratio adjustments provided on page 27 of Ref (b) were calculated by multiplying the benchmark ratio discussed in a) (i.e., 3.95% for Admin/Clerical) by the total FTE Raw Adjustment of 75 (i.e., approximately 3 FTEs for the Admin/Clerical work function). The same methodology was used for the following staffing functions: Budget/Finance, Human Resources, Management and Safety/Health. Personnel under the Information Management function were excluded from the study as a majority of this service is provided via an outsourced contract that cannot be readily translated into an accurate number of baseline FTEs (refer to Ex. F5-1-1, Part a, pg. 16).

c) The same benchmark ratio methodology was used in both studies.

d) The benchmark ratio used for the 2013 2 Unit CANDU benchmark should be the same as the 2013 4 Unit CANDU benchmark. Goodnight inadvertently did not update Ex. F5-1-1 part b) page 29 with the updated benchmark ratios from page 27, but used the benchmark ratios from the 2011 Nuclear Staffing Benchmarking Analysis (Ex. F5-1-1 part a) pages 28 and 30). Re-calculated, OPG would have been closer to the benchmark by 36 FTEs.

e) Please see response to d).
Ref:

In 2011 OPG was 17% (866 FTEs) above the PWR benchmark; in 2013 OPG is 8% (430 FTEs) above the PWR benchmark

Issue Number: 6.4
Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory
a) What does OPG expect FTEs and OPG’s performance relative to PWR benchmark to be at the end of the 2014 and 2015 test years?

b) Does the staffing benchmarking study factor in OPG’s staff safety performance reflected in OPG’s Nuclear performance benchmarking report that indicates that OPG is in the best quartile for most of the safety metrics measured (F2-1-1, Attachment1 Table2)? If it does, please describe how it does so.

Response
a) The PWR Goodnight benchmark is updated based on the most recent industry data for large 2-unit U.S. PWR plants. As such, it is not possible for OPG to forecast changes to industry benchmarks in 2014 and 2015. However, assuming that the 2013 Goodnight benchmark does not change significantly for 2014 and 2015, OPG expects to approach the overall benchmark FTE levels by the end of 2015. Timing of this achievement will be dependent on actual attrition rates throughout 2014 and 2015. The issue of functional areas being over and under benchmark is expected to persist.

b) OPG Nuclear’s operational safety performance was not part of the scope of the Goodnight studies. The report focuses on benchmarking OPG Nuclear staffing levels against industry peers, identifying gaps in staffing levels from the benchmarks and analyzing the nature of the differences to the extent possible.
SEC Interrogatory #092

Ref:
[F2-T1-S1/p.5]

Issue Number: 6.4
Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

Please provide the Nuclear Benchmarks as shown at page 5, for 2010, 2012, and 2013.

Response

Nuclear Benchmarks for 2010 and 2012 are provided on page 2 and 3.

The 2010 benchmarking results were based on Pickering A and Pickering B, as the amalgamation of Pickering’s six units into one site was only undertaken in 2011.

2013 Nuclear Benchmarks results are not available as 2013 industry data has not yet been published.
## Comparison of 2010 OPG Nuclear Performance to Industry Benchmarks

<table>
<thead>
<tr>
<th>Metric</th>
<th>NPI Max</th>
<th>Best Quartile</th>
<th>Median</th>
<th>Pickering A</th>
<th>Pickering B</th>
<th>Darlington</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Injury Rate (#/200k hours worked)</td>
<td>0.88</td>
<td>N/A</td>
<td>0.77</td>
<td>0.80</td>
<td>0.74</td>
<td></td>
</tr>
<tr>
<td>Rolling Average Industrial Safety Accident Rate (#/200k hours worked)</td>
<td>0.20</td>
<td>0.05</td>
<td>0.10</td>
<td>0.14</td>
<td>0.07</td>
<td>0.09</td>
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<tr>
<td>Rolling Average Collective Radiation Exposure (Person-rem per unit)</td>
<td>88.00</td>
<td>68.64</td>
<td>96.73</td>
<td>138.30</td>
<td>93.00</td>
<td>71.55</td>
</tr>
<tr>
<td>Airborne Tritium Emissions (Curies) per Unit</td>
<td>2.041</td>
<td>3.784</td>
<td>3.790</td>
<td>1.953</td>
<td>969</td>
<td></td>
</tr>
<tr>
<td>Fuel Reliability (microcuries per gram)</td>
<td>0.000500</td>
<td>0.000001</td>
<td>0.00036</td>
<td>0.003460</td>
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<tr>
<td>Rolling Average Industrial Safety Accident Rate (# per 7,000 hours)</td>
<td>0.50</td>
<td>0.06</td>
<td>0.22</td>
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<tr>
<td>Rolling Average Forced Loss Rate (%)</td>
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<td>1.40</td>
<td>3.35</td>
<td>22.52</td>
<td>5.06</td>
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<tr>
<td>Rolling Average Unit Capability Factor (%)</td>
<td>92.0</td>
<td>91.7</td>
<td>83.7</td>
<td>63.3</td>
<td>80.2</td>
<td>89.4</td>
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<tr>
<td>Rolling Average Chemistry Performance Indicator (Index)</td>
<td>1.01</td>
<td>1.00</td>
<td>1.02</td>
<td>1.24</td>
<td>1.09</td>
<td>1.03</td>
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<tr>
<td>1-Year Online Elective Maintenance (work orders per unit)</td>
<td>213</td>
<td>261</td>
<td>333</td>
<td>544</td>
<td>281</td>
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<tr>
<td>1-Year Online Corrective Maintenance (work orders per unit)</td>
<td>2</td>
<td>4</td>
<td>14</td>
<td>29</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Reliability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WANO NPI (Index)</td>
<td>86.7</td>
<td>77.4</td>
<td>47.7</td>
<td>72.6</td>
<td>94.1</td>
<td></td>
</tr>
<tr>
<td>Value for Money</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Year Total Generating Costs per MWh ($ per Net MWh)</td>
<td>32.54</td>
<td>38.53</td>
<td>50.21</td>
<td>54.79</td>
<td>33.55</td>
<td></td>
</tr>
<tr>
<td>3-Year Non-Fuel Operating Costs per MWh ($ per Net MWh)</td>
<td>19.00</td>
<td>23.13</td>
<td>75.51</td>
<td>48.49</td>
<td>27.09</td>
<td></td>
</tr>
<tr>
<td>3-Year Fuel Costs per MWh ($ per Net MWh)</td>
<td>5.92</td>
<td>6.37</td>
<td>3.70</td>
<td>3.70</td>
<td>3.71</td>
<td></td>
</tr>
<tr>
<td>3-Year Capital Costs per MW DER (k$ per MW)</td>
<td>46.30</td>
<td>62.80</td>
<td>62.80</td>
<td>17.41</td>
<td>21.28</td>
<td></td>
</tr>
<tr>
<td>Human Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-Month Human Performance Error Rate (# per 10k ISAR hours)</td>
<td>0.00700</td>
<td>0.01000</td>
<td>0.01150</td>
<td>0.00920</td>
<td>0.00700</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. No median benchmark available.
2. 2008 data is used for non-OPG CANDU plants because 2010 data is unavailable at the time of benchmarking.
3. Last backlog benchmark in 2010 was as of June 1, 2010.

Green = maximum NPI points achieved or best quartile performance
White = 2nd quartile performance
Yellow = 3rd quartile performance
Red = worst quartile performance

Declining Benchmark Quartile Performance vs. 2009
Improving Benchmark Quartile Performance vs. 2009
Comparison of 2012 OPG Nuclear Performance to Industry Benchmarks

<table>
<thead>
<tr>
<th>Metric</th>
<th>NPI Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td></td>
</tr>
<tr>
<td>All Injury Rate (#200k hours worked)</td>
<td></td>
</tr>
<tr>
<td>Rolling Average Industrial Safety Accident Rate (#200k hours worked)</td>
<td>0.20</td>
</tr>
<tr>
<td>Rolling Average Collective Radiation Exposure (Person-rem per unit)</td>
<td>60.00</td>
</tr>
<tr>
<td>Airborne Tritium Emissions (Curies) per Unit²</td>
<td></td>
</tr>
<tr>
<td>Fuel Reliability Index (microcuries per gram)</td>
<td>0.000500</td>
</tr>
<tr>
<td>2-Year Reactor Trip Rate (# per 7,000 hours)</td>
<td>0.50</td>
</tr>
<tr>
<td>3-Year Auxiliary Feedwater System Unavailability (#)</td>
<td>0.0200</td>
</tr>
<tr>
<td>3-Year Emergency AC Power Unavailability (#)</td>
<td>0.0250</td>
</tr>
<tr>
<td>5-Year High Pressure Safety Injection Unavailability (#)</td>
<td>0.0200</td>
</tr>
<tr>
<td>Reliability</td>
<td></td>
</tr>
<tr>
<td>WANO NPI (Index)</td>
<td></td>
</tr>
<tr>
<td>Rolling Average Forced Loss Rate (%)</td>
<td>1.00</td>
</tr>
<tr>
<td>Rolling Average Unit Capability Factor (%)</td>
<td>92.0</td>
</tr>
<tr>
<td>Rolling Average Chemistry Performance Indicator (index)</td>
<td>1.01</td>
</tr>
<tr>
<td>1-Year Online Deficient Maintenance Backlog (work orders per unit)</td>
<td>222</td>
</tr>
<tr>
<td>1-Year Online Corrective Maintenance Backlog (work orders per unit)</td>
<td>8</td>
</tr>
<tr>
<td>Value for Money</td>
<td></td>
</tr>
<tr>
<td>3-Year Total Generating Cost per MWh ($ per Net MWh)</td>
<td></td>
</tr>
<tr>
<td>3-Year Non-Fuel Operating Cost per MWh ($ per Net MWh)</td>
<td></td>
</tr>
<tr>
<td>3-Year Fuel Cost per MWh ($ per Net MWh)</td>
<td></td>
</tr>
<tr>
<td>3-Year Capital Cost per MWH ($ per MWH)</td>
<td></td>
</tr>
<tr>
<td>Human Performance</td>
<td></td>
</tr>
<tr>
<td>18-Month Human Performance Error Rate (# per 10k (BAR hours))</td>
<td></td>
</tr>
</tbody>
</table>

**2012 Actuals**

<table>
<thead>
<tr>
<th></th>
<th>Best Quartile</th>
<th>Median</th>
<th>Pickering</th>
<th>Darlington</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Injury Rate</td>
<td>1.01</td>
<td>N/A¹</td>
<td>0.33</td>
<td>0.34</td>
</tr>
<tr>
<td>Rolling Average Industrial Safety Accident Rate</td>
<td>0.00</td>
<td>0.03</td>
<td>0.03</td>
<td>0.10</td>
</tr>
<tr>
<td>Rolling Average Collective Radiation Exposure</td>
<td>40.50</td>
<td>83.32</td>
<td>124.06</td>
<td>58.55</td>
</tr>
<tr>
<td>Airborne Tritium Emissions</td>
<td>1,198</td>
<td>2,577</td>
<td>2,491</td>
<td>973</td>
</tr>
<tr>
<td>Fuel Reliability Index</td>
<td>0.000001</td>
<td>0.000048</td>
<td>0.000120</td>
<td>0.000184</td>
</tr>
<tr>
<td>2-Year Reactor Trip Rate</td>
<td>0.00</td>
<td>0.104</td>
<td>0.517</td>
<td>0.208</td>
</tr>
<tr>
<td>3-Year Auxiliary Feedwater System Unavailability</td>
<td>0.0000</td>
<td>0.0003</td>
<td>0.0116</td>
<td>0.0000</td>
</tr>
<tr>
<td>3-Year Emergency AC Power Unavailability</td>
<td>0.0006</td>
<td>0.0026</td>
<td>0.0037</td>
<td>0.0000</td>
</tr>
<tr>
<td>5-Year High Pressure Safety Injection Unavailability</td>
<td>0.0000</td>
<td>0.0008</td>
<td>0.0001</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

**Notes**

1. No median benchmark available.
2. 2011 data is used because 2012 results were unavailable at the time of benchmarking.

New metrics have been implemented industry-wide to ensure more effective and accurate comparisons between utilities. Data collected is as of December.

*Green = maximum NPI points achieved or best quartile performance*
*White = 2nd quartile performance*
*Yellow = 3rd quartile performance*
*Red = worst quartile performance*
SEC Interrogatory #093

Ref: [F2-1-1/p.10/F5-1-1]

Issue Number: 6.4  
Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

(a) Please explain the reason for making an adjustment in the work week to 35 weeks. Please describe the impact of this adjustment. That is, if OPG assumed a 40 hour week (or equivalent of comparators).

(b) Did Goodnight provide analysis based on a common 40 hour work week? If so please provide. Please also provide a revised analysis showing the effect of benchmarking based on common work hours.

Response

a) Several OPG job functions maintain a 35 hour work week due to collective bargaining agreements. All of the U.S. comparator plants in the benchmark study maintain 40 hour work weeks. Goodnight believes it appropriate to adjust the U.S comparator benchmark to account for this difference, i.e., more people would be required to operate a given plant with a 35 hour workweek than would be required with a 40 hour work week. An additional 174 FTEs were added by Goodnight to the U.S. comparator benchmark in the February 3, 2012 Nuclear Staffing Benchmarking Analysis (Ex. F5-1-1 Part a) to account for OPG’s 35 hour work week for the specified job functions. Because no changes were made to OPG’s 35 hour work week policy in 2013, the same methodology was used for the 2013 study (Ex. F5-1-1 Part b).

b) No such analysis was provided by Goodnight.
SEC Interrogatory #094

Ref: F2-1-1

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

The Goodnight Study recommended staff reductions in appropriate overstaffed functions. OPG’s plan to reduce staff is through attrition. Please explain how this addresses the Study’s recommendation.

Response

Per Ex. F5-1-1, Part a), page 7, the initial Goodnight Study does not recommend that staff reductions be made in overstaffed functions nor does it propose that gaps for all overstaffed functions be closed. The study concludes that a comprehensive workforce plan is necessary to ensure staff reductions are appropriately pursued by functional area.

The Goodnight studies are used by OPG to understand the current status of OPG Nuclear relative to industry peers in order to ensure that business plan targets are informed by changing industry staff trends. While the overall strategy is to enable headcount reductions through attrition, OPG also considers other factors when developing its workforce plans and headcount targets, including job criticality, specific attrition rates, and long term training requirements.

For example, if a job function is critical and attrition modeling determines a near term need, a hiring plan may be targeted for that function. A balanced workforce strategy is required to support achieving business plan objectives while also sustaining safe and reliable operations (see also response Ex. L-6.8-19 SEP-010).
Ref: F5-1-1

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

The Goodnight Benchmarking study shows OPG to be above its comparables in 23 functional areas.
(a) For each area please provide the total compensation costs (including benefits) of the positions above the benchmark. For example, the table at page 27 of the Summary shows that OPG has approximately 250 more staff above the benchmark in the functional area of maintenance and construction support. What is the 2014 cost of the FTEs in 2014 in this area? Please provide the same response for the remaining 23 areas above the benchmark.
(b) For each of the 23 functional areas please provide the total number of staff, the percentage of staff who have annual salary/wage with benefits of above $100,000, and separately, those above $150,000 per annum.
(c) For of the 23 functional areas above the benchmark please provide the percentage of staff represented by each bargaining unit.

Response

a) OPG is unable to provide the 2014 FTE cost for the 23 above benchmark areas as this would require a new Goodnight Study which typically takes 5 - 6 weeks to complete.

OPG does not categorize its staff using the functional areas in the Goodnight Study. Therefore, Goodnight would have to conduct a new assessment using current data from OPG to align and modify OPG’s actual staffing data to the appropriate benchmarked functional areas. To complete such an analysis organizational changes would need to be considered, contractor estimates would have to be re-calculated and functional deltas analysed. U.S. PWR industry benchmarks by functional area would also have to be updated.

In order to provide a response, Attachment 1 provides a table that provides the total compensation costs (including benefits) of the positions over and under benchmark for the 40 functional areas using the 2013 staffing benchmark results (refer to Ex. F5-1-1 b), The cost and staffing in the table are therefore based on 2013, not 2014, data.
As discussed at some length in the Goodnight Report, there are numerous factors that could explain why specific functional areas are greater than the benchmark. For OPG to arbitrarily reduce staffing levels to the industry benchmark would be imprudent and would have significant adverse impacts on the generating units.

b) Compensation costs (including benefits) were calculated using standard OPG labour rates per functional area.

c) Refer to a).
## 2013 Variance to Benchmark

<table>
<thead>
<tr>
<th>Function</th>
<th>FTE's</th>
<th>$ Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Benchmarked</td>
<td>430</td>
<td>61.0</td>
</tr>
<tr>
<td>Maintenance/Construction Support</td>
<td>194</td>
<td>28.8</td>
</tr>
<tr>
<td>Facilities</td>
<td>187</td>
<td>24.6</td>
</tr>
<tr>
<td>Operations Support</td>
<td>142</td>
<td>23.7</td>
</tr>
<tr>
<td>Budget/Finance</td>
<td>58</td>
<td>5.7</td>
</tr>
<tr>
<td>Project Management</td>
<td>55</td>
<td>9.2</td>
</tr>
<tr>
<td>Engineering</td>
<td>47</td>
<td>7.5</td>
</tr>
<tr>
<td>Support</td>
<td>40</td>
<td>6.3</td>
</tr>
<tr>
<td>Engineering (Comp)</td>
<td>38</td>
<td>6.1</td>
</tr>
<tr>
<td>Scheduling</td>
<td>32</td>
<td>3.4</td>
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<tr>
<td>Material Management</td>
<td>22</td>
<td>2.7</td>
</tr>
<tr>
<td>Engineering (Out)</td>
<td>16</td>
<td>2.7</td>
</tr>
<tr>
<td>Engineering (Proc)</td>
<td>13</td>
<td>2.0</td>
</tr>
<tr>
<td>Outage Management</td>
<td>11</td>
<td>1.8</td>
</tr>
<tr>
<td>Maintenance</td>
<td>10</td>
<td>1.6</td>
</tr>
<tr>
<td>Support</td>
<td>9</td>
<td>1.4</td>
</tr>
<tr>
<td>Admin/Clerical</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>Support</td>
<td>3</td>
<td>0.3</td>
</tr>
<tr>
<td>Engineering (Mod)</td>
<td>2</td>
<td>0.2</td>
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<tr>
<td>Document Control</td>
<td>2</td>
<td>0.0</td>
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<tr>
<td>Engineering (Chem)</td>
<td>1</td>
<td>(0.2)</td>
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<tr>
<td>Management</td>
<td>1</td>
<td>(0.9)</td>
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<tr>
<td>Engineering (Mech)</td>
<td>0</td>
<td>(1.0)</td>
</tr>
<tr>
<td>Engineering (Civil)</td>
<td>2</td>
<td>(2.1)</td>
</tr>
<tr>
<td>Engineering (Mech)</td>
<td>3</td>
<td>(2.5)</td>
</tr>
<tr>
<td>Engineering (Arch)</td>
<td>5</td>
<td>(2.6)</td>
</tr>
<tr>
<td>Engineering (Elect)</td>
<td>8</td>
<td>(3.2)</td>
</tr>
<tr>
<td>Engineering (Mech)</td>
<td>9</td>
<td>(3.3)</td>
</tr>
<tr>
<td>Engineering (Mech)</td>
<td>11</td>
<td>(3.3)</td>
</tr>
<tr>
<td>Engineering (Mech)</td>
<td>18</td>
<td>(3.5)</td>
</tr>
<tr>
<td>Engineering (Mech)</td>
<td>55</td>
<td>(8.3)</td>
</tr>
<tr>
<td>Engineering (Mech)</td>
<td>102</td>
<td>(10.1)</td>
</tr>
<tr>
<td>Engineering (Mech)</td>
<td>142</td>
<td>(14.2)</td>
</tr>
</tbody>
</table>

**Representation:**
- **Management:** 8% 1% 1% 3% 2% 13% 19% 8% 1% 4% 6% 2% 74% 8% 7% 2% 18% 5% 0% 2% 91% 7% 11% 39% 2% 11% 0% 2% 7% 9% 0% 0% 10% 0% 10% 0% 0% 0% 10% 10% 0% 0%
- **Society:** 34% 24% 10% 12% 2% 4% 65% 80% 92% 90% 47% 65% 0% 28% 92% 42% 42% 79% 38% 3% 26% 9% 78% 89% 0% 52% 88% 12% 39% 93% 88% 20% 87% 70% 9% 80% 7% 11% 90% 90% 30%
- **HSU:** 58% 75% 89% 93% 77% 40% 22% 1% 0% 5% 50% 34% 59% 3% 0% 51% 56% 3% 56% 57% 70% 3% 16% 0% 4% 8% 0% 58% 99% 2% 3% 50% 33% 30% 91% 0% 91% 80% 1% 0% 70%
Ref: [F5-1-1]

**Issue Number: 6.4**

**Issue:** Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

**Interrogatory**

Please provide all memos and directions issued by the CNO subsequent to the February 3, 2012 Benchmark Update Presentation related to staff reductions.

**Response**

As part of 2013-2015 Nuclear Business process the following instructions were issued by the CNO.

1. Attachment 1: 2013-2015 BP Operational and Staff Targets [Issue Date: July 9, 2012]
2. Attachment 2: Minor Adjustments to Nuclear BTS End State [Issue Date: August 1, 2012]
2013-2015 Nuclear Operational and Staff Targets

July 9, 2012

To: Pierre Tremblay  Brian Duncan  Mark Elliott  
    Glenn Jager  Paul Nadeau  Laurie Swami  
    Mike Peckham  Stephanie Powers  Dietmar Reiner  
    Terry Doran  Jim Woodcroft

cc: Donn Hanbidge  John Blazanin  Carla Carmichael  
    Robin Heard  Randy Leavitt  Art Maki  
    John Mauti  Sabine Parks  Gary Rose  
    Cathy Treacy  Davinder Valeri  Joanne Barradas  
    Tom Henderson

The 2013-2015 Business Plan will be the first plan to reflect the Corporate Business Transformation initiative. Phase 1 of this initiative was initiated on May 3, 2012 when OPG's centre-led organizational structure took effect. With Business Transformation now underway, OPG will continue its focus on being Ontario's low-cost electricity generator of choice.

OPG Nuclear has already achieved cost savings over the past several years, and additional savings will be built into the 2013-2015 Business Plan. We will improve results while becoming more efficient.

Business Transformation will continue over the business planning period. Our immediate objective is to ensure the safe and successful implementation of the 2012-2014 Business Plan, while moving toward the Business Transformation end state. The 2013-2015 Business Plan targets in this memorandum are consistent with this direction, focusing on the organization established May 3, 2012 (Phase 1 Business Transformation).

Operational Performance Targets

Safety and operational performance over recent years reflects strong results and improvement. For example, Darlington Nuclear received an excellent safety and performance evaluation from the World Association of Nuclear Operators. The final Darlington Nuclear Peer Evaluation report recognized Darlington as one of the best performing nuclear stations in the world. Pickering Nuclear just celebrated 5 million hours without a lost-time accident. OPG Nuclear has received external recognition for our team's response to the Fukushima events in Japan, acknowledging our efforts to understand, assess, and implement defence-in-depth equipment and procedural response improvements.

The safety and operational targets for this year's business plan support and strengthen the current direction. For the years 2013 and 2014, operational targets are consistent with the approved 2012-2014 Business Plan, with improvements where possible. Targets for 2015 reflect continuing high performance levels in Safety and Human Performance, and continuous improvement under the Reliability cornerstone. Specific targets are provided in Table 1, followed by a summary of highlights and refinements.
**Table 1 - Operational Performance Targets**

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>NPI Max</th>
<th>2011 Industry Benchmarks</th>
<th>Pickering</th>
<th>Darlington</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Injury Rate (#/200k hours worked)</td>
<td>N/A</td>
<td>0.89</td>
<td>N/A</td>
<td>0.89</td>
</tr>
<tr>
<td>Industrial Safety Accident Rate (ISAR) (#/200k hours worked)</td>
<td>0.20</td>
<td>0.06</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>Collective Radiation Exposure (person-rem per unit)</td>
<td>80</td>
<td>59.90</td>
<td>110.07</td>
<td>94.73</td>
</tr>
<tr>
<td>Airborne Tritium Emissions (Curies per unit)</td>
<td>N/A</td>
<td>969</td>
<td>3,366</td>
<td>2,350</td>
</tr>
<tr>
<td>Fuel Reliability (micro-curies per gram)</td>
<td>0.0005</td>
<td>0.00015</td>
<td>0.00154</td>
<td>0.0005</td>
</tr>
<tr>
<td>Reactor Trip Rate (# per 7,000 hours critical)</td>
<td>0.50</td>
<td>0.10</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td>Auxiliary Feedwater System Unavailability (#)</td>
<td>0.02</td>
<td>0.0026</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Emergency AC Power Unavailability (#)</td>
<td>0.025</td>
<td>0.0005</td>
<td>0.0067</td>
<td>0.025</td>
</tr>
<tr>
<td>High Pressure Safety Injection Unavailability (#)</td>
<td>0.02</td>
<td>0.0001</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Nuclear Performance Index (%)</td>
<td>N/A</td>
<td>91.4</td>
<td>84.6</td>
<td>69.1</td>
</tr>
<tr>
<td>Chemistry Performance Indicator (Index)</td>
<td>1.01</td>
<td>1.00</td>
<td>1.01</td>
<td>1.04</td>
</tr>
<tr>
<td>On-line Deficient Maintenance Backlog (work orders per unit)</td>
<td>N/A</td>
<td>260</td>
<td>378</td>
<td>207</td>
</tr>
<tr>
<td>On-line Corrective Maintenance Backlog (work orders per unit)</td>
<td>N/A</td>
<td>33</td>
<td>52</td>
<td>104</td>
</tr>
<tr>
<td>Human Performance Error Rate (# per 10k ISAR hours)</td>
<td>N/A</td>
<td>0.005</td>
<td>0.007</td>
<td>0.005</td>
</tr>
</tbody>
</table>

**Notes**

1. Challenge review meetings are being held at Pickering to provide options to maintain the targets for Collective Radiation Exposure in 2013 and 2014 and finalize a recommended target for 2015 by July 23.
2. Pickering NPI targets will be revised to reflect sub-indicator target changes, once finalized.
3. Pickering is evaluating different options, considering historical performance and taking into consideration end-of-life limitations on system modifications. A 2015 target will be provided by July 23.
- **All Injury Rate**: For planning purposes, targets have been set based on the 2011 best quartile result of 0.89 injuries per 200k hours worked. These targets may be adjusted subject to further direction from People & Culture and the CEO. OPG Nuclear will continue to lead the industry in overall conventional safety performance, with top quartile performance from both stations.

- **Collective Radiation Exposure**: The 2013 and 2014 targets shown are based on the approved business plan, reviewed in light of outage scope changes and improvement opportunities. Challenge meetings are being held at Pickering to provide options to maintain the targets in 2013 and 2014 and finalize the 2015 target by July 23.

- **Airborne Tritium Emissions**: The best quartile threshold for Airborne Tritium Emissions was set by Darlington. For future years, Darlington is targeting to be best quartile at 1,000 Curies per unit, reflecting the objective to lead the industry for this measure, independent of outage work programs and other variables.

- **Nuclear Performance Index**: The 2013 and 2014 targets are based on last year’s targets for sub-indicators that make up the index. NPI targets will be revised to reflect sub-indicator target changes, once finalized.

- **Chemistry Performance Indicator**: The sites, in collaboration with Engineering Services, have analyzed the impact of the Generation Plan on the Chemistry Performance Indicator. Pickering is evaluating different options, considering historical performance and taking into consideration end-of-life limitations on system modifications. A 2015 target will be provided by July 23.

- **Maintenance Backlog Measures**: Last year, OPG Nuclear implemented an industry-wide change on the coding of maintenance backlogs and initiated the use of revised indicators (On-line Corrective Maintenance Backlog and On-Line Deficient Maintenance Backlog). Standardization and benchmarking activities were conducted on these metrics. The 2013-2015 Business Plan targets reflect the experience with these new metrics, as well as improvement initiatives to:
  - Focus on work order readiness, reduce backlogs and improve maintenance effectiveness to improve the reliability of the units, and
  - Implement corrective actions to prevent unexpected equipment failures.

Strategic Planning & Benchmarking in Nuclear Services will co-ordinate communication of these targets to initiative leaders and peer teams to ensure initiatives are in place to achieve performance improvements.
Generation Targets

Generation performance targets are provided in Table 2 below, and are primarily based on decisions made at the May 31 Tri-Annual Generation Planning Meeting. These targets are subject to further minor refinements following completion of action items from the meeting.

Table 2 - Generation Performance Targets

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pickering Nuclear</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Generation in TWh</td>
<td>21.11</td>
<td>21.45</td>
<td>19.42</td>
</tr>
<tr>
<td>Planned Outage Days</td>
<td>303</td>
<td>281</td>
<td>502</td>
</tr>
<tr>
<td>Force Loss Rate</td>
<td>8.6</td>
<td>8.3</td>
<td>5.5</td>
</tr>
<tr>
<td>Unit Capability Factor</td>
<td>78.7</td>
<td>80.0</td>
<td>83.0</td>
</tr>
<tr>
<td><strong>Darlington Nuclear</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Generation in TWh</td>
<td>26.92</td>
<td>28.41</td>
<td>25.89</td>
</tr>
<tr>
<td>Planned Outage Days</td>
<td>144</td>
<td>77</td>
<td>199</td>
</tr>
<tr>
<td>Force Loss Rate</td>
<td>1.50</td>
<td>1.25</td>
<td>1.00</td>
</tr>
<tr>
<td>Unit Capability Factor</td>
<td>88.8</td>
<td>93.5</td>
<td>85.5</td>
</tr>
<tr>
<td><strong>OPG Nuclear</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Generation in TWh</td>
<td>48.03</td>
<td>49.86</td>
<td>45.31</td>
</tr>
<tr>
<td>Planned Outage Days</td>
<td>447</td>
<td>358</td>
<td>701</td>
</tr>
<tr>
<td>Force Loss Rate</td>
<td>4.7</td>
<td>4.4</td>
<td>2.9</td>
</tr>
<tr>
<td>Unit Capability Factor</td>
<td>83.6</td>
<td>86.7</td>
<td>84.4</td>
</tr>
</tbody>
</table>

Targets presented in Table 2 are based on the following:

- For Pickering:
  - Continued Operations will extend the operating life of Pickering units to 247 kEFPH. (Refer to Appendix A for supporting memorandum.) All units will be removed from service on or before December 31, 2020 regardless of fuel channel life.
  - Unit 6 will operate to 2019 and Units 1, 4, 5, 7 and 8 will operate to 2020.
  - Unit 7 will be life managed to align with Unit 8 end of life by planning 223 outage days in early 2015 and 54 outage days in 2016. The 2016 life management outage will be completed prior to Darlington refurbishment starting.
  - The Generation Plan includes a 20 day mid-cycle outage each year, alternating between Units 1 and 4, to allow maintenance to be completed to reduce risk of future forced outages.
  - Forced Loss Rate targets incorporate an annual decrease of 0.5 TWh consistent with the 2012-2014 Business Plan and OEB decision.
  - Unit Capability Factor calculations exclude the Unit 7 Life Management Outage.
For Darlington:

- The D1321 outage has been advanced by two weeks to mitigate overlapping inspection campaigns during the three OPG Nuclear 2013 fall outages.
- Refurbishment begins with Unit 2 in Q3 2016 and ends in January 2024.
- Refurbishment outages are 36 months each for Units 2, 1, 3, and 4.
- The D1711 outage is eliminated by moving scope to other outages (including outages in 2014 and 2015) for net savings in outage days and costs.
- There are two Planned Outages in 2013 and a single Planned Outage in 2014.
- There is a Vacuum Building Outage in 2015, eliminating the need for a VBO in 2021 during the refurbishment window.
- The frequency of Vacuum Building Outages and Station Containment Outages will be changed to once every 12 years (CNSC approval still required).

Financial Targets
The details of the financial targets for OM&A, Capital and Provision for each business unit are under development, and will be completed by separate memorandum once finalized.

The final financial guidelines will reflect the general direction to further improve the cost structure through minimization of overheads and reductions in operating costs.

Staff Targets
Managing staff levels and achieving staffing targets are critical to meeting our objective of reducing costs and allowing financial flexibility. Efficiencies will be achieved through the implementation of improvement initiatives, productivity improvements and the appropriate prioritization of work.

The Corporate headcount guidelines in Table 3 below were derived using a model that takes the lower of 2012-2014 Business Plan targets or attrition-based forecasts, whichever is lower. Attrition-based forecasts assume a 10% rehire to fill critical roles, and for Nuclear Operators, 100% rehire for attrition is incorporated and the 18 months initial training requirement is accommodated. In Table 4, headcount guidelines are provided by Nuclear business unit, based on the same model.

Staff targets for Nuclear Operations include any support to be provided to Nuclear Refurbishment; refurbishment Operator hiring and training requirements are shown separately in Table 4.


Table 3 - Regular Staff Year End Headcount Guidelines for 2013-2015 Business Plan\(^1\)

<table>
<thead>
<tr>
<th></th>
<th>Budget</th>
<th>Resource Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2012</td>
<td>2013</td>
</tr>
<tr>
<td>Nuclear Operations</td>
<td>5,542</td>
<td>5,347</td>
</tr>
<tr>
<td>Nuclear Projects - Support</td>
<td>777</td>
<td>739</td>
</tr>
<tr>
<td>Nuclear Projects - Major Projects</td>
<td>195</td>
<td>230</td>
</tr>
<tr>
<td>- Nuclear Refurbishment</td>
<td>93</td>
<td>33</td>
</tr>
<tr>
<td>Total Nuclear</td>
<td>6,607</td>
<td>6,349</td>
</tr>
</tbody>
</table>

Note 1: Nuclear Projects - Support includes Nuclear Decommissioning and NWMO Oversight.
Table 4 - Business Unit Regular Staff Headcount Targets for 2013-2015 Business Plan

<table>
<thead>
<tr>
<th>Business Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nuclear Operations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pickering</td>
<td>2,013</td>
<td>1,944</td>
<td>1,920</td>
</tr>
<tr>
<td>Pickering Workforce Development Program</td>
<td>43</td>
<td>57</td>
<td>66</td>
</tr>
<tr>
<td>Darlington</td>
<td>1,314</td>
<td>1,261</td>
<td>1,247</td>
</tr>
<tr>
<td>Darlington Workforce Development Program</td>
<td>35</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>Darlington Refurbishment Workforce Development Program</td>
<td>34</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>909</td>
<td>870</td>
<td>819</td>
</tr>
<tr>
<td>Engineering Workforce Development Program</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Operations and Maintenance Support (excl. Workforce Development)</td>
<td>40</td>
<td>37</td>
<td>36</td>
</tr>
<tr>
<td>Maintenance Roving Outage Crew 1</td>
<td>67</td>
<td>72</td>
<td>74</td>
</tr>
<tr>
<td>Nuclear Waste Management</td>
<td>203</td>
<td>202</td>
<td>200</td>
</tr>
<tr>
<td>Nuclear Services (including RP Project Crew)</td>
<td>203</td>
<td>193</td>
<td>182</td>
</tr>
<tr>
<td>Office of Chief Nuclear Officer / Other</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total Nuclear Operations</strong></td>
<td>4,875</td>
<td>4,724</td>
<td>4,632</td>
</tr>
<tr>
<td><strong>Nuclear Projects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspection &amp; Maintenance Services</td>
<td>373</td>
<td>363</td>
<td>363</td>
</tr>
<tr>
<td>Projects &amp; Modifications</td>
<td>338</td>
<td>335</td>
<td>333</td>
</tr>
<tr>
<td>Nuclear Decommissioning / NWMO Oversight</td>
<td>10</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Office of Executive Vice President - Nuclear Projects</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Subtotal Nuclear Projects - Support</strong></td>
<td>723</td>
<td>711</td>
<td>709</td>
</tr>
<tr>
<td>Nuclear Refurbishment</td>
<td>230</td>
<td>226</td>
<td>235</td>
</tr>
<tr>
<td>Nuclear New Build</td>
<td>33</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td><strong>Subtotal Nuclear Projects - Major Projects</strong></td>
<td>263</td>
<td>258</td>
<td>267</td>
</tr>
<tr>
<td><strong>Total Nuclear Projects</strong></td>
<td>986</td>
<td>969</td>
<td>976</td>
</tr>
<tr>
<td><strong>Total Nuclear</strong></td>
<td>5,861</td>
<td>5,693</td>
<td>5,608</td>
</tr>
</tbody>
</table>

**Notes**

1. Staff numbers for the Maintenance Roving Outage Crew are shown in Operations & Maintenance Support since the crew rotates between sites. Funding is at the site level.
2. Staff numbers have been adjusted based on approved transfers within OPG Nuclear and Phase 1 Business Transformation.

A transformed OPG with a sustainable cost structure will deliver more value to Ontario, attract more investment for generation and repowering projects, allow us to moderate electricity prices, and help secure our position as the low-cost generator for many years. We are confident that incorporation of these performance targets into our 2013-2015 Business Plan will support this direction and lead to a highly successful transformation for OPG Nuclear and OPG overall.

Wayne Robbins  
Chief Nuclear Officer

Albert Sweetnam  
EVP Nuclear Projects
Appendix A

Basis for Operation of Pickering Units to 247 kEFPH

MEMORANDUM

Wayne Robbins
Chief Nuclear Officer

Pickering 5-8 Continued Operation

The originally assumed life of the Pressure Tubes was based on the design life of 30 years at 80% capacity factor or 210,000 Effective Full Power Hours (EFPH). PNGS Units 5 to 8 will exceed this milestone commencing in July 2013. OPGN intends to continue to operate PNGS until the end of 2020 before an orderly phased shutdown of units takes place.

In 2009, the Fuel Channel Life Management Project (FCLMP) was been undertaken (in partnership with Bruce Power and AECL) to confirm there are no life-limiting conditions that prevent continued planned operation of the pressure tubes to at least 240 kEFPH. The R & D work is progressing as planned. The scope of FCLMP has been agreed with the regulator (CNSC) in a “Protocol” document prepared by the CNSC which provides the technical basis for continued operation of the pressure tubes.

More recently, the ability to set the operating target beyond 240 K EFPH has been recognized and the FCLMP has adopted 247K EFPH as its target. FCLMP has analysed the difference between operating to 240 K EFPH versus operating to 247k EFPH. The technical risk is minimal and the additional requirements, in terms of additional field work and surveillance, are small.

The FCLMP work is proceeding as outlined in the project plan and there remain some planned tests to complete in 2012. These tests are expected to confirm our projections of changes in pressure tube performance with time. They will indicate what changes are required in plant operating procedures for the Pickering units. Continued demonstration of fitness for service of pressure tubes for the remaining targeted life will require modified surveillance and inspection programs, and these changes will be defined by the end of 2012. Pickering Units 1 and 4 have newer pressure tubes as a result of the Large Scale Fuel Channel Replacement in the 1990’s and 1990’s when all the tubes were replaced. PNSG 1-4’s pressure tubes are generally expected to be bounded by those at Pickering 5-8 and we expect Units 1 and 4 to have useful service life longer than 2020.

We expect to be able to move the confidence level to achieve the planned life (247 EFPH) from the current ‘medium’ to ‘high’ confidence at the end of 2012, provided:

1. The tests continue to give the expected positive results,
2. The required changes for heat up and cool-down cycles are manageable, and
3. The modified surveillance and inspection program are implemented.
The estimate to operate Pickering Units 5-8 to 247 K EFPH is believed to be conservative and there are currently no degradation mechanisms that we expect not to be manageable to this target life.

Sincerely,

Mark Elliot
Senior Vice-President
Nuclear Engineering
and Chief Nuclear Engineer
Minor Adjustments to Nuclear BTS End State

August 1, 2012

Albert Sweetnam
EVP, Nuclear Projects

Wayne Robbins
Chief Nuclear Officer

Mark Elliott
Chief Nuclear Engineer

Pierre Tremblay
Chief Nuclear Operating Officer

Mike Peckham
VP Projects & Modifications

Tom Henderson
Business Transformation

Minor Adjustments to Nuclear BTS End State

Your approval is requested to make minor adjustments to the Nuclear Business Transformation end state organization, to partially correct for variations from industry average resource levels in three functional areas: Engineering - Technical, Engineering Plant, and Construction/Maintenance Support. The adjustments net to zero change in the overall Business Transformation staff reduction committed to by Nuclear, but the distribution of headcount within Nuclear is altered to reflect recent staff level benchmarking.

Background

In its 2010 Decision, the Ontario Energy Board directed OPG to examine nuclear staffing levels as part of its benchmarking studies. OPG retained Goodnight Consulting, an external consultant with experience in nuclear industry staff benchmarking, and a final report was provided in February 2012. Goodnight compared OPG Nuclear staff levels with industry averages, in aggregate and over a standardized set of 40 functional categories, to identify areas of potential excess and shortfall.

The Goodnight benchmarking study was completed after Business Transformation design work, so variances between approved end state headcount numbers and benchmarking conclusions were expected. Analysis was completed in April 2012 to compare the headcount variances of the two studies and identify the most significant gaps.

Summary of Conclusions

With reference to Figure 1, the following variances are most significant:

1. Maintenance/Construction Support shows opportunity for further reduction to close the gap to industry average, even after full implementation of BTS.

   The Maintenance/Construction Support function includes job package development, assembling, completing and reviewing documentation associated with the maintenance effort, developing maintenance strategies, coordination with engineering on maintenance procedures, and full time maintenance procedure writers. Also included are workers coordinating contractor labour and cost and schedule estimating, but the function does not include schedulers, designers or engineers.

   In addition, power block custodials, the construction of scaffolding or work platforms, and insulation removal and re-installation to support maintenance or modification are included in this functional area, which helps to explain the high post-BTS staff count (Pickering: 240; Darlington: 109). In comparison with industry, however (where these roles are also included), the gap to benchmark still remains high (Pickering: + 121; Darlington: + 55).

---

1. Potential Impact of Nuclear Staff Benchmarking on Nuclear Staffing Levels, R. Leavitt, April 23, 2012

The *Engineering - Technical* function includes research and analysis of engineering issues in support of plant or system engineers and modification engineers where appropriate. Roles include response to design basis and configuration control issues, consultation as technical expert in specialized areas, and ownership for key programs such as fire protection, equipment qualification, and probabilistic risk assessment.

The *Engineering - Plant* function includes monitoring of system health and evaluation of system and component performance, and the provision of engineering assistance to maintenance in the development of corrective maintenance actions. Also included are review and development of procedures and technical reports, review of surveillances, modifications and internal and external system related studies, and review of post-maintenance and post-modification testing and surveillance.

Both of these functions are low relative to the average industry benchmark, before and after BTS implementation.

**Recommendations**

Adjustments to Business Transformation end state numbers are recommended as per Table 1 below.

**Table 1 - Business Transformation End State Adjustments to Reflect Industry Benchmarking**

<table>
<thead>
<tr>
<th>Organization</th>
<th>Original BT End State (headcount)</th>
<th>Recommended Change (headcount)</th>
<th>Final BT End State (headcount)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear Engineering</td>
<td>757</td>
<td>+60</td>
<td>839*</td>
</tr>
<tr>
<td>Pickering Maintenance Preparation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessing – FLM</td>
<td>14</td>
<td>-1</td>
<td>13</td>
</tr>
<tr>
<td>Assessing – Control Maintainers</td>
<td>44</td>
<td>-5</td>
<td>39</td>
</tr>
<tr>
<td>Assessing – Mechanical Maintainers</td>
<td>44</td>
<td>-6</td>
<td>38</td>
</tr>
<tr>
<td>Pickering Maintenance Execution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLM</td>
<td>17</td>
<td>-2</td>
<td>15</td>
</tr>
<tr>
<td>Civil Maintainers</td>
<td>131</td>
<td>-17</td>
<td>114</td>
</tr>
<tr>
<td>Darlington Plant Maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLM</td>
<td>68</td>
<td>-1</td>
<td>67</td>
</tr>
<tr>
<td>Control Maintainers</td>
<td>153</td>
<td>-3</td>
<td>150</td>
</tr>
<tr>
<td>Mechanical Maintainers</td>
<td>107</td>
<td>-3</td>
<td>104</td>
</tr>
<tr>
<td>Civil Maintainers</td>
<td>93</td>
<td>-12</td>
<td>81</td>
</tr>
<tr>
<td>Operations &amp; Maintenance Support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pickering Maintenance Procedure Writers</td>
<td>12</td>
<td>-3</td>
<td>9</td>
</tr>
<tr>
<td>Darlington Maintenance Procedure Writers</td>
<td>8</td>
<td>-2</td>
<td>6</td>
</tr>
<tr>
<td>Projects &amp; Modifications Field Engineering – Technical</td>
<td>104</td>
<td>-5</td>
<td>99</td>
</tr>
</tbody>
</table>

*Includes additional 22 Nuclear Waste engineering staff (approval pending).

With staff reductions by attrition, an increase in the end state headcount results in the end state being reached earlier. Prior to adjustment, the Engineering functional area was projected to reach end state in 2018; with the adjustment, Engineering will reach end state in 2015.

The Maintenance Support reductions tabulated above will eventually impact both the sites and the centralized Operations & Maintenance Support organization, following the Business Transformation Phase 2 re-alignment in 2013.
A decrease in end state headcount would normally result in a delay in the time to reach end state, but the decreases above are primarily in job families that were out of scope for Business Transformation organizational changes. Therefore, even with the reduction in end state headcount, end states are still reached for affected job families within the period of the 2013-2015 business plan. This is shown in Table 2 which provides the end state view for Phase 1 (May 2012 re-organization).

Table 2 - Functional Breakdown of Transition to Nuclear End State – Phase 1

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin Support</td>
<td>103</td>
<td>100</td>
<td>97</td>
<td>93</td>
<td>90</td>
<td>85</td>
<td>81</td>
<td>65</td>
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<tr>
<td>Business Support</td>
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<td>79</td>
<td>72</td>
<td>65</td>
<td>65</td>
<td>65</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>Senior Management</td>
<td>138</td>
<td>128</td>
<td>117</td>
<td>106</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Engineering</td>
<td>961</td>
<td>926</td>
<td>889</td>
<td>864</td>
<td>864</td>
<td>864</td>
<td>864</td>
<td>864*</td>
</tr>
<tr>
<td>Technical</td>
<td>437</td>
<td>413</td>
<td>386</td>
<td>358</td>
<td>329</td>
<td>311</td>
<td>309</td>
<td>309</td>
</tr>
<tr>
<td>Ops &amp; Mtce</td>
<td>545</td>
<td>509</td>
<td>470</td>
<td>470</td>
<td>470</td>
<td>470</td>
<td>470</td>
<td>470</td>
</tr>
<tr>
<td>Control Maintenance</td>
<td>616</td>
<td>595</td>
<td>590</td>
<td>590</td>
<td>590</td>
<td>590</td>
<td>590</td>
<td>590</td>
</tr>
<tr>
<td>Mechanical Maintenance</td>
<td>557</td>
<td>538</td>
<td>538</td>
<td>538</td>
<td>538</td>
<td>538</td>
<td>538</td>
<td>538</td>
</tr>
<tr>
<td>Service Maintenance</td>
<td>302</td>
<td>290</td>
<td>276</td>
<td>276</td>
<td>276</td>
<td>276</td>
<td>276</td>
<td>276</td>
</tr>
<tr>
<td>Operators &amp; Authorized</td>
<td>1,288</td>
<td>1,267</td>
<td>1,248</td>
<td>1,248</td>
<td>1,221</td>
<td>1,221</td>
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<tr>
<td>Emergency Response</td>
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<td>96</td>
<td>96</td>
<td>96</td>
<td>96</td>
<td>96</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>Other</td>
<td>395</td>
<td>388</td>
<td>381</td>
<td>373</td>
<td>364</td>
<td>356</td>
<td>349</td>
<td>299</td>
</tr>
<tr>
<td><strong>Total Nuclear</strong></td>
<td>5,521</td>
<td>5,328</td>
<td>5,161</td>
<td>5,078</td>
<td>5,003</td>
<td>4,973</td>
<td>4,959</td>
<td>4,893</td>
</tr>
</tbody>
</table>

Business Transformation end state achieved, with current attrition assumptions.

* The total Phase 1 end state number for the Engineering function includes 22 additional provision funded engineers for the Nuclear Waste work program (approval pending).

Your approval is requested to make the above adjustments to Business Transformation end state numbers. The adjustments net to zero change in the overall Business Transformation staff reduction committed to by Nuclear, but provide internal balancing to bring functional distributions closer to industry average.

Recommended by: Randy Leavitt            Jim Woodcroft
                VP Nuclear Finance            Director, Ops & Mtce Support

Concurred by: Mike Peckham                Mark Elliott
              VP Projects & Modifications   Chief Nuclear Engineer

Approved by: Albert Sweetnam              Wayne Robbins
             EVP, Nuclear Projects          Chief Nuclear Officer
SEC Interrogatory #097

Ref: F5-1-1

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

Please provide the number of Public Affairs positions in each of 2010 through 2015. Please provide the total cost (including pension and benefits) for these positions for each of these years. Please provide the number of roles with total compensation above $100,000 in this area. Please explain what role and responsibility these staff have in respect to nuclear operations.

Response

Role of the “public affairs” function

The “public affairs” function at OPG is centre-led by the Corporate Relations and Communications (“CRC”) unit. As part of Business Transformation, CRC was formed through the consolidation of Public Affairs, First Nations and Métis Relations, Provincial Government Relations, Provincial Stakeholder Relations, Federal Government and Stakeholder Relations and Employee Communications into a single organization in May 2012.

CRC is an integrated communications organization whose accountabilities go beyond what might traditionally be seen as “public affairs”. For example, First Nations and Métis relations work includes resolving past grievances, developing aboriginal training programs and contributing to the development of partnership agreements and supplier contracts. Provincial government relations plays a significant shareholder (Province of Ontario) relations role and employee communications includes direct support for in-plant business plans and work programs. CRC staff are also engaged with municipalities, government ministries and stakeholders in land and water resource management issues.

At a high level CRC is organized according to the following areas of expertise:

- Community relations
- First Nations and Métis relations
- Government, shareholder and stakeholder relations (Municipal, Provincial and Federal)
- Employee communications/work program support
- Public communications and programming (speech writing, editorial content, advertising, water safety promotion, social media, leadership communication, corporate citizenship)
- Media and information management
The role of the CRC Nuclear unit is to support nuclear operations and projects including waste management. Work programs include:

- Meet federal safety regulator and shareholder (Ontario government) expectations for transparent communication, reporting and outreach within the host community, with key stakeholders, interest groups and the public as well as employees.
- Build awareness and understanding of OPG’s plans and operations in host communities.
- Provide communications support, including the development of special communications efforts for generating stations, projects, environmental assessment public consultation and nuclear waste projects.
- Provide support for emergency communications planning and participation in emergency drills.
- Facilitate community councils and committees mandated to provide advice to OPG on plant operations.
- Support nuclear licensing and approval hearing activities.
- Develop employee communications incorporating desired values and behaviours required to deliver on business priorities and work programs, safety milestone communications and communications of accomplishments to improve employee engagement.

Corporate staff also provide advice and products to support the nuclear communications program, including First Nations and Métis advice, corporate citizenship, internet and social media communications, and government relations advice as well as corporate-wide employee communication initiatives, research, media support and nuclear stakeholder and government relation support.

Public Affairs function staff numbers and labour cost

The number of staff and total labour costs are provided in Table 1. These figures include both regulated and unregulated operations. In addition, there are seven Community Relations staff in Hydro that are included in Hydro OMA.

Staff numbers have declined since CRC was formed in 2012 and that trend will continue as work is consolidated.

Public Affairs function staff earning more than $100,000

Public Sector Salary Disclosure data published in 2013 for the 2012 reporting year indicates a total of 41 of 62 public affairs function staff made more than $100,000.
### Table 1: Staff Numbers\(^1\) and Labour Costs\(^2\)

<table>
<thead>
<tr>
<th>Public Affairs/Corporate Relations Unit</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of staff</td>
<td>Labour cost ($M)</td>
<td>Number of staff</td>
<td>Labour cost ($M)</td>
<td>Number of staff</td>
<td>Labour cost ($M)</td>
<td>Number of staff</td>
</tr>
<tr>
<td>Public Affairs (pre-2012)</td>
<td>41</td>
<td>6.1</td>
<td>39</td>
<td>6.6</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Consolidated Corporate Relations and Communications</td>
<td>23</td>
<td>9.7</td>
<td>58</td>
<td>9.3</td>
<td>50</td>
<td>9.3</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>6.1</td>
<td>39</td>
<td>6.6</td>
<td>62(^2)</td>
<td>9.7</td>
</tr>
</tbody>
</table>

---

1. The number of staff and labour costs for 2010 through 2013 are actual figures. 2014 to 2015 figures are based on the 2013 to 2015 business plan. The number of staff are the figures at the year-end.

2. Public Affairs, First Nations and Métis Relations, Provincial Government, Provincial Stakeholder Relations, Federal Government and Stakeholder Relations and Employee Communications were brought together to form Corporate Relations and Communications (CRC) in May 2012. The total CRC staff number in May 2012 was 65.

3. It is assumed that staff leaving CRC will do so at various times throughout the year. As a result the reduction in budget for labour cost lags behind the forecast reduction in year-end number of staff.
SEC Interrogatory #098

Ref: F5-1-1, part b

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

The Updated Goodnight Benchmarking Report found a remaining 8% gap in the FTEs against comparables.

(a) Please provide the plan which reduces this overstaffing to 0 by 2015. If this is to be achieved through attrition as indicated by OPG please show the plan showing how OPG will align the Benchmark studies overstaffing in functional areas with expected attrition.

(b) If no such plan exists please explain how OPG is managing to downsize staff in accordance with the findings of the Goodnight study.

(c) If OPG disagrees with the any of the findings of the study please explain.

Response

a) Per Ex. F5-1-1, Part a, page 7, the initial Goodnight Study concludes that a comprehensive workforce plan will be necessary to ensure staff reductions are appropriately pursued by functional area. It does not recommend that staff reductions be made in overstaffed functions nor does it propose that gaps for all overstaffed functions be closed (see Ex. L-6.4-17 SEC-94).

The Goodnight benchmark is updated based on the most recent industry data. As such, it is not possible for OPG to forecast changes to industry benchmarks in 2014 and 2015. However, assuming that the 2013 Goodnight benchmark does not change significantly for 2014 and 2015, OPG expects to approach the overall benchmark FTE levels by end of 2015. Timing of this achievement will be dependent on actual attrition rates throughout 2014 and 2015. (see Ex. L-6.4-15 PWU-22)

b) OPG uses the Goodnight Study as one element to develop plans that achieve targeted staff levels. Staff planning also takes into consideration work program demands, hiring requirements to maintain both minimum shift compliment and organization capability in a number of areas, initiatives to drive efficiency improvements and the impacts of attrition.

c) As described, OPG utilizes the Goodnight study as one element to guide the development of staffing plans.
Ref: F5-1-1

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

(a) Please provide the total cost of Security FTEs (including benefits) for each of the years 2010 through 2015. If OPG is unwilling to provide this data please explain why and how it might compromise security.

(b) Please provide the percentage increase in security spending for each year between 2000 and 2015.

(c) Was Goodnight Consulting able to provide benchmarking data with respect to comparable utilities for security compensation? If yes please provide the total comparable cost of security FTES for the benchmark study.

(d) If this was not provided please enquire from Goodnight Consulting whether such data is available.

Response

(a) OPG is not permitted to release security protected prescribed information pursuant to Sections 21 (1) (c) and 23(1) of the General Nuclear Safety and Control Regulations under the Nuclear Safety and Control Act. If this information were to be disclosed, it could jeopardize the protection of OPG critical infrastructure, assets, facilities, and systems; or endanger the security of a building.

(b) OPG is not permitted to release security protected prescribed information, pursuant to Section 23 (1) of the above-referenced General Nuclear Safety and Control Regulations.

(c) Compensation data for any function, including security, was not a part of either the 2011 or the 2013 staff benchmarking studies prepared by Goodnight for OPG.

(d) While Goodnight Consulting does occasionally perform compensation benchmarking studies, they have confirmed that they do not have any current data surrounding compensation for security staffing.
SEC Interrogatory #100

Ref: F2-1-1-Attachment 1

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

Both Pickering and Darlington Stations are below the median for On-Line Corrective Maintenance Backlog. What steps has OPG taken to address this issue?

Response

In 2011, the methodology used by industry to categorize and count the maintenance backlog changed. Due to the design of the Candu plants, the number of corrective backlog work orders increased significantly under the new methodology (there was an immediate redistribution between corrective and deficient work orders and a change in the benchmark). In the case of Darlington, for the corrective backlog, the station went from 1st quartile performance to 4th quartile performance.

OPG’s 1-Year On-line Corrective Maintenance Backlogs compared to industry benchmarks for 2012 and 2013 (Best Quartile and Median data for 2013 is currently not available from INPO) are shown below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Best Quartile</th>
<th>Median</th>
<th>Pickering</th>
<th>Darlington</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>33</td>
<td>52</td>
<td>160</td>
<td>121</td>
</tr>
<tr>
<td>2012</td>
<td>8</td>
<td>28</td>
<td>118</td>
<td>66</td>
</tr>
<tr>
<td>2013</td>
<td>N/A</td>
<td>N/A</td>
<td>124</td>
<td>32</td>
</tr>
</tbody>
</table>

The trend since 2011 indicates that Darlington has made continued progress towards reducing the number of backlogs with on-going initiatives related to work prioritization and scheduling.

Pickering steadily reduced its backlogs from 159 in August 2013 to 124 in December 2013, having faced competing priorities earlier in the year. Moreover, the most critical corrective backlogs were reduced by over 30% from 2012 - 2013.

Since 2011, on-line corrective maintenance backlogs have improved by 22.5% at Pickering and 73.6% at Darlington.
In order to reduce on-line corrective maintenance backlogs and subsequently improve equipment reliability, a Nuclear Fleet Initiative was approved as part of 2013 - 2015 Business Plan. Steps taken to address the issue include:

- Performing a comprehensive review of the preventive maintenance program to assess if, on a planned basis, it is beneficial to perform less preventive maintenance and redistribute those resources to perform additional corrective maintenance. Another component is improved Fix-It-Now team effectiveness such that more of the incoming work is repaired without it having to be assessed and scheduled.

- Increasing the amount of corrective work that is scheduled for execution. Typically, corrective type of work is more difficult to get ready to execute. Corrective work requires availability of spare parts (some with long lead times and not identical so that engineering assessments must be performed prior to use) and specialized work instructions to allow repairs and testing. Consequently a lot of effort is spent getting this work ready for execution. A number of activities are being implemented to improve the performance in this area, including improved parts availability and the clearing of holds so ready work can move forward on execution.

- Placing a priority the scheduling of corrective maintenance over other types of work that needs to be completed.

A summary of fleet and site initiatives to improve equipment reliability are listed in Ex, F2-1-1m Attachment 3, Part A, “Reliability Improvement Initiatives”.

Please also see response to L-06.4-17 SEC-075 on actions taken to improve equipment reliability at Pickering Unit 1 and Unit 4.
SEP Interrogatory #006

Ref: Exh F-2-1-1; EB-2010-0008, OPG Application Exh F-5-1-2

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

Page 8 of the application indicates that benchmarking of nuclear staffing used the services of Goodnight Consulting Inc. In EB-2010-0008 these services were provided by Scott Madden Inc. Please provide a comparison of the key findings of these two reports.

Response

In 2009, OPG undertook a major new nuclear benchmarking initiative in conjunction with the development of its 2010 - 2014 Business Plan. This initiative was undertaken by OPG Nuclear, with the assistance of ScottMadden Inc. (“ScottMadden”), a general management consulting firm specializing in the provision of benchmarking and business planning consulting services to nuclear utilities.

ScottMadden’s Phase 1 results provided a benchmark baseline for OPG by comparing its financial and non-financial performance with industry peers. The objective was to clarify and confirm performance gaps and to identify potential cost and performance improvement areas for inclusion in OPG’s business planning process. The ScottMadden Phase 1 analysis did not include staffing benchmarks.

Subsequent to Phase 1, Scott Madden conducted a Phase 2 analysis which supported OPG Nuclear’s transition to a gap-based business planning process: a structured approach to identifying improvement opportunities, formulating targets and developing action plans to achieve these improvements. As part of Phase 2, ScottMadden undertook a high-level staff benchmarking analysis using the EUCG database (which with the exception of OPG and Bruce Power consists of US PWR and BWR units). This work confirmed the general assumptions that OPG Nuclear staffing levels were higher than its industry peers and provided general guidance and insight on the development of improvement initiatives that would contribute to the achievement of OPGN’s financial cost performance targets. However ScottMadden’s staffing analysis did not address some fundamental differences in OPG’s operations which require different functional areas or additional resources due to the technology differences between CANDU and PWR plants. In addition, Scott Madden did not adjust for other factors such as workweek hours, reliance by comparators on third-party contractors for services, etc.

In 2011, OPG Nuclear retained Goodnight Consulting to provide a detailed staff benchmarking comparison to an appropriate comparator group with the objective of normalizing for technology
differences and other factors. Goodnight Consulting's findings confirmed previous findings of OPG Nuclear being over benchmark in staffing. However, Goodnight Consulting's report also provided additional insight on the factors contributing to the previous findings on OPG Nuclear staffing being over benchmark. By normalizing for the technology difference, Goodnight was able to identify that OPG's CANDU requires an additional 400 FTEs compared to PWR to perform similar functions, and in addition have 1,031 FTEs engaged in activities that have no equivalent in a PWR reactor FTEs.

OPG Nuclear was able to use these findings to understand the addressable differences, develop targets and implement improvement plans.
SEP Interrogatory #007

Ref: Exh F-2-1-1; EB-2010-0008, OPG Application Exh F-5-1-2

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

Is OPG aware of any service that `benchmarks the benchmarkers`? Does OPG conduct any independent research on the validity and accuracy of the benchmarking data used by firms such as Goodnight and ScottMadden?

Response

No, OPG is not aware of any service that `benchmarks the benchmarkers` and it does not retain such services.

When OPG selects a benchmarking firm, it conducts a rigorous and comprehensive selection process ensuring the contract is awarded based on the following attributes:

- experience in the type or scope of work
- capability of completing fact-based analysis
- strong reputation (good references); and
- cost effectiveness
SEP Interrogatory #008

Ref: Exh F-1-2-2

Issue Number: 6.4

Issue: Is the benchmarking methodology reasonable? Are the benchmarking results and targets flowing from those results for the nuclear facilities reasonable?

Interrogatory

Page 2 of the application at lines 19-25 indicates that CANDU staffing levels have been reduced relative to industry peers. Does OPG examine the capital maintenance spending of its industry peers? If so, please provide a comparison of OPG’s capital maintenance spending relative to the same peers that provide the comparison group for staffing.

Response

OPG does examine and benchmark the capital maintenance spending of its industry peers to establish project portfolio spending targets (see Ex. D2-1-1, page 1). OPG annually reviews cost information collected by the Electric Utilities Cost Group (“EUCG”) to develop benchmark values for capital projects as well as OM&A modifications. Darlington and Pickering spent substantially less than their peers between the years 2010 and 2012.

The EUCG is a member-based trade association comprised of professionals from utility companies. The Nuclear Committee operates a database of cost information that has been recognized as the best, most comprehensive source of nuclear plant data in the world.

In order to complete a comprehensive industry staffing benchmark of OPG’s nuclear line of business, Goodnight Consulting was awarded a contract through a competitive procurement process. The methodology and data used by Goodnight Consulting is proprietary and independent of EUCG cost information. As a result, OPG cannot definitively ensure that the capital investment benchmarks utilize the same industry peers for comparison purposes as requested.
**Board Staff Interrogatory #90**

Ref: Exh F5-2-1, pages 28-29

**Issue Number:** 6.5

**Issue:** Is the forecast of nuclear fuel costs appropriate? Has OPG responded appropriately to the suggestions and recommendations in the Uranium Procurement Program Assessment report?

**Interrogatory**

The Board’s most recent decision on OPG payment amounts stated “In the next proceeding, the Board will examine OPG’s procurement program to determine whether the company is optimizing its contracting in order to minimize costs to ratepayers. The Board will therefore direct OPG to file an external review as part of its next application.”

OPG retained Longenecker and Associates (“L&A”) to undertake that review. The L&A report notes OPG’s annual uranium requirements are about 2 million pounds/year and OPG’s policy is to maintain a minimum inventory of 1 million pounds or 50% of annual requirements as strategic inventory. However, additional inventory is also held in the form of finished fuel which contains about 2 million pounds. As a result, OPG is carrying about 1.5 years of inventory or 150% of annual requirements. L&A estimates the value of the uranium contained in inventories carried by OPG to be about $170M.

The report also notes no US utility carries finished fuel as inventory and, in comparison, a large US nuclear generator only requires an inventory of between 30% and 35% of annual requirements. It also notes that, in general, nuclear utilities plan for a maximum of one year interruption of deliveries. L&A therefore expressed the view that OPG’s multiple inventories provide a significant potential to “optimize” the existing multiple inventories which would provide an opportunity for reduced investment and therefore lower annual inventory carrying costs which L&A estimated at approximately $12M per year ($170M @ 7% per year).

a) How long has OPG been carrying 150% of annual requirements in inventory and why are they so high relative to other nuclear generators?

b) OPG notes in the application that it accepted this recommendation and the target inventory level has been reduced. How much has OPG reduced inventory levels to date and what level is OPG now targeting taking into account all three stages of the nuclear fuel supply chain?

c) Where is the reduction in nuclear fuel inventory that is being implemented reflected in the evidence for the 2014-2015 test years?
Response

a) OPG has been carrying 1.5 years of inventory or 150% of requirements since 2007. This inventory consists of both uranium concentrate and finished fuel bundles. In 2007, OPG made the decision to increase the strategic uranium concentrate inventory target from a 3 month supply to a 6 month supply following the run up in uranium prices and a tight supply situation.

In 2002, OPG made the decision to target finished fuel bundle inventory at a 12 month supply to cover the risk of a catastrophic failure at either the fuel bundle manufacturing plant or the uranium conversion plant.

There are significant differences in technology and supply that require OPG to target different inventory levels from U.S. utilities. OPG’s CANDU reactors operate continuous on-line refueling which contrasts to batch reloading used by light water reactors. This is an important variable when evaluating supply security and desirable inventory levels. In addition, there is a limited supply base of CANDU fuel bundle manufacturing and U\textsubscript{3}O\textsubscript{8}-to-U\textsubscript{O\textsubscript{2}} conversion compared to the larger more stable supply base for light water reactor fuels.

b) OPG reduced its strategic uranium inventory target from 1 million pounds to 750 thousand pounds for 2015. OPG is maintaining its finished fuel bundle inventory target of a 12 month inventory to mitigate the effects of a possible supply disruption.

c) The reduction in nuclear fuel uranium inventory is reflected in Ex. B1-1-1 Chart 2, “Summary of Year End Fuel Inventory - 2010 through 2015”, which shows a reduction in uranium concentrate inventory levels and values from of $97.332m (509 MgU) in 2010 to $45.37m in 2014 (288 MgU) and $44.957m (288 MgU) in 2015, which is over 50% decrease in carry value.
Board Staff Interrogatory #91

Ref: Exh F5-2-1, page 45

Issue Number: 6.5

Issue: Is the forecast of nuclear fuel costs appropriate? Has OPG responded appropriately to the suggestions and recommendations in the Uranium Procurement Program Assessment report?

Interrogatory

The L&A report also notes that OPG’s procedures require a review of the Physical and Financial Coverage Limits at least every 2 years and allows for more frequent reviews, but also notes that OPG’s risk limits had not been approved by OPG’s Enterprise Risk Committee (ERC) since August 2008. L&A therefore recommended that OPG revisit the Physical and Financial Coverage Limits on a more regular basis. Given the uncertainty in the uranium markets, why did OPG not follow its own operating procedures and undertake bi-annual ERC reviews and approvals since 2008?

Response

Prior to 2008, OPG’s procedures provided coverage against physical risk but not financial risk. In 2008, minimum and maximum limits for both Physical and Financial coverage ratios were implemented. The risk limits approved in 2008 were used in the development of the uranium procurement plan for 2009 and 2010. In EB-2010-0008, OPG’s fuel procurement program was reviewed and in the Decision with Reasons dated March 2011, the Board directed OPG to engage an external consultant to conduct a review of OPG’s uranium procurement. As a result, OPG deferred any internal review of its fuel procurement program including Physical and Financial Coverage Limits until the external review by Longenecker was completed in 2012. The external review resulted in OPG implementing changes to the limits that were approved by the Nuclear Executive Committee in September 2012.

OPG’s ongoing monitoring of market conditions and price forecasts will allow for implementation of changes to risk limits as required.
Board Staff Interrogatory #92

Ref: Exh F5-2-1, page 47

Issue Number: 6.5

Issue: Is the forecast of nuclear fuel costs appropriate? Has OPG responded appropriately to the suggestions and recommendations in the Uranium Procurement Program Assessment report?

Interrogatory

The report also notes the quantity held as “strategic inventory” should be based on a risk assessment that is specific to CANDU reactor operational needs and the OPG fuel supply portfolio. However, L&A notes they assume that the one million pound quantity was arrived at based on a “comfortable round number”, rather than a quantity which is analytically derived. Was L&A’s assumption accurate?

Response

OPG did not prepare an analysis in late 2007, following a run up in uranium prices and a tight supply situation (seller’s market), when it made a decision to double the target strategic uranium concentrate inventory from 3 months to 6 months supply, representing approximately 50% of OPG’s average annual uranium requirements or 1 million pounds.
Board Staff Interrogatory #093

Ref: Exh F2-5-1, page 13

Issue Number: 6.5

Issue: Is the forecast of nuclear fuel costs appropriate? Has OPG responded appropriately to the suggestions and recommendations in the Uranium Procurement Program Assessment report?

Interrogatory

The application notes OPG expects to reach the new lower target inventory level of 288,000 KgU by the end of 2015. It also notes OPG plans to purchase additional uranium concentrate equal to 40% of OPG’s requirements during the test years, with the balance being provided from existing contracts or inventory. The L&A Report that identified inventory levels should be reduced was completed in April, 2012.

a) Please explain why OPG is taking almost 4 years to bring inventory levels to a more optimal level?

b) Please explain why it would not be more appropriate to reduce purchase amounts and thereby reduce inventory levels to an optimal level more quickly in order to lower the carrying costs on fuel inventory, which are ultimately borne by electricity consumers?

Response

a) The primary objectives of OPG’s uranium concentrate procurement program are to ensure an adequate supply of uranium is available to meet the operational requirements of OPG’s nuclear units, while minimizing the price, market and credit risks associated with this supply. The program includes establishing physical coverage limits (security of supply) and financial coverage limits (price risk), as described in Ex. F2-5-1 and in the L&A Report.

In 2010, OPG made a decision to defer further uranium contracting until after it had completed the external consultant review of its procurement program that was directed by the OEB in its Decision with Reasons in EB-2010-0008.

As part of the study, recommendations were made to both reduce inventory and to ensure that future purchases are in place to avoid price risk. OPG took a prudent approach by proceeding to procure uranium concentrate in 2012 but still targeting to reduce inventory by 2015.

b) As stated, the primary objectives of OPG’s uranium concentrate procurement program are to ensure an adequate supply of uranium is available to meet the operational requirements of OPG’s nuclear units, while minimizing the price, market and credit risks associated with this supply.
As a consequence, trade-offs can arise between managing the risk of physical supply disruption versus future price risk. OPG made the decision in 2012 to proceed with procuring uranium concentrate in order to be in compliance with its financial coverage limits consistent with the findings of the Longenecker Report. The result was a short term delay in achieving a reduction in the level of fuel inventory.
Board Staff Interrogatory #094

Ref: Exh F2-5-1, page 9

Issue Number: 6.5

Issue: Is the forecast of nuclear fuel costs appropriate? Has OPG responded appropriately to the suggestions and recommendations in the Uranium Procurement Program Assessment report?

Interrogatory

The L&A report noted notes that, since 2008, long term prices have been 35% higher than spot prices. What is OPG’s current allocation between long term price contracts and spot market purchases, and what was that allocation when OPG submitted its last cost of service application?

Response

As explained below, the current allocation, by contracted volume, is 33% under long term pricing and 67% under pricing based on spot market indicators. The allocation at the time of the last application was 85% and 15%.

OPG’s existing contracts are a mix of fixed price, market-related and base price escalated contracts. Market-related contract volumes are subject to pricing based on long term or spot market price indicators. Contracts utilizing base price escalated will have a fixed price component (Base Price $ per pound ) which is subject to price escalation over the term of the contract based on changes in either CPI or US Gross Domestic Product implicit price deflator from the base period specified in the contract.

In the last rate application, contracts A, B, C and D (see Table 2 below) represented all of OPG’s contracts. These contracts were all long term in duration with 85% of volume purchases under these contracts subject to a long term market indicator or base price escalated pricing. Pricing was based on spot market price indicators for the remaining 15% of volumes under these long term contracts.

Currently, only 33% of the purchase volume remaining under OPG’s contracts is subject to long term or base price escalated prices (see Table 1). Since the A to D contracts were signed, OPG has entered into four spot market short term duration contracts (E, H, I,M) and five long term duration contracts (F,G,J,K,L), as shown in Table 2. The 5 long term duration contracts are either subject to spot market price indicators or are base price escalated (i.e., none have a reference to the long term market price indicator).
### Table 1

Percentage of Volume Under Long Term Contracts

Subject to Long Term Market Price or Base Escalated Pricing (get deb to do some work on the tables)

<table>
<thead>
<tr>
<th>Rate Application</th>
<th>Contracts</th>
<th>Total Contracted Quantity (000 kgU)</th>
<th>Total contract Volume subject to Long Term or base price escalated Pricing (KgU)</th>
<th>Percentage of original Volume subject to Long Term or base price escalated Pricing</th>
<th>% of remaining Contract Volume under all contracts subject to Long Term or base price escalated Pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td>EB-2010-0008</td>
<td>A,B, C, D</td>
<td>4155</td>
<td>3554</td>
<td>85%</td>
<td>33%</td>
</tr>
</tbody>
</table>

### Table 2

Summary of Contracts

<table>
<thead>
<tr>
<th>Contract</th>
<th>Contract Negotiation</th>
<th>Date of First Delivery</th>
<th>Delivery Period</th>
<th>Total Quantity (000 kgU)</th>
<th>Pricing: Price Indicator Used for Market Related volume of contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2006 1&lt;sup&gt;st&lt;/sup&gt; half</td>
<td>2007</td>
<td>7 years-completed</td>
<td>1,462</td>
<td>Long Term</td>
</tr>
<tr>
<td>B</td>
<td>2006 1&lt;sup&gt;st&lt;/sup&gt; half</td>
<td>2010</td>
<td>6 years</td>
<td>1,154</td>
<td>Long Term</td>
</tr>
<tr>
<td>C</td>
<td>2006 1&lt;sup&gt;st&lt;/sup&gt; half</td>
<td>2011</td>
<td>5 years</td>
<td>385</td>
<td>Spot</td>
</tr>
<tr>
<td>D</td>
<td>2007 2&lt;sup&gt;nd&lt;/sup&gt; half</td>
<td>2009</td>
<td>9 years</td>
<td>1,154</td>
<td>Spot + Long Term (avg of both)</td>
</tr>
<tr>
<td>E</td>
<td>2009 2&lt;sup&gt;nd&lt;/sup&gt; Q</td>
<td>2009</td>
<td>Spot-immediate</td>
<td>154</td>
<td>Spot</td>
</tr>
<tr>
<td>F</td>
<td>2010 2&lt;sup&gt;nd&lt;/sup&gt; Q</td>
<td>2012</td>
<td>3 years</td>
<td>317</td>
<td>Fixed prices</td>
</tr>
<tr>
<td>G</td>
<td>2010 2&lt;sup&gt;nd&lt;/sup&gt; Q</td>
<td>2015</td>
<td>6 years</td>
<td>577</td>
<td>Spot</td>
</tr>
<tr>
<td>Contract</td>
<td>Contract Negotiation</td>
<td>Date of First Delivery</td>
<td>Delivery Period</td>
<td>Total Quantity (000 kgU)</td>
<td>Pricing: Price Indicator Used for Market Related volume of contract</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------</td>
<td>------------------------</td>
<td>-----------------</td>
<td>--------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td>H</td>
<td>2011 3rd Q</td>
<td>2011</td>
<td>Spot-immediate</td>
<td>77</td>
<td>Spot</td>
</tr>
<tr>
<td>I</td>
<td>2011 4th Q</td>
<td>2011</td>
<td>Spot-immediate</td>
<td>106</td>
<td>Spot</td>
</tr>
<tr>
<td>J</td>
<td>2012 4th Q</td>
<td>2013</td>
<td>4 years</td>
<td>385</td>
<td>Fixed prices</td>
</tr>
<tr>
<td>K</td>
<td>2013 3rd Q</td>
<td>2015</td>
<td>4 years</td>
<td>336</td>
<td>Spot</td>
</tr>
<tr>
<td>L</td>
<td>2013 3rd Q</td>
<td>2015</td>
<td>4 years</td>
<td>432</td>
<td>Fixed prices</td>
</tr>
<tr>
<td>M</td>
<td>2013 4th Q</td>
<td>2013</td>
<td>Spot-immediate</td>
<td>105</td>
<td>Spot</td>
</tr>
</tbody>
</table>
Board Staff Interrogatory #95

Ref: Exh F2-5-1, page 49-50

Issue Number: 6.5

Issue: Is the forecast of nuclear fuel costs appropriate? Has OPG responded appropriately to the suggestions and recommendations in the Uranium Procurement Program Assessment report?

Interrogatory

L&A made a number of suggestions in its report in relation to contract terms and conditions including the following: (1) Term contracts should generally be limited to 3-5 years to avoid potentially significant price dislocations; (2) Price ceilings and floors should be included; (3) Price escalation should not be applied to the entire contract price since some of the uranium supplier’s costs are fixed; (4) There should be a termination clause as it is prudent to have it in place.

a) Please indicate if OPG’s existing fuel contracts are consistent with L&A’s suggestions.

b) Is OPG changing, or planning to change, its contracts for nuclear fuel procurement going forward, to be consistent with L&A’s suggestions.

c) If OPG has not or does not plan to alter its nuclear fuel contracts in light of L&A’s suggestions, please explain why.

Response

a) OPG has used the suggestions in the L&A Report to improve its contracting for uranium concentrate. Following the completion of the L&A Report, OPG has sought to include L&A’s suggestions in its new contracts, where appropriate. A discussion of these efforts is provided in the paragraph below.

Three term contracts (J, K, L, see Table 1 below) have been executed since 2012, all of which are four years in duration. Contracts J and L are fixed price contracts. In the single market priced contract (K), price ceilings have been established which will limit the price paid by OPG in the event of a uranium price spike. OPG was unable to obtain termination for convenience provisions during negotiations for any of the contracts. However in the market priced contract (K), OPG secured provisions for downward quantity flexibility of 10% if required as well as slight discounts to the spot market price indicator at the time of delivery.
### Table 1

**Summary of Contract Terms**

<table>
<thead>
<tr>
<th>Contract</th>
<th>Contract Negotiation</th>
<th>Date of First Delivery</th>
<th>Delivery Period</th>
<th>Total Quantity (000 kgU)</th>
<th>Pricing: Price Indicator Used for Market Related volume of contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>2012 4th Q</td>
<td>2013</td>
<td>4 years</td>
<td>385</td>
<td>Fixed prices</td>
</tr>
<tr>
<td>K</td>
<td>2013 3rd Q</td>
<td>2015</td>
<td>4 years</td>
<td>336</td>
<td>Spot</td>
</tr>
<tr>
<td>L</td>
<td>2013 3rd Q</td>
<td>2015</td>
<td>4 years</td>
<td>432</td>
<td>Fixed prices</td>
</tr>
</tbody>
</table>

b) and c) OPG will incorporate L&A’s suggestions into future contracting where appropriate and where market circumstances permit.
AMPCO Interrogatory #045

Ref: F2-05-01 Table 1

Issue Number: 6.5

Issue: Is the forecast of nuclear fuel costs appropriate? Has OPG responded appropriately to the suggestions and recommendations in the Uranium Procurement Program Assessment report?

Interrogatory

Preamble: Fuel oil is used to run nuclear stand-by generators.
Please explain why the Fuel Oil expense will increase by over 80% starting from 2013 relative to 2010 actual?

Response

OPG’s average price of fuel oil increased almost 30% between 2010 and 2011. The 2013 budget forecast assumed continuing increases of this magnitude. This assumption proved incorrect as average fuel prices stabilized between 2011 and 2013 (increasing less than 3% between 2011 and 2013).
CME Interrogatory #008

Ref: Exhibit F5-2-1, pages 28-29

Issue Number: 6.5

Issue: Is the forecast of nuclear fuel costs appropriate? Has OPG responded appropriately to the suggestions and recommendations in the Uranium Procurement Program Assessment report?

Interrogatory

CME wishes to better understand the extent to which OPG has optimized its existing inventory of uranium in accordance with the Longenecker & Associates’ recommendations.

CME has reviewed Board Staff Interrogatory 90 which has already requested that OPG set out how much it has reduced inventory levels to date and what level OPG is now targeting taking into account all of the stages of its nuclear supply chain, as well as whether the reduction in nuclear fuel inventory is being implemented for the 2014 to 2015 test years. In addition the information sought from Board Staff, CME requests that OPG provide the following additional information:

(a) How much of OPG’s annual inventory is purchased through long-term contracts?

(b) If OPG elected to, could it reduce its inventory to the levels recommended by Longenecker & Associates without breaching its long-term contracts?

(c) Please set out the annual cost savings from 2011 to date associated with OPG reducing its inventory levels. In setting out the annual savings, please identify how much of the savings are a one-time saving and how much of the savings are continuous.

(d) For the 2014 to 2015 test years, please set out the one-time and continuous savings that OPG expects to achieve by reducing its inventory.

(e) Had OPG immediately reduced its inventory to 30% of its annual requirements, how much would the annual savings total from 2012 to date?

(f) If OPG’s inventory levels were reduced to 30% of its annual requirements at the commencement of 2014, please set out the estimated savings for 2014 and 2015.

Response

a) OPG estimates that long term contracts represent approximately 80 - 90% of test period inventory based on the long term contracts entered into to-date.
b) No. Existing contracts do not have termination for convenience provisions and therefore, OPG would be in breach of contract if it failed to take delivery of uranium in accordance with the contract provisions. However, since 2012 contracted volumes have been declining as part of the plan to reduce inventory levels to 750k pounds.

c) Cumulative carrying cost savings over the 2011 and 2015 period are estimated to be $9.2M associated with uranium inventory reductions from 2011 - 2013, per Table 1 below.

**Table 1**

<table>
<thead>
<tr>
<th>Row #</th>
<th>Actual (a)</th>
<th>Actual (b)</th>
<th>Budget (c)</th>
<th>Plan (d)</th>
<th>Plan (e)</th>
<th>Total (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Opening inventory</td>
<td>$97.3</td>
<td>$95.5</td>
<td>$70.4</td>
<td>$55.6</td>
<td>$45.3</td>
</tr>
<tr>
<td>2</td>
<td>Closing inventory</td>
<td>$95.6</td>
<td>$70.4</td>
<td>$55.6</td>
<td>$45.3</td>
<td>$44.9</td>
</tr>
<tr>
<td>3</td>
<td>First year continuous rate base impact in 2011</td>
<td>$0.9</td>
<td>$0.9</td>
<td>$0.9</td>
<td>$0.9</td>
<td>$0.9</td>
</tr>
<tr>
<td>4</td>
<td>Continuous rate base impact from reduction in 2011</td>
<td>$1.7</td>
<td>$1.7</td>
<td>$1.7</td>
<td>$1.7</td>
<td>$1.7</td>
</tr>
<tr>
<td>5</td>
<td>First year continuous rate base impact in 2012</td>
<td>$12.6</td>
<td>$12.6</td>
<td>$12.6</td>
<td>$12.6</td>
<td>$12.6</td>
</tr>
<tr>
<td>6</td>
<td>Continuous rate base impact from reduction in 2012</td>
<td>$25.1</td>
<td>$25.1</td>
<td>$25.1</td>
<td>$25.1</td>
<td>$25.1</td>
</tr>
<tr>
<td>7</td>
<td>First year continuous rate base impact in 2013</td>
<td>$7.4</td>
<td>$7.4</td>
<td>$7.4</td>
<td>$7.4</td>
<td>$7.4</td>
</tr>
<tr>
<td>8</td>
<td>Continuous rate base impact from reduction in 2013</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
</tr>
<tr>
<td>9</td>
<td>First year continuous rate base impact in 2014</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
</tr>
<tr>
<td>10</td>
<td>Continuous rate base impact from reduction in 2014</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
</tr>
<tr>
<td>11</td>
<td>First year continuous rate base impact in 2015</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
</tr>
<tr>
<td>12</td>
<td>Continuous rate base impact from reduction in 2015</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
<td>$14.8</td>
</tr>
<tr>
<td>13</td>
<td>Annual rate base impact</td>
<td>$0.9</td>
<td>$14.3</td>
<td>$34.2</td>
<td>$41.6</td>
<td>$41.6</td>
</tr>
<tr>
<td>14</td>
<td>Pre-tax weighted average cost of capital (%)</td>
<td>5.57%</td>
<td>5.74%</td>
<td>4.48%</td>
<td>8.18%</td>
<td>8.20%</td>
</tr>
<tr>
<td>15</td>
<td>Cost savings</td>
<td>$0.0</td>
<td>$0.8</td>
<td>$1.5</td>
<td>$3.4</td>
<td>$3.4</td>
</tr>
</tbody>
</table>

As the expectation is that future inventory levels will remain below 2013 levels, these carrying cost savings are expected to continue into the future.

d) Cumulative carry cost savings are estimated to be $1.3M associated with OPG reducing uranium inventory from 2014 - 2015 per Table 2 below.
As the expectation is that future inventory levels will remain below 2015 levels, these carrying cost savings are expected to continue into the future.
e) If OPG had immediately reduced its inventory to 30% of its 2015 annual requirement at the start of 2012\(^1\), OPG would have recognized savings of approximately $18M per Table 3 below. However, drastically reducing inventory levels was not possible given the existing contractual commitments and would not be consistent with a prudent inventory management approach as other variables, such as financial and physical risk coverage limits, need to be considered.

### Table 3

<table>
<thead>
<tr>
<th>Row #</th>
<th>Description</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Actual</td>
<td>30% of annual requirement</td>
<td>30% of annual requirement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Opening inventory</td>
<td>$97.3</td>
<td>$28.0</td>
<td>$28.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Closing inventory</td>
<td>$95.6</td>
<td>$28.0</td>
<td>$28.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>First year continuous rate base impact in 2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Continuous rate base impact from reduction in 2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>First year continuous rate base impact in 2012</td>
<td></td>
<td></td>
<td></td>
<td>$67.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Continuous rate base impact from reduction in 2012</td>
<td></td>
<td></td>
<td></td>
<td>$67.6</td>
<td>$67.6</td>
<td>$67.6</td>
</tr>
<tr>
<td>7</td>
<td>First year continuous rate base impact in 2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Continuous rate base impact from reduction in 2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>First year continuous rate base impact in 2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Continuous rate base impact from reduction in 2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>First year continuous rate base impact in 2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Continuous rate base impact from reduction in 2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Annual rate base impact</td>
<td>$0.0</td>
<td>$67.6</td>
<td>$67.6</td>
<td>$67.6</td>
<td>$67.6</td>
<td>$67.6</td>
</tr>
<tr>
<td>14</td>
<td>Pre-tax weighted average cost of capital (%)</td>
<td>5.57%</td>
<td>5.74%</td>
<td>4.48%</td>
<td>8.18%</td>
<td>8.20%</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Cost savings</td>
<td>$0.0</td>
<td>$3.9</td>
<td>$3.0</td>
<td>$5.5</td>
<td>$5.5</td>
<td>$18.0</td>
</tr>
</tbody>
</table>

---

\(^1\) 30% of 2015 annual requirement is calculated based on the following:

<table>
<thead>
<tr>
<th>Units</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Uranium concentrate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K$</td>
<td>70,402</td>
<td>55,634</td>
<td>45,370</td>
<td>44,957</td>
</tr>
<tr>
<td>MgU</td>
<td>435</td>
<td>344</td>
<td>288</td>
<td>288</td>
</tr>
<tr>
<td>$/KgU</td>
<td>162.03</td>
<td>161.85</td>
<td>157.28</td>
<td>155.85</td>
</tr>
<tr>
<td><strong>Selected data from Ex. B1-1-1 p.9</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Prorated to 30% of 2015 annual requirement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K$</td>
<td>27,999</td>
<td>27,968</td>
<td>27,178</td>
<td>26,931</td>
</tr>
<tr>
<td>MgU</td>
<td>172.8</td>
<td>172.8</td>
<td>172.8</td>
<td>172.8</td>
</tr>
<tr>
<td>$/KgU</td>
<td>162.03</td>
<td>161.85</td>
<td>157.28</td>
<td>155.85</td>
</tr>
</tbody>
</table>
f) If OPG reduced inventory to 30% of its 2015 annual requirement at the commencement of 2014 the estimated carrying cost savings would be approximately $4.7M as per Table 4 below. However, drastically reducing inventory levels is an unreasonable approach to inventory management as other variables, such as contractual obligations as well as financial and physical risk coverage limits, need to be considered.

### Table 4

<table>
<thead>
<tr>
<th>Row #</th>
<th>Actual</th>
<th>Actual</th>
<th>Budget</th>
<th>30% of annual requirement</th>
<th>30% of annual requirement</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Opening inventory</td>
<td>$97.3</td>
<td>$95.5</td>
<td>$70.4</td>
<td>$27.2</td>
<td>$26.9</td>
</tr>
<tr>
<td>2</td>
<td>Closing inventory</td>
<td>$95.6</td>
<td>$70.4</td>
<td>$55.6</td>
<td>$26.9</td>
<td>$26.9</td>
</tr>
<tr>
<td>3</td>
<td>First year continuous rate base impact in 2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$28.4</td>
</tr>
<tr>
<td>4</td>
<td>Continuous rate base impact from reduction in 2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$28.4</td>
</tr>
<tr>
<td>5</td>
<td>First year continuous rate base impact in 2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0.2</td>
</tr>
<tr>
<td>6</td>
<td>Continuous rate base impact from reduction in 2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>First year continuous rate base impact in 2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Continuous rate base impact from reduction in 2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>First year continuous rate base impact in 2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$28.4</td>
</tr>
<tr>
<td>10</td>
<td>Continuous rate base impact from reduction in 2014</td>
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<td></td>
<td></td>
<td></td>
<td>$28.4</td>
</tr>
<tr>
<td>11</td>
<td>First year continuous rate base impact in 2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0.2</td>
</tr>
<tr>
<td>12</td>
<td>Continuous rate base impact from reduction in 2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Annual rate base impact</td>
<td>$0.0</td>
<td>$0.0</td>
<td>$0.0</td>
<td>$28.4</td>
<td>$28.7</td>
</tr>
<tr>
<td>14</td>
<td>Pre-tax weighted average cost of capital (%)</td>
<td>5.57%</td>
<td>5.74%</td>
<td>4.48%</td>
<td>8.18%</td>
<td>8.20%</td>
</tr>
<tr>
<td>15</td>
<td>Cost savings</td>
<td>$0.0</td>
<td>$0.0</td>
<td>$0.0</td>
<td>$2.3</td>
<td>$2.4</td>
</tr>
</tbody>
</table>

2 30% of 2015 annual requirement is calculated based on the following:

<table>
<thead>
<tr>
<th>Units</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uranium concentrate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K$</td>
<td>70,402</td>
<td>55,634</td>
<td>45,370</td>
<td>44,957</td>
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<tr>
<td>MgU</td>
<td>435</td>
<td>344</td>
<td>288</td>
<td>288</td>
</tr>
<tr>
<td>$/KgU</td>
<td>162.03</td>
<td>161.85</td>
<td>157.28</td>
<td>155.85</td>
</tr>
<tr>
<td>Selected data from Ex. B1-1-1 p.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K$</td>
<td>27,999</td>
<td>27,968</td>
<td>27,178</td>
<td>26,931</td>
</tr>
<tr>
<td>MgU</td>
<td>172.8</td>
<td>172.8</td>
<td>172.8</td>
<td>172.8</td>
</tr>
<tr>
<td>$/KgU</td>
<td>162.03</td>
<td>161.85</td>
<td>157.28</td>
<td>155.85</td>
</tr>
</tbody>
</table>
SEC Interrogatory #101

Ref:
[F2-5-1/Table 1]

Issue Number: 6.5

Issue: Is the forecast of nuclear fuel costs appropriate? Has OPG responded appropriately to
the suggestions and recommendations in the Uranium Procurement Program Assessment
report?

Interrogatory

Please update Table 1 to show the 2013 actual nuclear fuel costs.

Response

The requested table is provided below.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Uranium:</td>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>(d)</td>
<td>(e)</td>
<td>(f)</td>
<td>(g)</td>
</tr>
<tr>
<td>1</td>
<td>Darlington NGS</td>
<td>100.6</td>
<td>117.8</td>
<td>119.9</td>
<td>86.0</td>
<td>119.7</td>
<td>124.8</td>
<td>111.8</td>
</tr>
<tr>
<td>2</td>
<td>Pickering NGS</td>
<td>71.5</td>
<td>82.5</td>
<td>90.3</td>
<td>107.3</td>
<td>96.2</td>
<td>95.5</td>
<td>95.2</td>
</tr>
<tr>
<td>3</td>
<td>Total Fuel Bundle Cost</td>
<td>172.1</td>
<td>200.3</td>
<td>210.2</td>
<td>193.3</td>
<td>215.9</td>
<td>220.3</td>
<td>207.1</td>
</tr>
<tr>
<td>4</td>
<td>Total Fuel Bundle Cost ($)MWh</td>
<td>3.76</td>
<td>4.12</td>
<td>4.29</td>
<td>4.33</td>
<td>4.50</td>
<td>4.43</td>
<td>4.31</td>
</tr>
<tr>
<td>5</td>
<td>Used Fuel Storage &amp; Disposal</td>
<td>23.5</td>
<td>26.0</td>
<td>51.9</td>
<td>49.0</td>
<td>52.7</td>
<td>56.1</td>
<td>56.7</td>
</tr>
<tr>
<td>6</td>
<td>Fuel Oil</td>
<td>2.2</td>
<td>2.5</td>
<td>2.9</td>
<td>2.4</td>
<td>4.0</td>
<td>4.1</td>
<td>4.2</td>
</tr>
<tr>
<td>7</td>
<td>Total Nuclear Fuel Costs</td>
<td>197.8</td>
<td>228.9</td>
<td>265.1</td>
<td>244.7</td>
<td>272.6</td>
<td>280.5</td>
<td>267.9</td>
</tr>
</tbody>
</table>

Notes:
1. Line 3 divided by Nuclear production forecast/actual from Ex. E2-1-1 Table 1. 2013 Actual is 44.7 TWh
2. Used Fuel Storage & Disposal is discussed in Ex. C2-1-1.
Board Staff Interrogatory #96

Ref: Exh F2-2-3

Issue Number: 6.6
Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

OM&A costs associated with Pickering Continued Operations are presented in various places in the application. None of those sets of costs are the same and all include the FLCM project. Those differing costs are set out in the table below.

<table>
<thead>
<tr>
<th>$ millions</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2-T2-S3 - Attachment 1 (Updated BCS, p.2)</td>
<td>$38.9</td>
<td>$48.8</td>
</tr>
<tr>
<td>F2-T2-S3 - Chart 1, p.4</td>
<td>$45.2</td>
<td>$38.9</td>
</tr>
<tr>
<td>F2-T2-S3 - Attachment 2, p.5 (Letter provided to OPA)</td>
<td>$38.0</td>
<td>$47.0</td>
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</tbody>
</table>

In addition, all of the tables in the application, including the information provided to the OPA, identify there will be no future expenditures related to the Pickering B Continued Operations project.

a) Please explain why the costs differ in all three application tables, including a variance of $10M in the 2014 test year. Please identify which set of costs OPG is requesting approval for in this application.

b) Please confirm that OPG will not be seeking approval of any costs related to enabling the continued operations of Pickering in future applications.

Response

Correction: Exhibit F2-T2-S3 Attachment 2 is a letter from the OPA to OPG. The interrogatory incorrectly refers to the letter as being provided by OPG to the OPA. However, as noted in Ex. F2-T2-S3 Attachment 2, OPG provided the OPA with updated information regarding Pickering Continued Operations. This information is set out in Appendix 1 of Ex. F2-T2-S3 Attachment 2 p.5.

a) There is no difference in the costs provided in Ex. F2-T2-S3, Attachment 1 (Updated BCS, p.2) and those set out in Ex. F2-T2-S3, Attachment 2, p.5 as they are both based on the 2012-2014 Business Plan. The costs in Ex. F2-T2-S3 Attachment 2 p.5 (the values that OPG supplied to the OPA) are in 2012 dollars and have not been escalated. The costs provided in OPG’s updated BCS are in dollars of the year. If an escalation rate of 2% per year is applied to the costs in Ex. F2-T2-S3 Attachment 2 p.5, it yields the BCS costs.
The forecast of expenditures in Ex. F2-T2-S3 Chart 1 page 4 is from OPG’s 2013-2015 Business Plan. The costs that OPG is requesting approval to recover through this application are as set out in Ex. F2-T2-S3, Chart 1, p. 4.

There is a $9.9M difference in the 2014 test year between the expenditures set out in Ex. F2-T2-S3, Attachment 1 (p.2) and Ex. F2-T2-S3 Chart 1 (p.4). OPG determined during the 2013-2015 business planning process that it would be advantageous to allocate funding from the 2014 project spend to the 2013 project spend. Thus, the 2014 spend was reduced by $9.9M and the 2013 spend was increased by $6.3M, with an overall $3.6M savings being realized.

b) Confirmed. OPG will not be seeking recovery of costs for the Pickering Continued Operations project beyond 2014.
Board Staff Interrogatory #97

Ref: Exh F2-2-3 (page 1), OPG MD&A - 2013 Third Quarter Report (page 25)

Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

The application notes the net present value ("NPV") associated with Pickering Continued Operations is approximately $520M. The following OPG report “Management’s Discussion and Analysis (MD&A) - 2013 Third Quarter Report" discusses the risks associated with Pickering Continued Operations. It notes that, on August 2013, the CNSC extended the operating license of Pickering to August 31, 2018, subject to OPG meeting several conditions. It also notes that inability to meet those conditions in a timely manner could have an impact on the operating strategy for continued operation of Pickering and states that “[t]he regulatory hold point, if not addressed by the spring of 2014, may require one unit to be shutdown.”

Please identify the impact on the NPV of Pickering Continued Operations if that risk were to be realized.

Response

OPG has not calculated the impact on the NPV of Pickering Continued Operations should the specified license conditions not be met.

In order to address the regulatory hold point, the CNSC required that OPG complete additional assessments to demonstrate the station can operate to 247,000 equivalent full power hours related to fuel channels and to complete probabilistic safety assessment enhancements.

With the work completed through the fall of 2013 and the spring of 2014 to address the requirements, OPG considers this risk as “low”. All of the initial reviews/assessments have been completed and OPG expects to submit documentation to the CNSC by the end of March 2014.
AMPCO Interrogatory #046

Ref: Exhibit F2, Tab 2, Schedule 3 Continued Operations at Pickering

Issue Number: 6.6
Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

a) Pages 4 – The evidence indicates that CNSC will require OPG to make submissions on operating beyond 210,000 EFPH to demonstrate that OPG is in compliance with the agreed upon criteria. OPG is currently in the process of preparing submissions to comply with the CNSC decision.

Please provide additional details on the agreed upon criteria and an update on the status of OPG’s submission.

b) Page 7 – OPG is seeking recovery of the variance between actual and forecast 2013 OM&A costs for Pickering Continued Operations and Fuel Life Management project through the Capacity Refurbishment Variance Account. Please confirm the amount OPG is seeking for recovery related to Pickering Continued Operations and Fuel Life Management project and show the calculation.

c) Attachment 1– Discuss change in Continued Operations at Pickering Business Case Summary and any changes in NPV calculation as a result of OPG’s change in planned outage days and the generation impact reflected in the 2014 to 2016 Business Plan.

Response

a) To facilitate removal of the CNSC holdpoint, OPG is required to make submissions in the following areas:
- Conducting further safety assessments to demonstrate that Pickering can continue to operate within safety limit margins;
- Incorporating Fukushima lessons learned for beyond design basis events; and,
- Conducting a risk assessment to demonstrate that the station can operate to 247,000 equivalent full power hours.

All of the initial reviews/assessments have been completed and OPG expects to submit documentation to the CNSC before the end of March, 2014.

b) Confirmed. However, OPG is not seeking recovery of such variances during this proceeding.

c) OPG has not updated the Pickering Continued Operations business case prepared in 2012. OPG does not have a revised NPV calculation as a result of OPG’s change in planned outage days and the generation impact reflected in the 2014 to 2016 Business Plan.
outage days and the resulting generation impact reflected in the 2014 to 2016 Business Plan. It should be noted that the value of Continued Operations is relatively insensitive to changes in planned outage days, which would be reflected in changes in generation performance (please see Ex. F2-2-3, Attachment 1, page 9, Figure 2 Capacity Factor).
AMPCO Interrogatory #047

Ref 1: EB-2010-0008 F2-T2-S3 Page 6, Line 4
Preamble: OPG, as part of the Pickering B Continued Operations initiative, proposes to extend the service life of Pickering B Unit 7 to 2020 through a combination of incremental maintenance and inspection work programs and potentially shutdowns (it should be noted that there are no shutdowns of Unit 7 planned for the test period).

Ref 2: F2-T2-S3 Attachment 1, Page 7
Preamble: In order to have two Pickering Units 5-8 in operation to support Pickering Unit 1 and 4, both of these alternatives include an assumption of “life management” outages on Pickering Unit 7 in order to achieve the objective of aligning its life with that of Pickering Unit 8.

Issue Number: 6.6
Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

a) Are life management costs associated with Pickering Unit 7 included in the Pickering Continued Operations costs? If yes, please confirm that OPG will not be seeking approval of any costs related to enabling the continued operation of Pickering after 2014? If no, please explain why costs associated with “life management” outages on Pickering Unit 7 are not included in Pickering Continued Operations initiative.

b) F2-T2-S3 Attachment 1 Appendix B Impacts on Generation of Pickering Continued Operations, the table shows incremental planned Outages Days due to PNGS Continued Operations. Are the “Life management” outages on Pickering Unit 7 included in the Incremental Planned Outage Days – Cont. Ops Work Program? If not, please explain. Are there additional “life management” outages after 2014?

Response

a) Yes, the updated Pickering Continued Operations BCS (Ex. F2-T2-S3, Attachment 1) assumed life management outages of Pickering Unit 7 in order to allow Unit 7 to attain the same calendar date life as Unit 8. Two units on Pickering 5 - 8 are required to operate in order to support the operation of Pickering Units 1 and 4. There are no life management outage days or costs in the test period. All incremental costs required to enable the Pickering Continued Operations Project will have been incurred by the end of 2014.

b) Yes, life management outages on Pickering Unit 7 were included in the incremental planned outage days as part of the updated Pickering Continued Operations BCS (Ex. F2-T2-S3 Attachment 1). Life management outages on Pickering Unit 7 have since been deferred beyond the test period.
Witness Panel: Nuclear Business Planning, OM&A, Benchmarking

AMPCO Interrogatory #048

Ref: F2-T2-S3 Attachment 1 Page 19

Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

Preamble: The Assessment done for the “incremental” view of Nuclear Support costs for the 2010 BCS Showed that approximately 70% of the “fully allocated” nuclear support costs to the Pickering units where incremental, i.e. losses of economies of scale would result in the remaining 30% effectively translating to increased support costs for Darlington. OPG has updated and refined that assessment for the 2012 BCS, and has used a revised estimate (averaging 68% over the period 2013-2020) as to portion of Nuclear Support costs allocated to Pickering which would be incremental, i.e. would go away of Pickering units were to be shutdown.

a) Please provide the Assessment report completed in 2010 and the updated assessment report of 2012.

b) Please provide reasons the 70% fully allocated nuclear support costs to the Pickering units changed to 68% over the 2013-2020 period.

c) Please confirm if AMPCO’s understanding is correct, that given OPG’s 68% Nuclear Support cost allocation to PNGS, a Pickering Shutdown would cause a 68% decrease in the Nuclear Support Costs.

Response

a) Exhibit F2-T2-S3, Attachment 1, page 19 describes the modeling assumptions used in the Continued Operations business case. No assessment report was completed as part of either the 2010 or the 2012 Business Case Summary.

b) OPG began a re-alignment of station and nuclear support organizations and a general reduction in the number of staff as a result of Business Transformation in 2012. The 2010 Pickering Continued Operations BCS was prepared pre-Business Transformation. The economic analysis in the 2012 Updated BCS reflects lower overall costs to operate the Pickering units, from BT implementation including lower nuclear support costs (one of the key target areas for BT related reductions was the support organizations). However, as the support groups get smaller (in absolute terms) there is a reduced ability for these organizations to “shrink” further and shed costs in response to the shutdown of PN.
c) Not confirmed. OPG’s analysis estimates that 68% of the nuclear support costs allocated to the Pickering station would go away if the Pickering units were shut down, not 68% of OPG’s Total Nuclear support costs.
AMPCO Interrogatory #049

Ref: Exhibit F2-T2-S3 ATTACHMENT 1 PAGE 19

Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

Preamble: Similarly, the "incremental" view of Corporate Support & Overhead costs for the 2010 BCS showed that approximately 30% of the “fully allocated” Corporate Support costs allocated to the Pickering units were truly incremental, i.e. losses of economies of scale would result in the remaining 70% effectively translating in increased Corporate Support & Overhead costs for the rest of OPG’s fleet of nuclear, thermal and hydroelectric stations. OPG has updated and reined that assessment for the 2012 BCS, and has used a revised estimate (averaging 28% over the period 2013-2020) as to portion of the Corporate Support costs to Pickering which would be incremental, i.e. would go away of the Pickering units were to be shut down.

a) Please provide the Assessment report completed in 2010 and the updated assessment report of 2012.

b) Please provide reasons/drivers/assumption changes the 30% fully allocated Corporate Support costs allocated to the Pickering units changed to only 28% over the period of 2013-2020.

c) “Losses of economics of scale would result in the remaining 70% effectively translating in increase Corporate Support & Overhead costs for the rest of OPG’s fleet of nuclear, thermal and hydroelectric stations”. Please provide how much (percentage) of the 70% would be allocated to:

   a. Nuclear
   b. Newly regulated hydroelectric
   c. Regulated Hydroelectric
   d. Thermal

Response

a) Please see response to L-6.6-2 AMPCO-048 a).

b) Please see response to L-6.6-2 AMPCO-048 b)

c) OPG has not undertaken a calculation of the percentage increase of corporate support and overhead costs that would be allocated to the nuclear, thermal and hydroelectric stations due to the loss of economies of scale with the shutdown of the Pickering units. The percentage...
allocation to the other business units was not relevant to the determination of the recommendations in the Updated 2012 BCS for Pickering Continued Operations nor is it relevant for determination of the revenue requirement for 2014-2015.
AMPCO Interrogatory #050

Ref:
Exhibit F2-T2-S3 ATTACHMENT 1 PAGE 19

Issue Number: 6.6
Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

Preamble: Base OM&A, Capital and OM&A project, and Outage OM&A costs for Pickering Units 5-8 are consistent with the 2012-2014 Business Plans for those stations. These costs were extrapolated to the period 2015-2020. Cost escalation rates used are consistent with those used in economic assessments and in Business Planning in OPG for labour, material and purchased services.

a) Please provide cost escalation rates for labour, material and purchased services used.

Response

a) The annual cost escalation assumptions were 3% for labour and 2% for non-labour.
AMPCO Interrogatory #051

Ref:
Exhibit F2-T2-S3 ATTACHMENT 1 PAGE 1
Preamble: OPG’s updated assessment shows that there is substantial value, estimated at $520 M NPV (2012$) to the Ontario electricity system of being able to operate the Pickering 5-8 Units beyond their originally assumed operating lives of 2014/2016 until 2019 to 2020.

EXHIBIT 2013-0321 C2-T1-S1 Table 4
Preamble: Line 7 and Line 14 show the Asset Retirement Cost Adjustment due to Impacts of Current Approved ONFA Reference Plan.

Issue Number: 6.6
Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

a) Does the estimated $520 M NPV taken into account nuclear decommissioning costs and most importantly Nuclear Waste management costs including used fuel storage and disposal and L&ILW disposal and storage? If not, please explain why costs associated with nuclear decommissioning and waste management were not taken into account given nuclear waste management costs represent significant cost amounts. If yes, please provide the amount OPG used for the cost of nuclear waste management impact due to PNGS Continued Operations.

b) According to Table 4 an impact of an additional $499.1M for Pickering A and Pickering B Asset Retirement due to the update of the Current Approved ONFA Reference Plan resulting from changes in estimated service lives. Is the impact of the additional $499.1M taken into OPGs $520 M NPV for PNGS Continued Operation initiative study? If yes, please provide evidence

c) Please provide the NPV (2012$) of the impact of Pickering Continued Operation Initiative on the five decommissioning and nuclear waste management programs. Please provide the impacts for each program.

Response

a) Pickering Continued Operations results in the station operating longer than it would have without Pickering Continued Operations. The effect of this is to defer expenditures on decommissioning by several years, resulting in a lower NPV of the decommissioning liability, which would have resulted in a higher overall NPV benefit (i.e. >$520M PV) had OPG taken this into account.

However, OPG did not include the reduction in the NPV of the decommissioning liability in its assessment for the following reasons:
(i) OPG’s approach results in a more conservative assessment of the benefits of Pickering Continued Operations.
(ii) the realization of this potential benefit is uncertain because of the long time horizons and significant uncertainties involved in decommissioning a station.
(iii) the ONFA segregated funds for decommissioning are in an overfunded position so there would be no saving in cash to OPG as a result of time deferral.
(iv) under ONFA there are significant restrictions on OPG being able to access such a benefit.

Continued Operations at Pickering results in incremental used fuel and L&ILW waste. OPG’s NPV estimate did include the incremental costs of used fuel management and of L&ILW management in the costs used to assess Pickering Continued Operations. The used fuel storage and disposal costs were included in fuel costs and averaged $1.3/MWh (2012$) over the Continued Operations period. The incremental costs of L&ILW management were included in the on-going operations costs during the Continued Operations period, and averaged $2M (2012$) per year from 2015 - 2020.

b) Please note that the presumption in the question that the $499.1M combined ARO adjustments at end of 2011 and 2012 for Pickering are a result of Continued Operations is not accurate. The ARO adjustments that took place at end of 2011 and 2012 deal with fixed costs of nuclear liability programs and nuclear waste generated to the end of 2011 and 2012 while the economic assessment deals with future nuclear waste arising in 2013 onwards, and specifically the difference between the nuclear waste costs in the No Continued Operations scenario and the Continued Operations scenario.

c) The 2012 year end accounting ARO adjustment provides the impact of Pickering Continued Operations plus changes in Bruce A and Bruce B ends-of-life and other planning assumptions on the five decommissioning and nuclear waste management programs, Ex C2-1-1, Table 4, lines 8 - 12. OPG does not have the impact in isolation of Pickering Continued Operations on the five decommissioning and nuclear waste management programs.
AMPCO Interrogatory #052

Ref: EXHIBIT 2013-0321 F2-T2-S3 ATTACHMENT 2 Page 2

Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

Preamble: On balance, the OPA’s assessment of system cost impacts suggest an expected cost advantage to Pickering continued operation (in the order of approximately $100 Million). This advantage predominantly reflects expected costs saving from reduced natural gas-fired energy production and lower replacement capacity requirements. Based on evaluation to date of the broader uncertainties, the OPA estimates a range of up to approximately $1,300 Million in potential net-benefit from Pickering continued operation to $760 Million in potential net-cost (dis-benefit).

a) Please explain why OPG estimates of NPV of $520 million while the OPA estimates a benefit of only $100 Million do not match? Please reconcile and include underlying calculations and assumption.

b) Has OPG been in contact with OPA to discuss such variation in estimates ($420M variation)? If so please provide correspondence. If not, please explain why OPG has not been in contact with OPA to discuss variations in estimates?

c) Did OPG provide costs to OPA associated with Nuclear Waste Management, including storage and disposal programs for used fuel and Low and intermediate level waste?

   a. If yes, did OPA estimates include costs associated with Nuclear Waste Management, included storage and disposal programs for used fuel and Low and intermediate level waste? Please provide evidence of the OPA taking into account waste management costs. Attachment 2 Ex 2013-0321 F2-T2-S3 states no information regarding nuclear waste management cost received from OPG regarding Pickering NGS Continued Operation. If no, please explain why OPG did not provide the OPA with costs associated with Nuclear Waste Management impacts associated with Pickering Continued Operation Initiative?

Response

a) The modeling of the net present value benefit of a generating option to the system requires a large number of assumptions. These include the demand forecast, gas price forecast, carbon price forecast, the amount and value of exports, the amount of conservation/energy efficiency, and the amount of new generation such as wind, solar and gas. The main differences between the OPG and the OPA NPV estimates are:

Witness Panel: Nuclear Business Planning, OM&A, Benchmarking
Witness Panel: Nuclear Business Planning, OM&A, Benchmarking

i) Treatment of exports

ii) Valuation of carbon emissions

iii) Modeling differences

b) Yes, the OPA met with OPG staff in 2012 to discuss the results of assessments performed by the two companies on Pickering Continued Operations, including potential differences between the studies. There was no correspondence between the OPA and OPG on this topic.

c) Yes. As provided in the OPA’s letter (Ex. F2-2-3, Attachment 2), the OPA used the costs provided by OPG. For example, in Appendix 1, page 5 of Ex. F2-2-3, Attachment 2, the table titled “Incremental Costs in 2013 to 2020 Due to Continued Operation (2012$M) (1)”, the Fuel and Fuel Related Costs include the costs of used fuel management and the Capital and OM&A For Plant Operation Costs include the costs of L&ILW management.
**AMPCO Interrogatory #053**

**Ref: Ref 1:** Exhibit F2-T2-S3 Attachment 1 Page 9

Preamble: the value of the Continued Operations Alternative was calculated relative to the originally assumed Life Alternative (Alternative 1) by subtracting the NPV of Alternative 1 from the NPV of Alternative 2.

- Alternative 1 (Baseline): - Alternative 2 (PNGS Continued Operations):
  - P6 S/D in 2014 - P6 S/D in 2019
  - P5 s/d at end 2014 - P5 S/D in 2020
  - P1,4,7,8 in 2016 - P1,4,7,8 at end 2020

**Ref 2:** Exhibit F2-T2-S2 Attachment 2

Preamble: According to OPA, the information received from OPG regarding Pickering NGS continued Operation is in Appendix 1. In this evidence OPG states the following:

### Incremental Generation and Planned Outages Due to Pickering Continued Operation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Incremental Generation (TWh)</td>
<td>1.3</td>
<td>4.7</td>
<td>4.6</td>
<td>16.6</td>
<td>22.6</td>
<td>21.9</td>
<td>20.3</td>
<td>17.2</td>
</tr>
<tr>
<td>Incremental Planned Outage Days</td>
<td>-114</td>
<td>-157</td>
<td>337</td>
<td>375</td>
<td>233</td>
<td>281</td>
<td>149</td>
<td>0</td>
</tr>
</tbody>
</table>

**Ref 3:** EDOCS- 4177096 - Application to Renew the Power Reactor Operating Licence for the Pickering Nuclear Generating Station - Record of Proceedings, Including Reasons for Decision - Page 34

OPG stated that, according to its plans, all Pickering B units would enter the continued operations phase between 2014 and 2016, and be operated until the end of 2020 or until the limit of 247,000 EFPH is reached for the fuel channels ([http://www.nuclearsafety.gc.ca/eng/the-commission/pdf/2013-05-29-Decision-OPG-Pickering-e-Edocs4177096.pdf](http://www.nuclearsafety.gc.ca/eng/the-commission/pdf/2013-05-29-Decision-OPG-Pickering-e-Edocs4177096.pdf))

**Ref 4:** IESO Hourly Production Generation and OPG Production Outages (EB-2007-0905, EB-2010-0008, EB-2013-0321 Compiled)
Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

a) Given “all Pickering B units would enter the continued operations phase between 2014 and 2016”. Please explain why in 2013, according to information OPA received from OPG, a 1.3 TWh of incremental generation due to Pickering Continued Operations Incentive is recorded? Pickering Alternative 1 includes all Pickering units running until in 2013, how does Pickering Continued Operation Initiative that is completed in 2014 provide a benefit of 1.3TWh incremental generation in 2014?

b) Given that Pickering Nuclear Generation station is Ontario’s first and oldest Nuclear Plant and it is reaching its designed end of life starting in 2014 (210,000 EFPH), please discuss how OPG is planning in 2017 to generate 22.6TWh from Pickering NGS with 233 planned outage days? Based on IESO data and OPG Historical fillings, Pickering has not performed over 20.0TWh in the past 10 year and has an 8 year Actual average (2005-2012 inclusive) of 311.2 Outage days.

c) Please discuss how OPG is planning to generate 21.9 TWh in 2018 from Pickering NGS with 281 planned outage days?

d) Please discuss how OPG will generate 19.2 TWh in 2020 with zero planned outage days.

e) Given an 8 year Actual Average of 19.3 TWh and 311.2 Outage days (2005-2012 inclusive), AMPCO believes OPG has provided the OPA with over estimates of Production forecasts and lower estimates of planned outages. If not, please provide reason of why OPG does not agree with AMPCO. Please explain how Pickering NGS will perform better than its past 10 years and with lower planned outages.
f) Given Pickering NGS is reaching its end of life, has OPG taken into considerations more planned outages for to ensure that the units are safe to operate and meet regulatory codes and standards? If yes, please explain the low planned outage days during 2017-2020.

Response

a) Under the No Pickering Continued Operations scenario, the generation projections included two life management outages on Unit 7, one in 2013 and one in 2014 in order to allow Unit 7 to be operated to the same end-of-life as Unit 8. The inclusion of the Unit 7 life management outages would have been necessary to enable the operation of Units 1, 4, 7 and 8 into 2016. In addition, under the No Pickering Continued Operations scenario, Unit 6 would have reached its end of life of 210,000 EFPH in 2014 and would have been removed from service.

The Continued Operations scenario used in the BCS (Ex. F2-T2-S3, Attachment 1), results in increased generation in 2013 and 2014 primarily because of the following:

i. The Unit 7 life management outages required in 2013 and 2014 in the No Continued Operations scenario could be delayed until 2015 and 2016 in the Continued Operations scenario.

ii. Unit 6, which would have had to be shutdown in May 2014 in the No Continued Operations scenario, was projected to operate until 2019 in the Continued Operations scenario, thereby increasing the amount of generation available from Unit 6 in 2014.

b), c) and d)

The assumptions underlying OPG’s forecast of production in the Continued Operations scenario were based on information available at that time from the 2012 - 2014 business planning process as shown in the Table below. Capability factor and generation are arrived at by applying a formula to the forecast planned outage days and forced loss rates. OPG notes that the production forecast in 2020 is 17.2 TWh, not the 19.2 TWh quoted in part d) of the question.
e) OPG believes that assumptions used at the time of preparation of the Continued Operations BCS were reasonable, given improvement initiatives planned and implemented. Historical performance is only one factor considered in predicting future performance. Please see also the answer to part f).

f) OPG ensures that its nuclear units are safe to operate and meet regulatory codes and standards at all times. This is achieved, in part, through the inspection and maintenance programs required in OPG’s aging management and major component life cycle management programs. These programs are in compliance with regulatory requirements that are part of the station’s operating license. As part of its on-going operational planning, OPG continually updates its planned outage forecasts. The forecast used as the basis for the Continued Operations BCS (Ex. F2-T2-S3,Attachment 1) was current at the time the BCS was prepared and will be adjusted as necessary. OPG does not believe that the forecast is optimistic. Reasons for the low planned outage days, particularly in 2019 and 2020 include:

i. As units reach end-of-life the planned outages for those units are no longer reflected in the totals shown.

ii. Final planned outages on the units can be shortened or eliminated.

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<th>2018</th>
<th>2019</th>
<th>2020</th>
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<td>8.0</td>
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<tr>
<td>P5-8 Continued Ops (247k)</td>
<td>4.8</td>
<td>5.2</td>
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<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
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<tbody>
<tr>
<td>P1&amp;4 Life to Match Continued Ops</td>
<td>81%</td>
<td>81%</td>
<td>82%</td>
<td>91%</td>
</tr>
<tr>
<td>P5-8 Continued Ops (247k)</td>
<td>85%</td>
<td>81%</td>
<td>88%</td>
<td>93%</td>
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<thead>
<tr>
<th>Planned Outage &amp; Life Management Days</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1&amp;4 Life to Match Continued Ops</td>
<td>87</td>
<td>85</td>
<td>76</td>
<td>0</td>
</tr>
<tr>
<td>P5-8 Continued Ops (247k)</td>
<td>146</td>
<td>196</td>
<td>73</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total P1,4 5-8</strong></td>
<td><strong>233</strong></td>
<td><strong>281</strong></td>
<td><strong>149</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy (TWh)</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1&amp;4 Life to Match Continued Ops</td>
<td>7.3</td>
<td>7.3</td>
<td>7.3</td>
<td>8.2</td>
</tr>
<tr>
<td>P5-8 Continued Ops (247k)</td>
<td>15.3</td>
<td>14.7</td>
<td>13.0</td>
<td>9.1</td>
</tr>
<tr>
<td><strong>Total P1,4 5-8</strong></td>
<td><strong>22.6</strong></td>
<td><strong>21.9</strong></td>
<td><strong>20.3</strong></td>
<td><strong>17.2</strong></td>
</tr>
</tbody>
</table>
AMPCO Interrogatory #054

Ref: Exhibit F2-T2-S3 ATTACHMENT 2 PAGE 10

Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

The OPA’s assessment of system cost impacts suggest an expected cost advantage to Pickering Continued Operation (in the order of approximately $100 Million). This advantage predominantly reflects expected costs savings from reduced natural gas-fired energy production and lower replacement capacity requirements. Based on evaluation to date of the broader uncertainties, the OPA estimates a range of up to approximately $1.3 billion in potential net benefit from Pickering Continued Operation to $760M in potential net-cost (dis-benefit).

a) Given OPG’s benefit assessment, dated April 26 2012, to the Continued Operation of Pickering past its designed life would provide a benefit range of +$2,200M to -$410M PV and the OPA assessment, dated August 15 2012, range estimate is +$1,300M to -760M. Please discuss why OPG estimates a benefit almost double the of OPA’s and a negative impact of almost half what the OPA estimates?

b) Based on OPG’s own assessment and compared to that of the OPA’s assessment, dated four months after, does OPG agree that it has overestimated the benefits and under estimated the costs (dis-benefits). If not please explain why.

c) Has OPG been in contact with OPA to assess the large differences in range?

Response

Please refer to the response to Ex. L-06.6-2 AMPCO-052 a) and b).
**AMPCO Interrogatory #055**

**Ref:**
Exhibit F2-T2-S3

<table>
<thead>
<tr>
<th>Reasons for Change</th>
<th>Approx. Impact on Results ($2012m$ PV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Impact of change from 2009 PV$ to 2012 PV$ (removal of Continued Ops costs and production impacts in 2009-2012)</td>
<td>+ $250M</td>
</tr>
<tr>
<td>2. Lower demand forecast/ lower replacement generation costs (lower gas prices) compared to the previous assumptions; this affects the value of Pickering generation the system</td>
<td>- $1,190M</td>
</tr>
<tr>
<td>3. Change from 240,000 EFPH to 247,000 EFPH</td>
<td>+ $330M</td>
</tr>
<tr>
<td>4. Updated Pickering Costs</td>
<td>+ $240M</td>
</tr>
<tr>
<td>5. Changed methodology for Valuing Exports</td>
<td>- $355M</td>
</tr>
<tr>
<td>6. Other Assessment Methodology &amp; Assumptions Changes</td>
<td>+ $140M</td>
</tr>
</tbody>
</table>

**Issue Number:** 6.6  
**Issue:** Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

**Interrogatory**

a) OPG states that costs and production impacts associated with Pickering Continued Operations Incentive was removed. Please discuss why costs associated with Pickering Continued Operations initiative occurred in 2009 until 2012 are removed?

b) Please provide the 2012 PV$ of the removed continued operation costs and production impacts in 2009-2012.

c) Updated Pickering Costs relative to 2010 assessment as a $240M present value, please provide the changed updated assumptions of Pickering costs and reasons for change.

d) Please provide the methodology used in 2010 in Valuing Exports. Please also provide the methodology used in 2012 in Valuing Exports. Please state the change in methodology for valuing Exports from 2010 to 2012.

e) Please provide the “Other assessment methodology and Assumptions changes” that led to a PV increase of $140M.

**Response**

a) The updated Pickering Continued Operations business case (Ex. F2-2-3 Attachment 1) was completed in 2012. Therefore, the economic analysis performed as part of this updated
1 business case considered going forward costs and production impacts, only, i.e., from 2013 onwards. Sunk costs are not considered in a business case assessment.

b) The 2012 PV$ of the removed continued operation costs and production impacts in 2009-2012 was $140 M.

c) The Pickering costs used in the updated business case (Ex. F2-2-3, Attachment 1) were based on the 2012-2014 Business Plan. The Pickering costs used in the previous 2010 Pickering Continued Operations business case were based on the 2010-2014 Business Plan. Since 2010, initiatives have been implemented that will reduce the Pickering costs over the period 2013-2020, e.g., amalgamation of Pickering A station and Pickering B station into one Pickering Nuclear station organization. In addition, the updated business case included impacts of Business Transformation on costs of Pickering station as well as nuclear support organizations.

d) In 2010 exports were valued at the savings from displacing generation in the importing area. In 2012 exports were valued at the price of electricity in Ontario at the time. The valuation in 2012 was based on the minimum revenue that would be received in Ontario for exporting the power.

e) OPG did not attempt to separate out the details of the Other Methodology and Assumption Changes. There are many assumptions in the modeling of system and cost impacts which interact making it difficult to define specific categories to describe the differences in results.
AMPCO Interrogatory #056

Ref:
Government of Ontario’s Long Term Energy Plan, Page 30

Issue Number: 6.6
Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory
Preamble: The Long Term Energy Plan states “The continued operation of Pickering facilitates the refurbishment of the first units at Darlington and Bruce by providing replacement capacity and energy without greenhouse gas emissions while managing prices. However, an earlier shutdown of the Pickering units may be possible depending on projected demand, the progress of the fleet refurbishment program, and the timely completion of the Clarington Transformer Station.”

a) Please provide OPG’s assessment of this statement and whether in OPG’s view an earlier shutdown the Pickering units would be appropriate.
   i) If so, when is the earliest timeframe for this scenario?
   ii) What are the financial implications under an earlier shutdown scenario?

Response
OPG believes that there is a significant benefit to continuing to operate the Pickering station, as planned, to the end of 2020.

The analysis set out in Ex. F2-2-3, Attachment 1, “2012 Business Case Update – Pickering Continued Operations” indicates a significant advantage to Pickering Continued Operations with a positive Net Present Value (“NPV”) of $520M. The OPA also supports OPG’s proposal to maintain the options of continued operations of Pickering for the reasons set out in the OPA’s letter of August 15, 2012 (Ex. F2-2-3, Attachment 2). In addition to the financial benefits, there are several other non-financial benefits that were outlined in the Updated Pickering Continued Operations Business Case Summary (“BCS”) (Ex. F2-2-3, Attachment 1).

The LTEP’s reference to Pickering makes clear that the potential for assessing early shutdown of Pickering is dependent on projected demand, the progress of the fleet refurbishment program, and the timely completion of the Clarington Transformer Station. It will be several years (i.e., beyond the test period) before the information on refurbishment progress and the timing of Clarington Transformer Station completion are known. Further, the Board has indicated that the potential early shutdown of Pickering is not a test period consideration, as stated in Procedural Order #3.
AMPCO Interrogatory #057

Ref: Board Staff Interrogatory #6.6-Staff-97

Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

Preamble: Board Staff references the 2013 Third Quarter Report and notes that inability to meet those conditions in a timely manner could have an impact on the operating strategy for continued operations of Pickering and states that the “regulatory hold point, if not addressed by the spring of 2014, may require one unit to be shutdown”.

a) Please explain what is meant by “regulatory hold point”.

Response

A regulatory hold point is a condition that the Canadian Nuclear Safety Commission placed into the Operating Licence for the Pickering station that enables the regulator to verify resolution of issues. For Pickering, the regulatory hold point is in place so that the CNSC can confirm that the work OPG has completed demonstrates that the Pickering B Fuel Channels are fit to continue to operate safely until the planned shutdown in 2020.

Witness Panel: Nuclear Business Planning, OM&A, Benchmarking
**GEC Interrogatory #005**

Ref: Ex. D2-1-3

Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

**Interrogatory**

Re: Pickering Continued Operations

The LTEP notes that “an earlier shutdown of the Pickering units may be possible depending on projected demand, the progress of the fleet refurbishment program, and the timely completion of the Clarington Transformer Station”. Please provide any information that OPG has about the timing of the Clarington Transformer Station completion, and the dates when uncertainties in that regard are expected to be reduced.

**Response**

The construction of Clarington Transformer Station is a Hydro One Networks Inc. (“Hydro One”) project; OPG has no specific project information on either the completion of the project or uncertainties associated with the project.

Information obtained from the IESO web site indicates Clarington Transformer Station is expected to be in service in the fall of 2017.1

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Ref:

Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

In EB-2012-0031, Exhibit D1-3-3, Appendix B it states “System studies performed for the Ontario Power Authority by the IESO indicated that a minimum of two Pickering units are required to be in service to maintain reliable supply for the area during peak load periods.”

There are six reactors currently in operation at the Pickering nuclear station. Using the LTEP 2013 demand and supply forecast, please provide showing electricity surpluses between 2014 and 2020 for the following three scenarios: 1) all six reactors operating at Pickering 2) four reactors operating at Pickering. 3) two reactors operating at Pickering. The graphs should be in terawatt hours. For each scenario provide estimated impacts on the global adjustment.

Response

The OPA has advised OPG that Tables 1 and 2 below provide the OPA’s estimates of (1) total production above Ontario demand and (2) Global Adjustment costs between 2014 and 2020, associated with the 2013 Long-Term Energy Plan (“LTEP”) demand and supply forecast, and six reactors operating at Pickering. The OPA does not have estimates of production above Ontario demand, nor Global Adjustment costs, for scenarios with four or two reactors operating at Pickering.

Total production above Ontario demand is presented in Terawatt-hours, and represents production above Ontario requirements before any mitigating actions are taken (such as exports and/or dispatching of Ontario based resources). Global Adjustment costs represent modeled totals attributed to total system requirements and are not solely related to the operation of six reactors at Pickering.

Table 1. 2013 LTEP: Annual Production above Ontario Demand (TWh)

<table>
<thead>
<tr>
<th>Total Production above Ontario Demand, TWh</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source: OPA</td>
<td>9.5</td>
<td>10.7</td>
<td>11.0</td>
<td>8.6</td>
<td>8.8</td>
<td>6.4</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Witness Panel: Nuclear Business Planning, OM&A, Benchmarking
The LTEP refers to Pickering GS remaining in service until 2020 on pages 30 and 47, noting an earlier shutdown “may be possible depending on ... the timely completion of the Clarington Transformer Station.” The IESO in its March 2014 - 18 Month Outlook indicates that the in-service date is now expected to be Q3 2017. The OPA has informed OPG that Pickering GS should not be expected to be removed from service before the in-service date of Clarington TS. LTEP also notes that earlier shutdown depends on the progress of the fleet refurbishment program.” The OPA is negotiating the refurbishment and asset management plan of Bruce Units three to eight with Bruce Power. Until this, and other factors such as renewable generation development, are clarified, the amount of production above Ontario Demand in the years following Clarington TS in service remains highly uncertain.
GEC Interrogatory #007

Ref:

Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

In the government’s 2013 Long Term Energy Plan (LTEP), it states:

The Pickering Generating Station is expected to be in service until 2020. An earlier shutdown of the Pickering units may be possible depending on projected demand going forward, the progress of the fleet refurbishment program, and the timely completion of the Clarington Transformer Station. (LTEP 2013, p5)

The OPA states in F2-2-3, Attachment 2 states that in absence of OPG’s proposal to continue operating the Pickering nuclear station the six operating reactors “are currently expected to operate around 2015.” The OPA also provides its updated 2012 assessment of the prudency of Pickering’s continued operation. It states:

“On balance, the OPA’s assessment of system cost impacts suggests an expected cost advantage to Pickering continued operation (in the order of approximately $100 Million). This advantage predominately reflects expected costs savings from reduced natural gas-fired energy production and lower replacement capacity requirements. Based on evaluation to date of the broader uncertainties, the OPA estimates a range of up to approximately $1.3 billion in potential net-benefit from Pickering continued operation to $0.76 billion in potential net-cost (dis-benefit). These estimates represent illustrative bookends and explore combinations of factors that together would increase or decrease the cost impacts of Pickering continued operations.”

In contrast, the OPA’s 2010 analysis provided to the OEB (EB-2010-0008, Exhibit F2-2-3, Attachment 2) states: “Depending on the amount of gas-fired generation or similarly-priced imports replaced by Pickering NGS generation, the overall system benefit could be up to 1.6 B$ (104 TWH multiplied by 15 $/MWh) due to the reduction of system costs.”

In F2-2-3, Schedule 3, OPG’s 2012 assessment of the Pickering continued operation estimates the net present value to be “approximately $520 million (2012 PV dollars).”

a) Please provide the low, mid and high demand forecast, including the implied baseload demand, in terawatt hours until 2020 used to calculate OPG’s 2012 assessment of the net present value of the Pickering continued operation.

b) Please describe how OPG estimated implied baseload demand in its forecast?
c) Please provide the low, mid and high demand forecast, including the implied baseload demand, in terawatt hours until 2020 to calculate the OPA’s 2012 assessment of the net present value of Pickering continued operation.

d) Please describe how the OPA estimated implied baseload demand in its forecast?

e) Please provide the demand forecast used in the government’s 2013 Long Term Energy Plan, including the implied baseload demand, in terawatt hours until 2020?

f) Please discuss define “overall system benefit”? What value have these analyses placed on the impact of Pickering operations on SBG and export prices?

g) What work is being delayed or could be delayed until such time as a decision by government has been made in accord with the recent LTEP policy recognizing the possibility of earlier Pickering shutdowns?

Response

a) Please see Chart 1 (below) for OPG’s low, mid and high demand forecast.

| Ontario Demand Forecast (TWh) Underlying OPG’s Pickering Continued Ops Evaluation Provided in Ex. F2-2-3, Attachment 1 |
|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Base         | 141.9           | 142.2          | 142.6          | 143.0          | 144.0          | 144.2          | 145.6          | 147.2          | 148.4          |
| Low          | 141.2           | 140.8          | 140.4          | 140.1          | 140.4          | 139.8          | 140.5          | 141.2          | 141.7          |
| High         | 143.4           | 145.1          | 147.0          | 149.0          | 151.6          | 153.4          | 156.5          | 159.8          | 162.9          |

The term “implied baseload demand” is not used in OPG’s materials on Pickering Continued Operations, therefore OPG cannot respond to this part of the request.

b) Please see answer to part a).

c) The Ontario Power Authority (“OPA”) has provided Table 1 (below) with the annual Ontario electricity demand projections used in its 2012 assessment of Pickering Continued Operations for the years 2014 - 2020. The projections have been reduced to take into account conservation and are expressed in Terawatt hours. Please refer to the response to part d) for OPA information on “implied baseload demand”.

Witness Panel: Nuclear Business Planning, OM&A, Benchmarking
Table 1
2012 OPA Assessment of Pickering Continued Operations:
Annual Forecast Demand, Net of Conservation (TWh)

<table>
<thead>
<tr>
<th>Annual Energy (TWh)</th>
<th>OPA 2012 Assessment Medium Demand Forecast</th>
<th>OPA 2012 Assessment Low Demand Forecast</th>
<th>OPA 2012 Assessment High Demand Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>145.0</td>
<td>138.6</td>
<td>147.0</td>
</tr>
<tr>
<td>2015</td>
<td>146.0</td>
<td>138.0</td>
<td>148.5</td>
</tr>
<tr>
<td>2016</td>
<td>146.3</td>
<td>138.4</td>
<td>150.4</td>
</tr>
<tr>
<td>2017</td>
<td>145.9</td>
<td>138.0</td>
<td>151.0</td>
</tr>
<tr>
<td>2018</td>
<td>146.5</td>
<td>138.0</td>
<td>153.0</td>
</tr>
<tr>
<td>2019</td>
<td>147.3</td>
<td>138.5</td>
<td>154.5</td>
</tr>
<tr>
<td>2020</td>
<td>148.9</td>
<td>138.9</td>
<td>158.1</td>
</tr>
</tbody>
</table>

d) Source: OPA

d) The OPA has advised OPG that it employed production simulation modeling — in which supply and demand for each hour of each year within the study period is considered — for the purpose of its 2012 assessment of Pickering Continued Operations. The OPA further advised that it did not estimate baseload demand, as it did not require this for the purposes of the assessment.

e) The OPA has advised OPG that Table 2 provides the annual Ontario electricity demand projections reflected in the Government’s 2013 Long-Term Energy Plan (“LTEP”) for the years 2014 - 2020. The projections are net of conservation and are expressed in Terawatt-hours. This information is publicly available on the OPA’s website at http://www.powerauthority.on.ca/power-planning/long-term-energy-plan-2013 in Module 3: Generation and Conservation Tabulations and the Supply/Demand Balance.

Table 2
2013 LTEP: Annual Forecast Demand, Net of Conservation (TWh)

<table>
<thead>
<tr>
<th>Year</th>
<th>2013 LTEP Annual Demand Forecast (TWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>140.8</td>
</tr>
<tr>
<td>2015</td>
<td>140.2</td>
</tr>
<tr>
<td>2016</td>
<td>140.4</td>
</tr>
<tr>
<td>2017</td>
<td>139.6</td>
</tr>
<tr>
<td>2018</td>
<td>139.9</td>
</tr>
<tr>
<td>2019</td>
<td>141.1</td>
</tr>
<tr>
<td>2020</td>
<td>141.5</td>
</tr>
</tbody>
</table>

Source: OPA
Furthermore, the OPA has advised OPG that Table 3 provides the annual energy, expressed in Terawatt-hours, associated with the minimum demand levels for the LTEP forecast for the years 2014 - 2020. The OPA cautions that, while minimum hourly load can be a useful indicator for some purposes, it is not determinative in planning for baseload requirements. That is because, among other things, relatively few hours separate the single lowest demand hour in all hours in the year from hours with considerably higher demand levels. By way of example, an average of 102 and 577 hours (or approximately 1.2% and 6.6% of the hours in a year respectively) separate the lowest annual demand hour from hours with 1,000 MW and 2,000 MW higher demand.

<table>
<thead>
<tr>
<th>Year</th>
<th>2013 LTEP: Annual Energy Associated with Minimum Demand Level, Net of Conservation (TWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>91.6</td>
</tr>
<tr>
<td>2015</td>
<td>91.8</td>
</tr>
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<td>2016</td>
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<td>93.0</td>
</tr>
<tr>
<td>2018</td>
<td>93.4</td>
</tr>
<tr>
<td>2019</td>
<td>94.4</td>
</tr>
<tr>
<td>2020</td>
<td>94.6</td>
</tr>
</tbody>
</table>

Source: OPA

f) The term “overall system benefit” is not used in OPG’s materials on Pickering Continued Operations. However, the term “system benefit” is normally used to refer to reduced system costs, which normally translate into reduced customer costs. However, as pointed out in the OPA’s letter (Ex. F2-2-3, Attachment 2); system benefits can also include reductions in CO\textsubscript{2} emissions, deferral of some investments, and a hedge against mid-term uncertainties.

g) The OPA has advised OPG that their reference to “overall system benefit” includes both quantitative and qualitative aspects. Quantitative aspects include Ontario electricity system variable costs, capital and fixed operating costs and the deferral of decommissioning and severance costs. Where Pickering Continued Operations results in greater savings than costs in these areas, there is a net system benefit. Qualitative factors considered relate to uncertainty/risk and environmental performance, and were not monetized in the OPA’s assessment.

The OPA has advised that it did not estimate the costs or benefits of production above Ontario demand (e.g., the impact of potential surplus energy)
Exports and export revenues were also estimated by the OPA. Export revenues were assessed against import costs – the net import and export cost/benefit was included in the OPA’s assessment of overall net cost/benefit of Pickering continued operation.

h) OPG’s plan is to operate the Pickering station until 2020. OPG has not delayed and has no plans to delay work on the Pickering units, based on an indicative statement in the LTEP. Delaying work could have a negative effect on the reliability and safety of the station. The OPA has informed OPG that Pickering GS should not be expected to be removed from service before the in-service date of Clarington TS. Please see response to IR L-06-6-8 GEC-006.
GEC Interrogatory #008

Ref:

Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

At F2-2-3 p. 2 OPG notes that there are significant technical and economic challenges to operating Pickering units 1-4 without two of units 5-8 in operation. Please explain the reasons for that observation.

Response

There are significant physical system interconnections between Pickering Units 1 and 4 and Pickering Units 5-8, many of which are important to the safe operation of the Pickering Units 1 and 4. OPG has completed a feasibility assessment of operating Pickering Units 1 and 4 following the shutdown of the Pickering Units 5-8. The assessment concluded that Pickering Units 1 and 4 cannot continue to operate without significant and costly modifications after the Pickering Units 5-8 shutdown.

The key issue that would be very costly to resolve is to demonstrate acceptable reliability and diversity of power supplies to key safety systems, given that the critical electrical systems would no longer be available for this purpose. Solutions to this loss of electrical reliability and diversity have been reviewed, but they represented significant cost (at least $100M) and a high degree of technical and regulatory uncertainty.

There are other technical issues (approximately 25 issues have been identified) that would need to be addressed, also at significant cost (at least $100M). These included:

- Isolation of Pickering B units from the Pressure Relief Duct
- Provision for other Pickering Unit 5-8 electrical supplies to critical Pickering Unit 1 and 4 loads
- Provision for Pickering Unit 1 and 4 reliance on in-service Pickering Units 5-8 water systems
- Installation of alternate supplies/controls for key safety systems available from Pickering Units 5-8
- Provision for station standby heating, which is supplied by Pickering Units 5-8
GEC Interrogatory #009

Ref: Ex. H1-1-1, p. 4

Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

Please indicate the impact on expected SBG and forced exports with Pickering life extensions as planned, with no life extensions, and with only two units life extended.

Response

There is no expectation of a Surplus Baseload Generation (“SBG”) impact on the Nuclear production forecast for the test period (Ex. E2-1-1).

OPG is not familiar with the term ‘forced exports’ and did not find any such term referenced in readily available IESO resources.¹

For discussions related to the impact of Pickering Continued Operations on export prices in the context of “overall system benefits”, please refer to Ex. L-6.6-8 GEC-007, part f.

¹ http://www.ieso.ca/Documents/training/Workbook_IJT.pdf
GEC Interrogatory #010

Ref: Exhibit F2, Tab 2, Schedule 3, Pages 3-4

Issue Number: 6.6

Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

In its August 2013 licence renewal decision, the Canadian Nuclear Safety Commission (CNSC) “does not accept CNSC staff’s proposed delegation of authority to remove the regulatory hold point to allow OPG to proceed beyond 210,000 EFPH. The Commission will consider this matter in a future proceeding of the Commission with public participation.”

The Commission then directs OPG to provide the following before permission will be given to run the Pickering B reactors behind its design life:

- the revised PSA for Pickering A that meets the requirements of CNSC Regulatory Standard S-294;
- an updated PSA for both Pickering A and Pickering B that takes into account the enhancements required under the Fukushima Action Plan; and
- a whole-site PSA or a methodology for a whole-site PSA, specific to the Pickering NGS site.

The Commission understands that if the PSA values are between the limits and the targets, then safety improvements should be put in place if practicable, and that if the PSA values are above acceptable limits then safety improvements would be mandatory. As such, the Commission requests that OPG provide an action plan to address any identified issues should OPG exceed its targeted safety goals.

The Commission notes that OPG will be considering filtered containment as part of its analysis of future enhancements to protect containment through its Fukushima Action Items. The Commission directs OPG to report on its analysis and way forward on this issue at the time of its request to remove the hold point to proceed beyond 210,000 EFPH.


The CNSC has published notice that it will hold a hearing on May 7th to consider OPG’s request to run the Pickering B reactors beyond 210000 EFPH.
a. Please provide the summary of the results of the Pickering A and B Probabilistic Safety Assessment results that will be presented to the Commission for the removal of the hold point.

b. Please provide a summary of the safety limits and safety targets used to determine if safety improvements or upgrades are required.

c. Please provide OPG’s current policy document on how it considers whether safety upgrades are required.

d. Please provide the action plan requested by the Commission.

e. Please indicate the potential cost requirements of various safety improvements in the action plan.

f. How have the regulatory and financial risks of this action plan been considered in OPG’s submission to the OEB? What is OPG’s plan if the CNSC denies permission to operate the Pickering reactors beyond 210000 EFPH and what are the revenue requirement implications?

g. Please provide the report and analysis OPG must submit to the CNSC regarding the filtered containment system upgrades.

h. What are the cost implications filtered containment system upgrades?

**Response**

a) A public summary of the Pickering A Probabilistic Risk Assessment (“PRA”) will be available on the OPG website by May, 2014. The full PRA is a proprietary document and as such is not releasable.

The public summary of the Pickering B PRA summary document is expected to be available on the OPG website.

b) A summary of the safety goals used to determine if safety improvements or upgrades may be required are as follows:

<table>
<thead>
<tr>
<th>Safety Goal</th>
<th>Average Risk (per year)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Target</td>
</tr>
<tr>
<td>Severe Core Damage (per unit)</td>
<td>$10^{-5}$</td>
<td>$10^{-4}$</td>
</tr>
<tr>
<td>Large Off-Site Release (per unit)</td>
<td>$10^{-6}$</td>
<td>$10^{-5}$</td>
</tr>
</tbody>
</table>
c) OPG’s current policy on how it considers whether safety upgrades are required is as follows:

If the single unit PRA results are above the safety goal limit, actions, such as more detailed analysis or cost effective plant modifications are implemented to reduce risk. The safety goal target represents the desired objective. Should the single unit PRA results exceed the safety goal target, measures to further reduce risk are considered.

d) and e) The current results of the Pickering A and B PRA’s do not exceed the safety goals or target and therefore no action plans are required to be developed or provided to the commission.

f) As stated in d and e) there is no action plan, and as such, there is no required activities that require funding. OPG has spent a significant amount of money (approximately $50M over a 5 year period) for the development and completion of the PRA’s to ensure that they meet the requirements of the CNSC regulatory requirements. This budget has been included in the 2014-2015 test period (approximately 10M$).

OPG has high confidence that the CNSC will lift the hold point on Pickering. Therefore there is no effect on the revenue requirements. See Ex. L-06.6-1 Staff-097.

g) OPG has assessed various options which can be implemented to further enhance Pickering containment performance. Based on this assessment, it has been determined that the existing and planned equipment upgrades (to address Fukushima related issues) are sufficient to address containment performance under highly unlikely accident conditions, and no further modifications are warranted. The Containment Filtered Venting System (“CFVS”) is not required at Pickering.

h) The OPG recommendation is that no CFVS be installed at Pickering NGS.
SEC Interrogatory #102

Ref:

[F2-2-3]

Issue Number: 6.6
Issue: Are the test period expenditures related to continued operations for Pickering Units 5 to 8 appropriate?

Interrogatory

OPG explains that for technical and economic reasons it will not operate Pickering Units 1 and 4 if more than 2 of Units 5-8 are shut down. Over the past four years (2010-2013) how has this scenario occurred? Please also provide the duration of these events.

Response

Over the past four years Pickering Units 1-4 have not had to shut down due to more than 2 Units on Pickering 5 – 8 being shutdown.

Operationally, there are prescriptive operating instructions (linked to the station’s Operating License) which allow operation of Pickering units when there are less than two Pickering 5 – 8 units at high power. The operating instructions in this situation are very restrictive both in the compensatory action that must be taken to deal with the situation and the restrictions it places on normal operation of the plant. This situation has been encountered before and for short periods of time the plant has been able to manage the restrictions. These operating constraints are not intended for long term operation of the facility with two Pickering 5-8 units permanently out of service to support the operation of Pickering 1 and 4. The restrictions are such that with these operating constraints being in effect for longer periods of time the operation of the plant would not be possible or condoned by the CNSC.
Board Staff Interrogatory #098

Ref: Exh F2-7-1 page 1-2

Issue Number: 6.7
Issue: Is the test period Operations, Maintenance and Administration budget for the Darlington Refurbishment Project appropriate?

Interrogatory

The application states OPG is forecasting test period OM&A expenditures of $19.6M for 2014 and $18.2M for 2015 related to the Darlington Refurbishment Project ("DRP"). The $19.6M forecast includes $8.1M for the Operations Trainee program and $5.6M for costs incurred during the Definition Phase. The $18.2M includes $7.7M for the Operations Trainee program and $1.3M for costs incurred during the Definition Phase.

a) Please explain why recovery of $6.9M, i.e. $5.6M in 2014 and $1.3M in 2015, for costs that have already been incurred would be appropriate? Also, given that all costs related to the DRP subsequent to the Board's first Order are subject to a prudence review, please explain what these costs for which OPG is proposing recovery are related to.

b) The application also notes that the Board approved DRP OM&A expenditures of $5.9M for 2011 (EB-2010-0008), while actual costs were only $2.6M, with the $3.3M variance primarily due to lower spending on the Operations Trainee program than OPG had planned. OPG is now requesting approval of a further $15.6M (or 7.8M per year) related to the same training program.

i. Given that OPG spent less than 50% of the 2011 approved amount and OPG is now requesting over 30% more than the 2011 approved amount on an annual basis, how can the Board be confident the amount requested is actually required for the Operations Trainee program?

ii. In addition, OPG already has Operations staff at the Darlington plant and it will be refurbished to operate as it has in the past. Please explain the purpose of the “Operations” trainee program, why it is specific to DRP and why such a substantial amount is required in requesting over $20M from 2011 through the test years for this one training program.

iii. Please also identify all other programs and associated costs related to the training of nuclear staff that are included in the proposed revenue requirement.

Response

a) The referenced $5.6M in 2014 and $1.3M in 2015 represent an OM&A contingency for costs that may be incurred by the DRP, in 2014 and 2015, that would not be eligible for capitalization. In any event, all differences between Board-approved and actual OM&A costs incurred in respect of the DRP are subject to the Capacity Refurbishment Variance Account ("CRVA"), which is discussed at Ex. H1-1-1, section 4.7. As such, the referenced under-
spend in the costs in 2011 has been credited to ratepayers as part of the December 31, 2012 CRVA balance approved for disposition in EB-2012-0002. The CRVA will similarly continue to capture variances between Board-approved and forecast OM&A costs in respect of DRP during the 2014-2015 test period.

b) i) The amounts planned for 2011 were related to the engineering training program. This program is complete and costs were lower than planned, as noted in Ex. F2-T7-S1, page 1, lines 18-20, by $3.3M. The amounts planned for 2014 and 2015 relate to the operations training program, not the engineering training program.

OPG has a staffing plan that lays out the required number of incremental operators required to support the refurbishment project. There is a high level of confidence that the operations staffing plan will meet the requirements of the refurbishment project and align with the training budget as presented in Ex. F2-7-1.

ii) The purpose of the operations training program is to ensure there will be sufficient operators available to support the refurbishment project during the Definition Phase and Execution Phase. Definition Phase activities include planning, execution of pre-requisite projects, work permit preparation, procedure and training development for shut-down, layup, and commissioning, design reviews, and safety assessments. Execution Phase activities include plant operations, work protection, and oversight and participation in shut-down, layup, and commissioning activities.

Substantial amount is required to fund the Operations Training Program in the following three specific qualification areas:

- **Shift Manager in Training (“SSIT”):** 10 Candidates for ~ 3 years

- **Authorized Nuclear Operator in Training (“ANOIT”):** 16 Candidates (two classes) for ~2.5 years

- **Nuclear Operator in Training (“NOIT”):** 30 Candidates (three classes) for ~1.5 years

The Operator training program costs will also include incremental instructors (1 per class) to deliver the training noted below.

iii) There are no other nuclear operations training costs included in the proposed DRP-related revenue requirement.
Board Staff Interrogatory #099

Ref: Exh F2-3-3 Attachment 1 Tab 11 page 8

Issue Number: 6.7

Issue: Is the test period Operations, Maintenance and Administration budget for the Darlington Refurbishment Project appropriate?

Interrogatory

The protocol agreement between CNSC and OPG 'Additional Protocol For Development Of Probabilistic Leak Before Break Assessments And X-750 Annulus Spacers commits OPG to R&D, inspection and material surveillance activities that extend beyond the scope and timelines of Fuel Channel Life Management Project. What is the contingency plan if R&D, inspection and material surveillance activities extend beyond 2018 and affect DRP base case and the schedule?

Response

Please see response to Ex. L-04.7-1 Staff-033, part b).
Board Staff Interrogatory #100

Ref: Exh A4-1-1, F4-3-1 (Attachment 6)

**Issue Number**: 6.8

**Issue**: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

**Interrogatory**

The application notes in the Business Transformation exhibit that OPG is targeting a reduction of 2,000 employees from 2011 to 2015 and the footnote indicates about 1,300 are attributed to the regulated operations. However, in the table entitled “FTE, Compensation and Benefit Information for OPG’s Regulated Facilities ("Appendix 2k")”, it indicates a reduction of only 879 from 2011 to 2015. Please clarify the 421 difference in these staffing reductions.

**Response**

The difference between these staffing reductions is irreconcilable because one refers to headcount and the other refers to full-time equivalent (“FTE”) and headcount and FTE are different measures. Headcount is the staffing level at the end of a year. FTEs represent the number of hours worked over the year converted to a full-time equivalent.

In addition to the fundamental difference between headcount and FTE, there are key differences between the BT headcount reduction target discussed in Ex A4-1-1 and the FTE reductions derived from Ex. F4-3-1, Attachment 6 ("Appendix 2k") as explained below.

OPG’s Business Transformation headcount reduction target is to reduce about 1,300 regular employees from ongoing regulated operations from the start of 2011 to the end of 2015. The BT target does not apply to non-regular employees or to the Darlington Refurbishment and Nuclear New Build Projects.

However, the Appendix 2k filed as Ex. F4-3-1, Attachment 6 reports on all OPG regulated facilities employees including FTEs associated with the Darlington Refurbishment, Nuclear New Build projects and non-regular staff.

In addition, the period considered by BT is from the beginning of 2011 to the end of 2015 (a 5 year period). The FTE reductions indicated by Board Staff are from the end of 2011 to the end of 2015 (a 4 year period), and so do not reflect the staff reductions achieved in 2011.
Board Staff Interrogatory #101

Ref: Exh F4-3-1, page 10 -12

Issue Number: 6.8
Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

The application notes the PWU collective agreement was negotiated in early 2012 and it covers the period from April 1, 2012 to March 31, 2015. The wage increases negotiated under the agreement for 2012, 2013 and 2014 are 2.75% for each year.

The application also notes a negotiated agreement with the Society could not be achieved and it was submitted to interest arbitration, with the Interest Arbitrator awarding increases for 2013, 2014 and 2015 of 0.75%, 1.75% and 1.75%, respectively. The Interest Arbitrator also ordered a temporary freeze on pay progression through the established pay grid for Society employees during the test years (2014 and 2015).

a) As noted above, the PWU collective agreement was negotiated in early 2012. OPG had received the Scott Madden benchmarking reports and the Board’s March 10, 2011 decision from the EB-2010-0008 proceeding, as well as results from Aon Hewitt’s fall 2011 National Utility Survey before those negotiations.
   i. Please explain OPG’s strategy in relation to bargaining with the PWU and how OPG took the referenced information and the concerns expressed by the Board in its decision into consideration.
   ii. Was OPG’s bargaining strategy for the PWU similar to the strategy OPG used to negotiate with the Society? If so why the different result (PWU wage increases are 1% to 2% higher than the Interest Arbitrator awarded to the Society)?

b) The application also notes OPG negotiated a number of cost and productivity offsets to the wage increases in the PWU agreement. Please identify those negotiated cost and productivity offsets.

c) Please identify how much lower the revenue requirement would have been if the wage increases OPG negotiated with the PWU had been equivalent to the wage increases awarded by the Interest Arbitrator to Society staff.

d) Please provide the most recent collective agreements between OPG with each of the Society and the PWU referenced in the application.

Witness Panel: Corporate Groups, Compensation
Response

a) OPG's bargaining team had not received AON Hewitt's fall 2011 National Utility Survey before 2012 negotiations. The report had not yet been finalized and released.

The bargaining strategy for both the PWU and the Society was focused on cost reductions to address the financial sustainability of OPG and to achieve the directions from OPG's Shareholder.

With the PWU, OPG was under a “net zero” direction from the Government which allowed for wage increases to be offset by cost savings. With the Society, OPG was under an “absolute zero” direction from the Government, which did not allow for wage increases to be offset by cost savings making the prospect of a negotiated agreement almost impossible.

Negotiations with the Society progressed to the mediation/arbitration process, and the arbitrator was convinced that a lower wage increase was warranted with no cost offsets awarded. The OEB's March 10, 2011 Decision during the period of negotiations was relied upon as context for OPG's financial challenges, in addition to declining market share, increased competition, and rising OM&A costs.

b) The cost and productivity offsets to the wage increases for the PWU are shown in the table below.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PWU Settlement – March 2012</strong></td>
<td></td>
</tr>
<tr>
<td>2.75% increase (base rates, overtime, benefits included), offset by:</td>
<td></td>
</tr>
</tbody>
</table>
| 1 | Eliminating Goalsharing  
   - Significant cost item for the company  
   - Eliminated annual PWU incentive plan which was paid out as a lump sum payment each year |   |
| 2 | Nuclear radiation protection clothing  
   - Eliminated the provision of certain articles of radiation protective clothing (i.e. undergarments and boots) where it is no longer necessary to ensure protection  
   - This was a costly provision due to the cost of the articles, number of staff to manage the program, high costs of laundering/transportation costs associated with radiological protective clothing, etc. |   |
| 3 | Net savings in health & dental  
   - Introduction of an annual cap on physiotherapy coverage |   |
| 4 | Efficiency gains - MAR and Shift turnover  
   - Significant deterrent for sick leave abuse due to the requirement for detailed medical documentation (MAR) for any absence of 4 days or more. Will result in improved productivity and associated sick leave and overtime costs.  
   - Achieved staggered start/stop times enabling better coordination of work performed by operations and maintenance crews which will result in significant productivity gains. |   |
| 5 | Radiation Tech position available as Appendix A  
   - Addition of the Radiation Protection Technician (RPT) to the existing hiring hall provides for a supply of contract staff at a reduced labour rate to meet ongoing and peak demands without hiring regular staff and enabling attrition providing a more flexible, scalable workforce. |   |
| 6 | Established new hard thresholds for PSA's  
   - Enables the ability to contract out work more efficiently and with more certainty  
   - Results in labour cost savings  
   - Provides a more flexible, scalable workforce |   |
| 7 | Ability to "claw back" family time not repaid  
   - Established time limit for repayment of family leave with the ability to claw back pay if time is not worked back within the specified timeframe. |   |
| 8 | Extension of targeted severance provision  
   - Enables targeted reductions by location and job classification in order to avoid triggering large scale, company-wide bumping and associated costs. |   |
c) The test period revenue requirement would be approximately $30M lower if the wage increases OPG negotiated with the PWU had been equivalent to the wage increases awarded by the Interest Arbitrator to Society staff, assuming all other negotiated items creating savings were still achieved.

d) Please see Ex L-6.8-17 SEC-107.
Board Staff Interrogatory #102

Ref: Exh F4-3-1, Decision of the Court of Appeal for Ontario Docket C55602, C55641, C55633

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

With respect to the collective agreements that are currently in place, please provide all of the information that OPG relied on when OPG committed to that expense, including all benchmarking materials that were prepared by OPG or relied on by OPG.

Response

Each negotiation of a new collective agreement takes place against the background of prior negotiations and the existing agreement. The parties also consider the general compensation environment, particularly as reflected in agreements and arbitrations involving the Ontario Hydro successor companies and the broader public service. OPG assesses a wide range of information from internal and external sources when negotiating collective agreement revisions.

Attached please find examples of such information:

1. Public Sector Compensation Restraint, Remarks to Broader Public Sector Partners on Compensation by Dwight Duncan, Minister of Finance, July 20, 2010
2. Letter to Tom Mitchell, President & CEO OPG from David L. Lindsay, Deputy Minister dated July 14, 2010 Re: Public Sector Compensation Restraint
3. Letter to Jake Epp, Chair OPG from Dwight Duncan, Minister of Finance and Brad Duguid, Minister of Energy dated January 2011 re: OPG Business Plan
5. Letter to Tom Mitchell, President & CEO OPG from Serge Imbrogno, Deputy Minister, Ministry of Energy, Re: Broader Public Sector Compensation, dated: July 16, 2012
6. Letter to Jake Epp, Chair, OPG from Chris Bentley, Minister of Energy and Dwight Duncan, Deputy Premier and Minister of Finance, Re: Business Plan Expectations, dated September 26, 2012
7. Canada Labour and Employee Relations Network Collective Bargaining Wage Increases
   – August 2012

8. TD Economics - Provincial Economic Update, October 2012

9. OPG Credit Rating as a November 27, 2012

10. Statistics Canada, Consumer Price Index, by province (monthly), dated December 21, 2012

11. RBC Economics - Provincial Economic Update, October 2012


13. Labour Arbitration Cases re Ability to Pay and Wage Restraint as economic factors
   a. Halifax Regional Municipality and Halifax Regional Professional Firefighters Association
   b. University of Toronto and University of Toronto Faculty Association

Also attached are the Management Agendas from both the Power Workers’ Union negotiations and The Society of Energy Professionals negotiations.

14 a. Management Agenda – PWU

14 b. Management Agenda - Society
Ontario

Public Sector Compensation Restraint

Remarks To Broader Public Sector Partners On Compensation

By

Dwight Duncan, Minister Of Finance

July 20, 2010
Toronto, ON

Approximate speaking time: 12 minutes

Check against delivery

Thank you for coming here today, particularly on relatively short notice.

Those who deliver public services to Ontario perform a vital job, contributing to the health and well-being of this province.

I’m very pleased to have this opportunity to speak to you, the people who play such important roles in this service delivery.

I want to speak with you directly today about public sector compensation – a key component of the government’s plan to manage expenditures and sustain public services.

As partners in the delivery of public services, we have come far together over the past several years.

When we took office in 2003, the public had given us a clear message to improve public services and improve the quality of life for Ontarians. That’s why we hired teachers and lowered class sizes. And now test scores have been improving and 16,500 more students are graduating each year. We supported the creation of over 10,000 new nursing positions and increased the number of doctors by 2,295. And that’s why over 900,000 more Ontarians have access to a doctor.

When we took office, we knew there was only one way to restore our public services: by working collaboratively with our public servants. We strive to make Ontario a better place and can only do so with members of the public service – our true partners.

For the first few years of our time in office, we were fortunate to be in a period of sustained economic growth. So we grew strategically: growth in spending on programs and services did not exceed growth in revenues.

The average annual increases in wage settlements for the public sector were consistently higher than that of the private sector.
When the global recession occurred, Ontario was hit particularly hard. Real GDP declined by 4.7 per cent. Government taxation revenues fell 12.2 per cent.

Despite these significant declines, the McGuinty government chose to protect what mattered most to Ontarians: education, health care and other public services.

I travel across this province regularly, and I know full well that the public sector is the major employer in many communities. Protecting jobs in key services helps ensure that local economies continue to survive. Teachers, nurses and other public sector workers support their communities’ restaurants stores and daycares, keeping even more jobs viable.

We did not – and we will not – put job creation and economic growth at risk. Nor will we put at risk the public services that Ontarians expect and deserve.

In March, I introduced our 2010 Budget that outlines our plan for reducing and then eliminating the deficit in eight years.

Difficult choices must be made in order to balance the budget by 2017-18 and when factoring in added interest on debt payments to finance deficits, program expense growth from 2009-10 onward must be held to less than 2 per cent annually.

Yet the demand for public services will continue to grow over the medium term. Health sector spending growth is projected to average 4.4 per cent from 2009-10 to 2012-13. Education sector spending growth is projected to average 3.7 per cent.

That growth in demand must be accommodated within the existing fiscal plan. Preserving and maintaining service and accommodating expected growth in a few priority areas will be all Ontario can afford. Planned program spending does not include any incremental increases to compensation.

Ontario is not alone. Other governments around the world are faced with similar budgetary challenges. Many have chosen the path of slashing public services and laying off thousands of workers.

California slashed funding to universities, increased class sizes, reduced health care coverage for the state’s poorest citizens, and closed state offices three days a month -- a 14 per cent pay cut for more than 200,000 state workers.

New York State proposed unpaid days off for about half of its state employees, a move later blocked by court injunction. They also proposed cutting school funding by $1.4 billion. And these are the Democrat’s proposals.

We’ve seen similar proposals for swift and significant cuts to public services and public-sector wages in Europe, as Ireland, the UK, Greece, Spain, and others move to get their fiscal houses in order.

Here in Ontario, we have decided to go down a different path, with the launch of the five-year Open Ontario Plan to strengthen our economy and create more jobs for our families. This plan includes ongoing investments in public education, health care, skills training, infrastructure, clean energy and clean water technology jobs, and other key public services.
We also know that we cannot preserve and enhance public services without a plan to manage the deficit. And we can’t manage the deficit without addressing what is the single biggest line in our budget – public-sector compensation.

The simple fact is this: 55 per cent – or more than $50 billion – of all government program expenses go to compensation, either directly or through transfers.

The 2010 Budget lays out the government’s plan for managing compensation expense for both bargained and non-bargained workers.

We introduced legislation to freeze compensation structures of non-bargained employees for two years.

Elected officials are leading by example, as we extended the freeze on MPP salaries from one to three years, and froze the compensation structures for non-bargained political and legislative staff.

These moves will help redirect up to $750 million toward sustaining schools, hospitals and other public services. For employees who bargain collectively, we chose a path that would respect all current collective agreements.

However, Ontarians expect us to live within our means.

Ontario families have done their part. They have struggled through layoffs and unemployment. They have seen their salaries frozen and counted themselves lucky just to have a job. It’s time for us to do our part. In my hometown of Windsor, we were hit first and hard. Everybody has someone in their family or a neighbour who has struggled with job loss. None of us can afford incremental compensation increases until we return to firmer financial and economic ground. Protecting jobs and services while eliminating the deficit must remain our highest priority.

As agreements are negotiated, we will work with you – our partners – to seek agreements of at least two years’ duration that provide no net increase in compensation. It doesn’t matter whether contracts expire next month, next year or the year after that – all employers and employee groups need to do their part.

We already have seen some successes in negotiating contracts within this framework.

We want to create a dialogue with you, so that new contracts that are agreeable to everyone can be negotiated as existing contracts expire. All talks will involve, as always, a respectful dialogue.

We welcome your views, opinions and proposals on how we can come together to reach agreements that are acceptable to everyone, including the taxpayers we all serve, given the current fiscal realities.

My purpose in inviting you here today is to launch a productive, constructive consultation as you all sit down to conduct your detailed negotiations.

If you are already at the bargaining table I encourage you to agree to pause...

And I also hope you will agree that interest arbitrations will be put on hold... to allow this consultation to bear fruit.
After today and moving forward, government officials will follow up with you to pursue further, more detailed consultations.

I look forward to hearing the results of those consultations, as well as of today’s conversation, and want to assure you that we are approaching this exercise with an open mind.

We all have the same goals: to preserve and enhance public services while creating jobs and economic growth.

Ontarians expect much from all of us. They expect us to provide support for their education, health, businesses and families.

We are asking for your help, because we know we can achieve so much more by working with you, based on a relationship of mutual trust and respect. Together, we will grow the economy, create new jobs, attract new investments and eliminate the provincial deficit.

Thank you for the commitment to Ontarians that you have made – and that you renew every day by doing your work. Your efforts pay dividends for every single resident of the province both today and in the future. Together, we are building a stronger, more prosperous Ontario.

Thank you.
July 14, 2010

Mr. Tom Mitchell, President and CEO
Ontario Power Generation
700 University Avenue, Suite H19A24
Toronto, Ontario
M5G 1X6

Dear Mr. Mitchell:

Subject: Public Sector Compensation Restraint

I am writing with further information regarding the government's public sector compensation restraint measures announced in the 2010 Budget and the impact of these measures on broader public sector employers and employees.

As you know, Ontario has felt the effects of the global recession and is running a deficit in order to create jobs and protect public services. While the contributions of those who deliver public services are valued and appreciated, the public also expects all of us to do our part to help sustain those public services.

For non-bargaining employees, the government has passed the Public Sector Compensation Restraint to Protect Public Services Act, 2010. It covers all public sector employers as defined in the Act who have employees that do not collectively bargain compensation. The Act prohibits increases to compensation, including rates of pay, pay ranges, benefits, perquisites and other payments, before the beginning of April 2012, except in specified circumstances.
For employees who bargain collectively, the 2010 Ontario Budget policy statement makes the government’s direction clear. The government will respect all current collective agreements. However, when these agreements expire and new contracts are negotiated, the government expects its transfer payment partners, agencies and bargaining agents to seek agreements of at least two years’ duration that provide no net increase in compensation. The fiscal plan provides no funding for compensation increases for any future collective agreements. It doesn’t matter whether contracts expire next month, next year or the year after that – all employers and employee groups will still be expected to do their part.

Any increase in your organization’s spending should be for the purpose of providing and protecting public services and is not to be diverted to fund increases in employee compensation.

In order to support the common understanding of all parties about the compensation restraint measures, further Qs and As have now been posted on the Ministry of Finance website at www.ontario.ca/compensation.

These Qs and As provide additional information about the fiscal necessity to restrain public sector compensation and answer questions about the application of the policy statement.

The government expects its transfer payment partners and agencies to comply with the government’s direction on public sector compensation. To ensure your organization and any bargaining agents are fully informed, I ask you to share this letter as appropriate so that its contents are communicated to all concerned parties.

The government is continuously assessing how best to support transfer payment partners, agencies and bargaining agents in complying with the Policy Statement and will be communicating additional information as appropriate.

Sincerely,

David L. Lindsay
Deputy Minister

c: Craig MacLennan, Chief of Staff
    Rick Jennings, Assistant Deputy Minister
    John Whitehead, Assistant Deputy Minister/Interim CAO
The Honourable Jake Epp
Chair
Ontario Power Generation
1900–700 University Avenue
Toronto ON M5G 1X6

Dear Mr. Epp,

Thank you for providing a copy of Ontario Power Generation’s (OPG’s) 2011-2015 Business Plan.

We have reviewed the plan and are pleased to see it is in line with the McGuinty government’s energy policy objectives. We acknowledge that OPG’s plan includes investing over $6 billion in capital projects over the planning period to develop a wide range of projects, including government-directed projects and activities.

We also acknowledge that OPG has decided to defer its proposed plan to begin borrowing in public capital markets for general corporate purposes, originally targeting for an initial debt public offering in the second quarter of 2011. We concur with OPG’s decision to not move forward with this proposal in 2011. In the meantime, we urge OPG to continue to work with the Ontario Financing Authority (OFA) to ensure that terms and conditions of any debt offerings, and its timing, are compatible with and acceptable to the government’s requirements.

We also see that in keeping with the government’s ongoing commitment to public sector expenditure restraint, the Business Plan 2011-2015 incorporates headcount reduction and controlled OM&A spending. We appreciate the efforts OPG is demonstrating in exercising care with its expenditures. We encourage OPG to continue to pursue opportunities for operational efficiency and implement measures that minimize the impacts of its activities on electricity consumers while continuing to enhance the reliability of generating assets.

The government holds its agencies to the highest standards of integrity, accountability and transparency. For that reason, the government implemented new rules for competitive procurement of consulting services, and the Public Sector Expense Review Act, 2009 to strengthen the accountability of government agency expense claims. Recently, the government introduced the Public Sector Compensation Restraint to Protect Public Services Act, 2010 which calls for a freeze in the compensation structure for public and designated organizations including the OPG. We expect that OPG has already formalized all necessary policies and guidelines to comply with these new rules.

.../cont’d
We emphasize that OPG must be mindful of managing its labour costs and, in particular, of the obligations and expectations established through the Public Sector Compensation Restraint to Protect Public Services Act, 2010 and the government policy statement with regard to these expectations. For employees who bargain collectively, the 2010 Ontario budget policy statement makes the government's direction clear. The government will respect all current collective agreements. However, when these agreements expire and new contracts are negotiated, the government expects its transfer partners, agencies and bargaining agents to seek agreement of at least two years duration that provide no net increase in compensation. For absolute clarity, OPG as an agency of the Province, is subject to these obligations and expectations.

The government recently released the Long-Term Energy Plan (LTEP) for the province. We expect OPG's ongoing business planning to be fully integrated with the LTEP to ensure system adequacy and reliability. This will require cooperation with the government and other related parties in the sector to work towards increasing renewable generation, expanding hydro assets, re-powering thermal units as directed, and refurbishing and building clean, reliable nuclear power. The government will continue to look to OPG to play a key role in advancing its priorities in the electricity sector over the planning period and beyond. In particular, the government will be looking for OPG to continue with its work seeking federal Environmental Assessment approval and site licensing approval for new build nuclear at the Darlington site.

This letter constitutes our concurrence with the Business Plan 2011-2015, along with the subsequent decision by OPG to defer its proposed plan to issue debt on public capital markets for general corporate purposes in 2011, and with the expectation that OPG will review and update its business plan in the future to reflect projects and new work programs under the LTEP. We look forward to working closely with OPG as we endeavour to implement our government's new LTEP.

Sincerely,

Brad Duguid
Minister of Energy

Dwight Duncan
Minister of Finance
IESO Releases 18-Month Outlook

TORONTO, Feb. 24, 2012 /CNW/ - Supply adequacy of Ontario's power system will remain robust over the next 18 months, with sufficient resources to meet consumers' needs, said the Independent Electricity System Operator (IESO in its latest 18-Month Outlook.

During the period from March 2012 to August 2013, there will be more than 2,600 megawatts (MW) of capacity added to the grid, and the new 500 kilovolt (kV) double-circuit line from the Bruce Power complex to the Milton Switching Station will be completed.

This additional generation includes the return to service of two refurbished Bruce nuclear units with a capacity of 1,500 MW. At the same time, approximately 400 MW of gas-fired generation and more than 700 MW of transmission-connected renewable generation will be added to the grid. The new Bruce to Milton line, with its associated supporting facilities, will accommodate the full output from all eight generating units at the Bruce complex and the new renewable resources in southwestern Ontario. By August 2013, total wind and solar generation connected to the high-voltage transmission system and the low-voltage distribution system in Ontario will reach approximately 4,000 MW.

"This is a time of renewal for Ontario's power system," said Bruce Campbell, Vice President of Resource Integration. "Effectively managing the grid during this period means understanding the characteristics of this new supply, and adjusting our operations accordingly."

The ongoing weakness of the global economy will continue to impact the Ontario economy over the forecast period. Conservation initiatives and the growth in embedded generation will put downward pressure on both peak demand and energy consumption. Combined, these impacts will limit the growth in energy consumption to a modest 0.4 per cent in 2012. Those same factors suggest peak demand will decrease over the same period.

New sources of generation continue to come online to meet future supply needs and replace coal-fired capacity. The early incorporation of this supply has led to periods of surplus baseload generation. Growing volumes of variable generation, combined with lower off-peak demand for electricity, the return of two additional nuclear units, and the introduction of the new Bruce to Milton line will increase the frequency and amount of surplus baseload generation over the outlook period. The IESO will continue pursue additional actions to address this.

The IESO regularly assesses the adequacy and reliability of Ontario's power system. The 18-Month Outlook is issued on a quarterly basis and is available at: http://ieso.ca/imoweb/pubs/marketReports/18MonthOutlook_2012feb.pdf.
July 16, 2012

MEMORANDUM TO: Tom Mitchell, President and CEO, Ontario Power Generation

FROM: Serge Imbrogno, Deputy Minister, Ministry of Energy

RE: Broader Public Sector Compensation

Attached is a letter from Minister of Finance Dwight Duncan that is being sent to broader public sector employers in Ontario. This letter provides additional and important information on the Provincial Compensation Framework which was announced in the 2012 Ontario Budget.

This letter is being sent to all non-municipal employers, but does include municipal long-term care and public health units.

Specifically, the attached letter communicates the government’s clear expectations around the management of compensation in the broader public sector in Ontario.

This is consistent with the approach the government is taking with its teachers and doctors.

More information on the direction in this letter is available on the Ministry of Finance’s website: www.fin.gov.on.ca.

Serge Imbrogno
Deputy Minister

c: The Honourable Jake Epp, Chair, Ontario Power Generation

Enclosure
To: BPS Employers

RE: Provincial Compensation Framework

In March, when I tabled the 2012 Budget, Strong Action for Ontario, I laid out a plan to keep Ontario on track to balance the budget by 2017-18. I indicated then that eliminating the deficit was the single most important step the government could take to grow our economy, and protect and create jobs. I said the government was committed to getting its fiscal house in order while protecting the services that matter most to Ontarians: health care and education.

That strong action includes a plan to transform the broader public sector (BPS).

Our partners in the BPS play critical roles in providing services to Ontarians and the McGuinty government has always valued, and will continue to value that work. Compensation for the BPS accounts for more than 50 per cent of all Ontario government spending.

The government is asking all Ontarians to do their part in returning the budget to balance.

As you know, we have asked teachers and doctors to hit the pause button for two years. And now we are asking others in the BPS to do the same.

To meet the government’s fiscal targets, the fiscal plan provides no funding for incremental compensation increases for new collective agreements.

The government respects the collective bargaining process and will leave existing agreements intact. The government will also insist that its partners continue providing high-quality health care, education and other key public services to Ontario families.

.../cont'd
Ontario is expecting its bargaining partners to meet the following criteria:

- For two years, collective agreements should not allow for increases in compensation. This includes wages, performance pay and benefits. Any movement through an established grid must be fully offset from within the total compensation package. Should parties wish to enter contracts of more than two years, those contracts should contain no increases in compensation during the additional period.
- The Broader Public Sector Accountability Act, 2010, implements compensation restraint measures for designated executives at hospitals, universities, colleges, school boards and designated organizations. The restraint measures are effective March 31, 2012, and are in place until the province ceases to have a deficit.
- Decisions related to compensation for non-executives who are not governed by collective agreements should live within fiscal targets.

These criteria are consistent with the approach the government is taking with teachers’ compensation and doctors’ fee for service arrangements.

In addition, there should be no agreement to terms that impose longer-term costs or restrictions on service delivery.

You, as an employer, are expected to share these parameters with your bargaining agents. The McGuinty government believes being transparent about our expectations will support the collective bargaining process and good-faith bargaining.

As the 2012 Budget states, where agreements cannot be reached that are consistent with the government’s plan to eliminate the deficit, the government is prepared to propose necessary administrative and legislative measures.

In addition, the 2012 Ontario Budget announced a number of initiatives intended to improve the sustainability, affordability and efficiency of pension plans in the Broader Public Sector. The government is currently conducting consultations on the affordability and sustainability of public sector pension plans.

Ontario is facing some challenges. Strong action is required to eliminate the deficit, protect jobs and encourage the creation of new jobs as well as economic growth.

I know I speak for my Cabinet colleagues when I say that we appreciate everything that all parties are doing to help move Ontario forward.

Sincerely,

[Signature]

Dwight Duncan
Deputy Premier
Minister of Finance
Mr. Jake Epp  
Chair  
Ontario Power Generation  
1900–700 University Avenue  
Toronto ON M5G 1X6

Dear Mr. Epp:

Thank you for submitting Ontario Power Generation's (OPG) proposed 2012-2014 Business Plan. We have reviewed your submission, including OPG's rate strategy, and our expectations going forward are detailed below.

We appreciate that OPG’s proposed 2012-2014 Business Plan recognizes today’s economic realities by showing consideration for budget restraint, and minimizing rate impacts for consumers without compromising the safe, and reliable supply of clean electricity to Ontarians. In addition, OPG’s commitment to finding cost savings through its recently announced Business Transformation Initiative is a step in the right direction. In particular, we appreciate OPG’s commitment to reducing the total number of full-time staff by 1,000 employees and finding savings of at least $200 million between 2012-2014.

However, more needs to be done. It is our expectation that OPG will build on this initiative by submitting an aggressive business plan for 2013-2015 that identifies additional cost saving measures, including further headcount reductions. These efficiencies are expected as OPG continues to modernize while at the same time meeting financial targets, mitigating rate impacts for consumers, maintaining the reliability of its generating assets, and providing value to the Province.

As you know, the government has asked all agencies to actively pursue cost savings and find efficiencies with a focus on compensation restraint. As previously stated the government respects the collective bargaining process and will leave existing agreements intact. However, when those agreements expire, the government expects its transfer partners, agencies and bargaining agents to seek agreements that provide for no increases in compensation for two years. This direction is consistent with the approach the government is taking with its teachers and doctors.

Additional guidance is provided in the amendments to the Broader Public Sector Accountability Act, 2010 announced in the 2012 Ontario Budget. OPG should make compensation decisions that are consistent with the government’s policy direction as outlined in the July 16, 2012 letter to the Broader Public Sector.
The 2012 Ontario Budget also announced a review of Ontario’s electricity sector and expectations around its pension plans. The electricity sector review includes a Compensation and Productivity Benchmarking Review of OPG and Hydro One. This initiative is currently underway and we look forward to working with OPG to implement the results of the review to improve efficiency and productivity in its operations and find value for ratepayers. Finally, the government expects OPG to pursue all best efforts on pension reform, including moving to a jointly-sponsored pension plan, identifying a plan to move to 50:50 contributions while reducing benefits.

We recognize OPG’s accomplishments during 2011, including its timely and effective response to the Canadian Nuclear Safety Commission’s direction in relation to the Fukushima incident, the safe completion of the Niagara Tunnel mining, and the initial construction on the Darlington Energy Complex to help support Darlington’s refurbishment.

We would ask that OPG continue to keep the government informed about the company’s key ongoing and emerging initiatives. In particular, we look forward to reviewing OPG’s progress in achieving its financial and operational performance commitments contained in the proposed 2012-2014 Business Plan. Given that OPG’s net income and payments-in-lieu of taxes directly impact Ontario’s fiscal plan, we note the importance of hitting or exceeding OPG’s net income commitments and payments-in-lieu of taxes for the 2012-13 and subsequent fiscal years. We expect that any evaluation of management performance will give due consideration to meeting or exceeding these fiscal commitments.

This letter constitutes our concurrence with the proposed 2012-2014 Business Plan provided by OPG, as required by the Memorandum of Agreement between OPG and the shareholder dated August 17, 2005.

Sincerely,

Chris Bentley
Minister of Energy

Dwight Duncan
Deputy Premier
Minister of Finance

c: Tom Mitchell, President and Chief Executive Officer, OPG
Serge Imbrogno, Deputy Minister, Ministry of Energy
Steve Orsini, Deputy Minister, Ministry of Finance
Michael Reid, A/Assistant Deputy Minister, Ministry of Energy
Ronald Kwan, A/Assistant Deputy Minister, Ontario Financing Authority
Canada Labour and Employee Relations Network
October 2012
Collective Bargaining Wage Increases
August 2012
First-year Settlements Without Cost-of-Living Adjustments (COLAs)

Data for 2012 cover the months of January through August
10/31/12
First-year Settlements With Cost-of-Living Adjustments (COLAs)

Data for 2012 cover the months of January through August

10/31/12
Average Increases by Industry Sectors for August 2012

- Information and culture
- Education, health and social services: 2.6%
- Wholesale and retail trade: 1.3%
- Transportation: 2.0%
- Construction: 3.5%
- Primary industries

Data for 2012 cover the months of January through August.

10/31/12
Manufacturing Collective Agreements
Average Annual Wage Increases: 1992-2012

Data for 2012 cover the months of January through August

Source: Workplace Bulletin, Labour Program,
Human Resources and Skills Development Canada
10/31/12
Private Sector Collective Agreements
Average Annual Wage Increases: 1992-2012

Data for 2012 cover the months of January through August

Source: Workplace Bulletin, Labour Program,
Human Resources and Skills Development Canada
10/31/12
PROVINCIAL ECONOMIC UPDATE

TD Economics

October 5, 2012

MOST PROVINCIAL GROWTH PROSPECTS MARKED DOWN FOR 2012

Promise of Stronger Export-driven Growth for 2013-14

Highlights

- Economic growth in 2012 is now expected to come in below 2% in eight provinces and less than 3% in nation-leading Alberta and Saskatchewan. This represents a downward revision from our July forecast for all provinces, except Manitoba and P.E.I.

- The toning down of this year's showing reflects still-high risk levels in Europe, the slower-than-expected U.S. economic recovery and the softening of growth in China and emerging markets. On the domestic front, households across the country have been exercising more caution than expected.

- Looking ahead at 2013 and 2014, changes to our forecast range from mixed to positive. With the gradual softening of housing underway from coast to coast and governments (both federal and provincial) reining in spending, economic growth will likely remain modest. However, a pick up in U.S. demand for Canadian exports should benefit most provinces. For several regions, we expect 2014 to be the best year since the post-recession rebound in 2010.

In this report, we update our provincial economic forecast for 2012 and 2013, and provide a first glimpse of 2014. In a nutshell, most growth profiles across the country have been revised down in 2012 compared to our earlier July estimates, while the biggest story behind 2013 is a modest upward revision to projected economic gains in the three Prairie provinces.

In 2012, headwinds from the U.S., Europe and emerging market economies weighed on the economic performance of most provinces. In Europe, while a dramatic escalation in the financial crisis has been avoided and mechanisms aimed at preventing such an outcome have been agreed upon, risk levels remain high. Meanwhile, the disappointing pace of the U.S. economic recovery and an elevated Canadian dollar have been limiting export prospects in all provinces. Moreover, China's soft landing and the maturation of growth in many emerging market countries have set limits to what had appeared to be almost boundless demand - a development that has not been lost on commodity markets. Domestically, federal and provincial governments have launched extensive fiscal restraint initiatives, consumers have turned their attention to reining in their debt loads and the upward momentum of an overvalued housing market has already started to fade in major urban markets, especially Vancouver. Accordingly, economic growth this year is now expected to come in below 2% in eight provinces and less than 3% in nation-leading Alberta and Saskatchewan.

In TD Economics' national economic outlook - released in September - we presented a picture of moderately improved external economic prospects for 2013 and 2014. Notably, we laid out expectations for a continuation in the U.S. recovery and a successful soft landing in emerging market economies.

Jacques Marcil, Senior Economist, 416-944-5730
But while provincial economies from coast to coast are expected to reap the benefits of a gradual strengthening in the global picture—and no region is likely to exhibit outright dominance—several factors are set to drive near-term out-performance in the Prairies and Newfoundland & Labrador:

- The resource-rich provinces of Alberta, Saskatchewan and Newfoundland and Labrador are expected to benefit from still-elevated resource prices and solid levels of capital investment. Some of this gap in relative resource strength is likely to narrow in 2014, when prospects for a rebound in lumber prices alongside a U.S. housing recovery helps to drive higher activity in forestry sectors across the country.

- Another important source of regional growth gaps is housing markets. While all provinces are likely to bear some of the impact of stricter federal mortgage lending rules and of a gradual increase in interest rates, urban markets in Toronto and Montréal are poised to see larger than average declines, while Vancouver’s recovery this year still has room to run. At the other end of the spectrum, housing markets in the three Prairie provinces are expected to remain largely unscathed. The varying residential market conditions will exacerbate growth differentials given that housing is a large driver of consumer spending.

- Another differentiator for 2013-14 is the state of provincial finances. Except for Saskatchewan, which is in a surplus position, all provinces are running deficits. This year’s estimated shortfalls range from an estimated 0.2% of GDP in Québec to 2.2% in Ontario. Target dates for a return to balance have been set to fiscal 2013-14 or fiscal 2014-15 for all provinces, except Ontario which is aiming at fiscal 2017-18. Thus the task of stabilizing debt-to-GDP ratios will represent the next challenge for a number of provincial governments.

In 2014, as fiscal restraint begins to taper off and the U.S. economy picks up steam, the extent of the regional economic growth gap is likely to narrow. By that year, Nova Scotia (2.8%) is expected to jump into third place behind Alberta (3.0%) and Saskatchewan (2.9%) in the growth rankings, supported in part by growth generated from the federal shipbuilding contract. After remaining relatively stable in 2013, unemployment rates are also expected to resume a descent in all regions in 2014 and range between a high of 12.0% in Newfoundland and Labrador and a low of 3.9% in Saskatchewan.

A view from the West

After showing tell-tale signs of being significantly overvalued, British Columbia’s key urban housing markets—and notably formerly red-hot Vancouver—appear to be going through a long-awaited correction. So far this year, resale prices in Greater Vancouver and Victoria have declined 7% and 11% respectively, and sales by 31% and 17%. While significant, such price declines hide a shift within the market from higher-priced to lower-priced homes. In fact, the MLS Home Price Index for Greater Vancouver, which corrects for such compositional shifts, was down by less than 1% in August 2012 compared to a year earlier (no index is available for Victoria).

We don’t anticipate that the market will continue to decline in a straight line over the next few years. For example, home sales could enjoy a modest reprieve during the second
half of 2013, as the impact of the recently-implemented federal mortgage lending rules wanes and low interest rates provide some underlying support to demand. However, a further moderate downdraft in both sales and prices is likely in store over the medium term, as the cost of borrowing heads higher and some of the market excesses are unwound, leading to relatively muted gains in personal spending.

We expect 2013 to be the first year in a while that B.C.'s key export markets are all providing support. While U.S. economic growth will still be moderate, the gradual recovery expected in U.S. housing will drive up demand for B.C.'s lumber exports over the next few years. An expected and long awaited - increase in natural gas prices in 2013 would also be beneficial, although they will remain below historical averages. A firming in China's growth rate next year, partly as a result of additional stimulus by Chinese authorities, is expected to reverse some of the recent downward pressure on Asia-bound coal exports. Export success for B.C. will likely be more visible in 2014, when we expect overall demand in the U.S. to accelerate further. However, restraint by the provincial government will weigh on growth in the near term, with targeted spending growth set well below inflation. Look for B.C. to experience real GDP growth of 1.9% in 2013 and 2.5% in 2014.

In Alberta, the vast majority of signals on the economic dashboard are sending the same message: things are good. Wages, already the highest in Canada, are rising, retail sales are growing fast thanks to an expanding population, and the housing market shows little sign of overvaluation relative to other large provinces in Canada. Granted, job creation is a bit slower than it has been last year but a cooler job market
economy continues to fire on nearly all cylinders, with strong growth in its exports of oil, wheat, canola and agricultural machinery. The one exception is potash, where this year's exports are expected to remain largely unchanged from last year's record level. High crop prices and yields in the agriculture sector have also been a positive factor this year. As a result, we expect the province to post growth of 2.9% in 2012, leading all of Canada's provinces.

Saskatchewan's investment outlook recently suffered a setback with the news that the Sussex potash mining project (the province's first new potash mine in 40 years) has been postponed. Still, as another benefit of the province's commodity diversity, investment in other areas is likely to step up and take up the slack. One in particular is the oil industry, which is likely to benefit from a strengthening in market conditions. Fuelled by growing personal income, retail sales will likely accelerate and the housing market, already one of the steadiest in Canada, is expected to buck the national trend in 2013, with sales increases. The provincial government will also likely contribute to overall growth with a number of infrastructure projects — a new football stadium in Regina comes at the top of the list. Adding it all up, we expect growth in 2013 and 2014 to more or less match that of 2012 at around 3%, which will keep Saskatchewan at the top of the provincial leader board. In the labour market, look for job creation in 2013 and 2014 to average around 2% per year, the province's best showing since 2007.

Manitoba’s economy is quietly gaining speed. Its real GDP growth will likely match or outperform the national economy over the 2012-14 forecast horizon. While Saskatchewan benefits from a diversified commodity portfolio, Manitoba is home to arguably the most diversified overall economic structure among the provinces (for example, wheat, Manitoba's largest international export, represents only 8% of the total). This diversity precludes the province from making spectacular short-term annual gains. Nonetheless, such diversification provides alternate sources of growth when other ones falter due to shifts in global demand. Case in point, Manitoba's exports of metal ore to China have dropped so far this year but have been replaced with exports of canola seeds, which are up 250%.

Despite its setback this year, we expect metal mining to pick up in 2013-14, as China's growth rate stabilizes at a sustainable pace and prices for zinc and nickel trend upwards. A rebound in global demand would deliver a shot in the arm to Manitoba's metal mining sector, which has been building new facilities or retrofitting some sites that had been abandoned. Other major projects are on tap within hydro electricity generation and distribution, including transmission lines for exporting power to the U.S. The hope is that by the time the infrastructure is in place, prices for natural gas are no longer depressed, presenting hydro power with less stiff competition.

The manufacturing sector will benefit from a faster pace of economic growth south of the border. Manitoba's construction materials sector could especially face a surge in demand as U.S. housing construction continues its recovery in 2013-14. The positive impact on economic growth from exports and business investment is likely to be counter-balanced by relatively cautious spending among fatigued consumers and a gradual slowdown in housing activity. In addition, the provincial government’s efforts to reduce its deficit, which had been unexpectedly made worse last year.

### OIL LEADS MANITOBA'S EXPORTS TO THE U.S. IN 2012

<table>
<thead>
<tr>
<th>Components of Manitoba's merchandise exports to the U.S. in 2012 (in $ billions)</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude oil</td>
<td>2.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Autos &amp; parts</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>Airplane parts</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Canola</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Agricultural machinery</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Live animals</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Other machinery</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Drugs</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Electric power</td>
<td>0.0</td>
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<tr>
<td>Ports</td>
<td>0.0</td>
<td>0.0</td>
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</tbody>
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Source: Statistics Canada / Industry Canada.
by costs related to severe floods, are likely to exert a drag on the economy. On net, we expect modest economic growth of around 2% and ongoing but lackluster job creation.

Central Canada not yet out of the woods

Ontario’s economic performance in 2012 has been mixed. While manufacturing sales—and in particular auto shipments—remain well above their year-earlier levels, activity within the sector has slowed over the past few quarters on the back of softer U.S. economic growth and an elevated Canadian dollar. Construction of commercial properties is brimming and the housing market has maintained its upward path despite signs of some overvaluation in its major markets, especially in the Greater Toronto Area. At the same time, however, households have shown increased caution, as evidenced by weakening retail sales gains and a reduction in the pace of debt accumulation. Our forecast is that Ontario’s economy will grow by a middling 1.9% in 2012, just below the national average rate.

We expect 2013 to also be a decidedly mixed story. Near-term economic growth prospects are reasonably bright for Ontario’s export-oriented manufacturing sector. Notably, U.S. auto sales are likely to reach a 6-year high of about 15 million units in 2013, pulling the province’s automakers and many supplier industries along for the ride. Northern parts of the province stand to reap the benefits of improved demand for lumber and metals. At the same time, however, it is our view that the housing market will go through a gradual correction, with prices in the Greater Toronto Area market in particular poised to lose more than the national average. An additional drag on growth is likely to be exerted by significa

[Graph of Ontario Government's Path to Balance]

Ontario Government Budget Balance, $ billions

11-12 12-13 13-14 14-15 15-16 16-17 17-18

Source: Ontario Budget, Fiscal Update and Public Accounts

[Graph of Québec Job Market to Emerge After Tough Year]

Québec job market to emerge after tough year

Percent


Change in employment (lbs)
Unemployment rate (rhs)

Source: Statistics Canada / Haver Analytics
Forecast by TD Economics as of September 2012.
improvement, however. The housing market is expected to start a gradual adjustment in the near term, similar to markets in several other provinces. The picture for 2014 looks better, with exports to the U.S. expected to remain on the recovery track and Québec households unleashing pent-up demand, which in turn should bring some relief to the province’s hard-pressed retail sector. We also expect a noticeable recovery of the manufacturing sector, as smaller, high-technology players develop new markets (which can be as distant as Mars, in the case of the Brompton-made sensors on NASA’s Curiosity space probe.) We forecast growth of 2.2% in 2014 for Québec.

Over the 2013-14 period, Québec is also expected to achieve a budgetary surplus for the first time in five years. The recently-elected Parti Québécois government has more-or-less committed to maintaining the target date for balance set by its predecessor, although its exact plans won’t likely be known until the 2013 spring budget. In addition, uncertainty surrounding the direction of policy of the new minority government could lead to some delays in hiring and business investment.

Atlantic: an assortment of circumstances

New Brunswick has faced its fair share of economic setbacks in 2012. This year, the province has recorded minimal job growth and flat exports on a year-to-date basis, reflecting low global demand and a difficult transition away from some of its traditional industries of forestry and fishing. In the latter, there has even been a dispute with Maine fishermen who were being accused of keeping lobster prices too low. For 2012 our estimate is that New Brunswick’s economic growth will be limited to 1.0%, while the jobless rate hovers at around 10% on average.

New Brunswick is looking forward to the U.S. recovery — its prosperity highly depends on it. We expect 2013 to bring limited good news in this regard, with most of the extra growth provided by expanded potash production capacity aimed at the Brazil market, combined with the opening of new call centre facilities. Fiscal restraint by the provincial government will represent an offset. As a result, growth will likely be in the low range both in terms of real GDP (+1.4%) and employment (+1.1%).

For 2014 however, we’re forecasting a jump in total Canadian exports to the United States. Look for New Brunswick to participate in the spoils despite the continued structural downturn in demand for newsprint. The province will likely benefit from increased demand for lumber by a resurgent U.S. housing sector, while the overall improvement Stateside will be a boon to New Brunswick’s oil refineries. Combined with some spillover from Nova Scotia’s shipbuilding project, this could make 2014 the best in eight years for New Brunswick’s economy if we leave aside the post-recession rebound in 2010. We forecast a rise in real GDP growth to 2% and improved job growth at around 1.5%.

Since the announcement that the federal shipbuilding contract was awarded to Halifax, Nova Scotia has been eagerly anticipating the laying down of the first keel. In the meantime, the economy has been advancing modestly, in line with our expectations. So far in 2012, job creation has been slightly above the national performance. This has been a happy surprise given the closure of an important paper mill this year as well as weakness in natural gas exports, the latter reflecting the winding down of the Sable Island
site. Gas production starting at the new Deep Panuke site is expected to start later this year. For 2012, we estimate modest real GDP growth of 1.3%.

The hiring of trades at the shipyards is in progress and actual work is expected to start in late 2013. The scale of the project is considerable. It is slated to support an average of 8,500 net new jobs over the next twenty to thirty years, mainly in the Halifax region. For 2013 and 2014, we expect that shipbuilding will help to lay the groundwork for real GDP and job growth that outpaces the nation as a whole. The project will also likely provide support to the province's housing construction sector, following this year's decline in starts. A retail “mini-boom” is also in the cards starting next year—we are forecasting annual sales growth averaging 4.3% in 2013-14, the best nationally outside of Alberta and Saskatchewan. Not everything will go smoothly, however. Labour negotiations with Halifax Shipyard workers need to be completed first, and worries about potential labour shortages for some specific trades a few years down the road are already being voiced.

The project is likely to assist Nova Scotia as it faces several medium- and longer-term challenges. Not unlike other provinces, Nova Scotia’s population is ageing and the province is not blessed with the natural resource endowment of several other regions. Also, plenty of fiscal drag is in the pipeline both federally (i.e. cuts at the Department of National Defense) and provincially. In its 2012 budget, the Nova Scotia government announced a plan to limit spending increases to 0.4% over the next three fiscal years.

Taking a look at Prince Edward Island, the province experienced an unprecedented immigration-fueled demographic boom over the last four years, providing some support to economic growth. The population boom has slowed, but the Island’s economy continues to outperform economic growth. So far in 2012, P.E.I.’s exports are up 35% from a year earlier. The emerging aerospace sector’s early success has taken hold and helped push job growth higher than the national pace. This has led us to keep our economic growth forecast at 1.8% for the province, just below the national average.

We expect P.E.I.’s moderate economic momentum to carry into 2013 and 2014. Growth will be sustained by higher activity in the tourism industry as economic conditions improve in the U.S.A return to normal production levels in the potato processing industry following a continent-wide shortage in 2012 will also help. On the negative side, P.E.I. has a large share of the federal government offices in the Atlantic region, which means that it will be hit relatively harder than its neighbours by upcoming federal worker layoffs. And while elevated household income should keep retail sales growing at a brisk 3.4% over those two years, home sales activity is expected to edge down in 2013 and stay roughly flat in 2014, reflecting stricter mortgage requirements and the slow rise of interest rates.

Fiscal drag will be an important part of the P.E.I. story in 2013-14. The provincial government will apply some restraint, especially in health spending, as it tries to eliminate its deficit by fiscal 2014-15. The Harmonized Sales Tax will be implemented in April 2013, which will improve the competitiveness of the business sector and help to spur investment in the long term. Targeted tax credits will offset some of the impact of the HST’s wider base to which a rate
of 14% will be applied, lower than the current combined PST+GST rate of 15.5%.

As to Newfoundland and Labrador, it faced exceptional circumstances in 2012. Maintenance shutdowns on the Terra Nova and White Rose floating vessels reduced oil production by 30%, with a resulting negative impact on exports and provincial government revenues. Also, the provincial government permanently lost annual federal transitional payments which used to represent about 7% of revenue. The province will likely wrap up the year with its lowest job creation results (+1.4%) since the recession, and real GDP growth of 0.9%.

The 2013-14 period is likely to mark a return to more normal conditions, with real GDP growth strengthening to above 2% per year. In addition to having oil production back to the usual level, new investment in offshore oil extraction and Labrador-based mining will support the rebound, and then carry over into 2014. Newfoundland and Labrador’s mineral resource sector will also benefit from increased exports of oil and metal ore to Europe, a market which is expected to stabilize and then begin to recover. Prices for these commodities will remain reasonably elevated, with Brent crude oil prices expected to average US$110 in 2013-14. We look for job creation to average a decent 1.9% over the next two years and the unemployment rate to reach a record low of 12.0%.

In spite of the recent obstacles, these are relatively good times in Newfoundland and Labrador, as shown by labour income growth of 8% on average per year since 2008, the highest pace among the provinces. Growth in retail trade activity has not kept up with income growth recently, but this could partly be a reflection of limited choice for consumers. Major retail chains are planning expansions in the province over this year and next.

Modest fiscal restraint will limit Newfoundland and Labrador’s growth rate to some extent over the medium term as the government adjusts to a new revenue framework. Still, oil price volatility represents the most significant risk to our forecast, although its downside is evenly matched by its upside. And looking further ahead, the future is bright with the Muskrat Falls hydro project, currently in the process of clearing approval hurdles, and slated to start construction later in the decade.

Bottom line

Global economic conditions have deteriorated somewhat since our last Provincial Forecast in July. As a result, growth forecasts have been revised down slightly in most provinces for 2012 and for some in 2013. However, a likely improved backdrop in 2014, especially in the U.S., will be the source of a solid pick up in growth, with resource-based economies maintaining their lead over the rest.

Jacques Marcil
Senior Economist
416-944-5730

October 5, 2012
### PROVISNIAL ECONOMIC FORECASTS

#### REAL GROSS DOMESTIC PRODUCT (GDP)

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#### CONSUMER PRICE INDEX (CPI)

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October 5, 2012
### Housing Starts

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### Average Existing Home Price

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Ontario Power Generation Inc. Outlook Revised To Negative On Stresses From Growth Plan; 'A-' Ratings Affirmed

Publication date: 27-Nov-2012 17:15:24 EST

We are revising our outlook on Ontario Power Generation Inc. (OPG) to negative from stable.

At the same time, we are affirming our ratings, including our 'A-' long-term corporate credit rating, on the company.

The outlook revision reflects the revision of our stand-alone credit profile on OPG to 'bbb-' from 'bbb'.

The ratings reflect our opinion of the company's strong business risk profile and significant financial risk profile.

TORONTO (Standard & Poor's), Nov. 27, 2012--Standard & Poor's Ratings Services today said it revised its outlook on Ontario Power Generation Inc. (OPG) to negative from stable. At the same time, Standard & Poor's affirmed its ratings, including its 'A-' long-term corporate credit rating, on the company.

"The outlook revision reflects the revision of our stand-alone credit profile to 'bbb-' from 'bbb'," said Standard & Poor's credit analyst Stephen Golts.

Based on our criteria for government-related entities, based on a 'bbb-' stand-alone credit profile (SACP) and a "high" probability of extraordinary government support, the negative outlook reflects the negative outlook on the utility's shareholder, the Province of Ontario (AA-/Negative/A-1+). "A further lowering of the SACP or a downgrade on the province would lead to a negative rating action on OPG," Mr. Golts added.

The ratings on OPG, which Ontario owns, reflect Standard & Poor's opinion of the regulatory oversight of the utility's baseload nuclear and hydroelectric assets, a diverse generation portfolio, and dominant market position in Ontario. Weak cash flow metrics and exposure to regulatory delay and cost overruns related to new construction and refurbishment of existing facilities offset the company's credit strengths, in our view. Exposure to merchant electricity prices and volume related to OPG's unregulated business further constrain the SACP. We rate management as "fair" under our management and governance criteria. The company borrows about 80% of its CA$4.9 billion reported consolidated debt as of Sept. 30, 2012, from the government shareholder, through Ontario Electricity Financial Corp.

The negative outlook reflects our view of the 'bbb-' SACP, the high likelihood of provincial support, and the negative outlook on the province. Although we recognize that OPG's cash flow adequacy will be weaker in the next two years due to substantial capital expenditure on regulated and contracted projects, we believe that the SACP could be lowered if we expect OPG's adjusted funds from operations (FFO)-to-total debt to stay below 50-70% or adjusted FFO interest coverage weakens to below 3.5x. This could result from unfavorable rate decisions, operational issues resulting in unexpected outages in its generation facilities, or a move toward a more aggressive financial policy (including extended significant debt financed capital expenditure). A stronger SACP in the SACP to 'bb-' would result in a downgrade on OPG.

For the SACP to move a notch higher, we believe OPG would need to improve benchmarks, Research, Data and Analytics significantly the level and stability of its overall cash flow strengths comfortably above 100-120%. This could result from an equity injection from the province which we consider to be highly unlikely. It could also result from some form of additional state support during the upcoming period of high capital spending. We have seen similar cases in other Canadian utilities in a similar position.

http://www.standardandpoors.com/ratings/articles/en/us/?articleType=HTML&assetId=... 14/01/2013
We link the ratings on the utility and those on the province through our enhanced government-related entity methodology. All else being equal, a one-notch downgrade to Ontario would result in a one-notch downgrade in OPG. An outlook revision to stable on the province could result in a similar outlook revision on OPG. A change in the relationship with the government shareholder, which includes changes in ownership, could move the ratings in either direction.

RELATED CRITERIA AND RESEARCH

- Methodology: Management and Goverance Credit Factors for Corporate Entities and Sovereigns, Nov. 15, 2012
- Methodology And Assumptions: Liquidity Descriptors For Global Corporate Entities, Sept. 28, 2012
- Rating Government-Related Entities: Methodology And Assumptions, Dec. 3, 2010
- 2008 Corporate Criteria: Analytical Methodology, April 19, 2008
- 2008 Corporate Criteria: Nation And Adjacent, April 15, 2008

Complete ratings information is available to subscribers of RatingsDirect on the Global Credit Portal at www.globalcreditportal.com. All ratings affected by this rating action can be found on Standard & Poor's public Web site at www.standardandpoors.com. Use the Ratings search box located in the left column.

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**Related tables:** Consumer price indexes.

**Consumer Price Index, by province (monthly)**

( Ontario )

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**Source:** Statistics Canada, CANSIM, table 326-0020 and Catalogue nos. 62-001-X and 62-010-X.

Last modified: 2012-12-21.

To learn more about the Consumer Price Index, see Your Guide to the Consumer Price Index.

Find information related to this table (CANSIM table(s); Definitions, data sources and methods; The Daily; publications; and related Summary tables).

Date Modified: 2012-12-21
PROVINCIAL OUTLOOK
December 2012

Bumpy road to 2013

- Unexpected delays, unscheduled maintenance, and other forms of production disruptions in Canada’s resource sector weighed on the economic performance of several provinces in recent months.

- Some of these factors will reverse before the end of the year; however, others will affect performance into 2013.

- The more visible consequence will be a sharp swing in Newfoundland and Labrador’s outlook from a bottom position in the 2012 provincial growth rankings to top spot in 2013.

- We revised our growth forecasts downwardly for the majority of provinces in 2012, as well as to several of them in 2013.

- Despite these revisions, we still expect Western Canada to enjoy above-average growth, while the central and eastern regions of the country generally rank at the lower end of the spectrum (with the exception of Newfoundland and Labrador in 2013).

- Notwithstanding the recent turbulence, booming activity related to commodities will remain the key differentiating factor of provincial performance. Rebounding agricultural sectors will further help the Prairie Provinces.

- In this issue of Provincial Outlook, we introduce our forecasts for 2014. In essence, we expect the broad trends in 2013 to carry over into 2014.

Transitory disruptions affect growth in 2012...

There have been a number of transitory factors hampering provincial economic growth in recent months, and some of these will reverberate into 2013. High inventories limited potash production in Saskatchewan, lower than expected canola yields tempered a still strong rebound in agriculture output in Manitoba, unscheduled maintenance affected oil operations in Newfoundland and Labrador and natural gas operations in Nova Scotia, and further delays on the start of production at a new natural gas field in Nova Scotia postponed the expected boost to economic activity in that province. These unanticipated developments have altered the outlook for the affected provinces as they enter 2013. We, therefore, have revised our real GDP forecasts lower for 2012 for all provinces except Alberta, with Newfoundland and Labrador, Saskatchewan, Manitoba, and Nova Scotia the most affected.

...and in 2013 albeit to a lesser extent

The same factors also prompted us to revise our projected provincial growth profile for 2013. In the majority of cases, the changes we made were small and on the down side. For Newfoundland and Labrador, however, full recovery from the unscheduled maintenance and downtime at Hibernia will lead to a more pronounced rebound in economic growth in the coming year than we previously anticipated. We now expect real GDP to decline by 0.7% in 2012 in Newfoundland and Labrador before surging by 4.4% in 2013, thereby moving from the last spot in the provincial growth rankings to the first.

Western Canada setting the pace

Despite the adjustments we made, the relative rankings for the other provinces remain little changed. We continue to expect Western Canada to benefit the most from strong activity related to natural resources and growth at rates exceeding the national average in both 2012 and 2013. The Prairie Provinces will also enjoy healthier conditions in their agricultural sectors. In provinces east of Manitoba, we project growth to be slower than the national average. For the most part, these provinces lack a powerful catalyst for growth.

Broad trends carrying over to 2014

In this issue of Provincial Outlook, we introduce our forecasts for 2014. The story, there, is one of a continuation of earlier trends as we believe that the major differentiating forces in recent years—brisk commodities related activity—will continue to play a prominent role and favour the western part of the country.
Steady course of transition

We expect British Columbia’s economy to be successful in overcoming the drag generated by the downturn of its housing market and more extensive public-sector restraint in 2013. Improving demand from the United States and stronger non-residential investment will provide solid support for the province’s economic growth to maintain a fairly steady course. We project British Columbia’s real GDP to grow by 2.3% in 2013, only slightly faster than the 2.1% that we forecast for 2012 (both rates will nearly match the national averages). Our initial take on the 2014 outlook keeps the course almost unaltered, as we project a growth rate of 2.6% that year.

Housing downturn casting a shadow

The BC economy enters 2013 dealing with a substantial cooling of its previously red-hot housing market. While a moderation in home prices is a welcomed development for many households in the province—considering the poor levels of affordability of the province’s largest market, Vancouver—the correction in home resales casts a large shadow on residential investment in the province (homeownership transfer costs, which are directly related to the volume of real estate activity, represent approximately one-fifth of residential investment). We believe that lower levels of home resales will cause new home construction to decline in 2013. This decline will be further abetted by the recent slowing population growth in the province. We forecast housing starts to moderate to 23,800 units in 2013 from 27,700 units in 2012. The housing downturn will weigh on British Columbia’s economy beyond its effect on residential investment. We anticipate that this downturn will also restrain activity in several segments of the retail trade sector.

Tighter public spending on the way

Another challenge facing the BC economy in 2013 will be a tightening in public administration spending, particularly at the provincial level. The BC government recently announced that it must aim at more ambitious expenditure targets than previously set (including for wages in the public service) in light of weaker than earlier anticipated revenues from natural gas royalties. We expect the government sector to be a drag on growth in 2013.

Brighter outlook for lumber exports

On a brighter note, we believe that further recovery in the US housing sector will benefit British Columbia’s economy disproportionately. Already in 2012, stronger housing starts south of the border have helped BC softwood lumber exports to the United States surge by more than 15% in the first three quarters of the year. We expect US housing starts to continue climbing out of their deep hole in 2013 and 2014, which bodes well for further gains in what was traditionally the province’s top export commodity. We believe that the turnaround in exports to the United States will more than offset any possible weakening in other markets such as China.

Non-residential investment on an upswing

Non-residential investment will be a powerful contributor to BC growth in the coming year (and beyond). There are several major projects in the commodities (including in mining, smelting, and electric power) and transportation (including the federal government’s $8 billion, eight-year order for seven non-combat ships) sectors that will generate substantial activity in the province. Investment in these and future projects will form the backbone for development of British Columbia’s remote regions for years to come.
Forging ahead despite heightened uncertainty

Alberta’s economic boom will barely miss a beat in 2013 despite increasing challenges in delivering rapidly expanding oil production to markets. We expect Alberta to continue to be among the faster growing provincial economies—a position that it has held for the past three years—with a real GDP growth rate of 3.5% in 2013 or just slightly off the 3.8% forecasted rate for 2012. While the catalyst for the current boom—massive investment in the energy sector—has been tempered, strong capital expenditures outside energy and rapid momentum in other sectors of the economy will keep things moving along at a sustained rapid clip in the year ahead. The outlook for 2014 looks even stronger with growth in investment in the energy sector expected to resume.

Economy remained on a fast track in 2012...

Alberta is in the midst of an impressive economic boom. Activity in the province surged by 5.1% in 2011—the strongest rate among the provinces—and remained on a fast track in 2012. Almost every indicator pointed toward a very robust performance once again in the first eight to 11 months of 2012. Crude oil production surged to a record high. Provincial manufacturers, retailers, and wholesalers enjoyed substantial sales increases. Employment growth in Alberta easily outpaced the rest of the country, while the rate of unemployment fell to a nationwide low. Good job prospects attracted more people to live in the province, and rising net in-migration boosted population growth to a five-year high. Alberta’s housing market picked up steam, which led to a 25% surge in new home construction. Such strength in the majority of sectors more than made up for steady declines in natural gas production and drilling activity.

...but the mood stays even keeled

Yet the mood in the province remained far from exuberant. Indications that Alberta oil finds itself ‘hand locked’ due to pipeline bottlenecks and that US energy production is on a secular upswing put a damper on any celebrations. Major players in the oil sands have cited delivery challenges and resulting larger than usual discounts on wellhead prices as reasons for delaying some of their capital spending on mega projects. These announced delays have raised some concerns about the sustainability of business investment in the province.

Barely missing a beat in 2013

We expect oil sands players to remain generally cautious in 2013, but we do not expect them to cut capital spending back in any meaningful way either. Rather, their spending will be kept in a holding pattern while pipeline issues are addressed and crude oil price relationships normalize. The rest of the provincial economy will continue to benefit from a broad-based expansion in 2013, with strong growth in population and employment still fuelling consumer-dependent activity. The housing sector will be among those showing sustained vigour. On the business side, rising demand for commercial and industrial space will support growth in capital spending outside the energy sector. Overall, we project real GDP to slow only modestly to 3.5% in 2013 from 3.8% in 2012. This slight moderation will mostly reflect the pull in oil sands investment.

Stronger growth in 2014

By 2014, we expect sufficient progress on resolving oil delivery issues to allow major oil sands project development to proceed with renewed vigour. This breaking out of the holding pattern will set the stage for real GDP to re-accelerate to 4.2%.

Robert Hogue
Senior Economist
Potash down time cuts into 2012 growth

Growth in Saskatchewan in 2012 is being weighed down by increasing cutbacks in potash production in the face of rising inventories. These higher stocks have reportedly resulted from a number of emerging economies holding back on purchases of the crop nutrient until long-term agreements have been signed with various major producers in Saskatchewan. In the wake of these cutbacks, we lowered mining output in the province, which in turn has prompted us to lower 2012 real GDP growth in the province to 2.8% from 3.6% previously. The downward revision to overall GDP growth also reflects indications that canola production will drop below the 2011 harvest rather than increase as had been previously assumed. The 2012 wheat harvest is still expected to surpass 2011 levels although this just offsets the drop in canola production resulting in unchanged production of Saskatchewan’s three main field crops (that also includes barley). Production numbers last quarter had implied an increase closer to 9%.

Mining activity to recover during 2013

Recently announced potash production shutdowns in some cases extend into early 2013; however, our expectation is that beyond that point, activity will steadily recover during the remainder of 2013 with sales agreements being reached with major overseas customers. As well, our expectation is that the drought conditions in the US mid-West in 2012 will result in increased demand for fertilizer, and thus for potash, as US producers aggressively try to revive crop yields. Our forecast assumes that mining production will increase by 4.5% in 2013 after an expected increase of only 1.5% in 2012.

Raising production capacity should support investment

With demand for potash and other natural resources key to the province, such as oil and grains, expected to remain historically robust, our forecast assumes that business investment will remain strong with producers expanding production capacity. This is expected to send construction spending up to 5.5% in 2013 after a projected 4.5% increase in 2012.

Strong income growth will continue to support retail sales

High commodity prices are not only contributing to increased capital spending, but it is also boosting incomes within the province. This lift is evident in the provincial retail spending numbers showing strong gains and widely outpacing the national numbers. In the third quarter of 2012, nominal retail sales in Saskatchewan were up over 8% on a year-over-year basis compared to only 2.5% nationally. This relative strength is expected to continue during the forecast with commodity prices expected to remain historically high and to support continued solid gains in the retail trade sector.

Saskatchewan expected to be a growth leader in the country

The rebound in mining output along with continued strength in construction and retail spending are expected to result in overall GDP growth rebounding in 2013 to 3.5%. This represents a downward revision from the 4.0% that we projected last quarter and reflects some of the potash production cutbacks continuing into early 2013. The underlying sources of strength next year, however, are expected to continue in 2014 contributing to GDP growth that year remaining robust and little changed at 3.7%.
Diversification pays off

After double-digit declines in the past two years, the agricultural sector's output is expected to rise a robust 17% in 2012 with weather conditions finally turning favourable. The jump in output coincides with production problems elsewhere in the globe thereby resulting in grains and oilseed prices rising strongly. The rebound in production and the jump in grain prices will both contribute to a marked strengthening in farm incomes in 2012 and going into 2013. This is the main factor expected to send real GDP growth this year up to 2.9% relative to the 2.0% gain recorded in 2011. The 2012 growth rate is down slightly from the 3.3% gain forecasted in the September issue of *Provincial Outlook* in part because of a downward revision to the outlook for canola (although we still expect the agricultural harvest to be up strongly in 2012).

**Strengthening manufacturing to offset moderation in agriculture**

Looking beyond 2012, we assume that agricultural output will likely continue to grow in 2013 under the assumption of normal weather conditions; however, the pace of growth in this sector is likely to slow dramatically to around 4% because activity is no longer rebounding from depressed levels. As well, with agricultural output in the US expected to recover from the drought conditions of 2012 (assuming normal weather conditions in the US), grain and oilseed prices will likely retrace some of their recent gains that will also weigh on farm income growth as the year progresses. This slowing in the agricultural sector, however, is expected to be offset by greater strength in the manufacturing. Although growth in manufacturing returned to positive territory in 2012, the projected gain of 2% represents only a modest increase. As the US recovery gains strength during the forecast, however, this is expected to result in improved demand for Manitoba exports generally and for bus and aerospace equipment in particular, which represent key manufacturing outputs in the province. Demand for buses is expected to be helped by indications that the fiscal restraint at the state and local levels in the US is starting to ease. Increasing manufacturing activity is a key factor that will allow overall real GDP growth to remain solid in 2013, easily offsetting the expected slowing in agriculture. This is expected to result in a growth rate of 3.0% in 2013, which would be little changed from the 2.9% projected for 2012.

**Business investment to recover steadily**

We assume continued solid gains in the mining and oil and gas sector with increases matching recent average gains close to 4% during 2013 and 2014. This represents a downward revision from earlier-projected increases of closer to 6% for both years thereby reflecting indications of weaker than expected global growth; however, demand for natural resources is expected to remain sufficiently strong that we assume strengthening business investments as firms expand production capacity. This is expected to help send growth in construction activity to an increase of 8% by 2014 from a decline of 4% in 2011. Rising business investment will be a key factor supporting our real GDP growth forecast of 3.0% in 2014.

Paul Ferley  
Assistant Chief Economist
Maintaining its (unspectacular) cruising speed

Ontario’s economy is set to maintain a moderate, if unspectacular, pace of expansion in the next two years. We project real GDP to grow by 2.3% in 2013 and 2.6% in 2014, both rates representing little change from 2.1% in 2012. While, on the surface, the outlook may appear as ‘more of the same’ in the period ahead, there will be notable differences in sectoral performances. Barring any unexpected slipage of the US economy, external trade will increase its contribution to Ontario’s economic expansion. On the other hand, residential investment—a powerful economic engine in the province since the start of the recovery—will play a much smaller role. In fact, we expect housing construction to decline in both 2013 and 2014. Where we anticipate little in the way of change, however, will be fiscal restraint at both the federal and provincial levels, which we believe will continue to be a drag on Ontario’s growth prospects.

Export sector revival

Notwithstanding uncertainty from the political wrangling over the so called ‘fiscal cliff’ that may cause some economic disturbances early in 2013 south of the border, we expect the US economy to strengthen steadily throughout the forecast horizon. This will be good news for Ontario. Accounting for nearly 80% of Ontario’s international merchandise exports, the US market is of strategic importance to the province’s economic performance. We expect that stronger US demand for Ontario goods and services will help net external trade to add to provincial growth in 2013, after subtracting from it in each of the past 10 years. In fact, progress in this direction is already visible with Ontario’s motor vehicle and parts exports rising noticeably in 2012. We also expect interprovincial exports to continue to benefit from the boom in western provinces, which offers attractive opportunities for Ontario manufacturers, from producers of machinery and equipment to producers of steel and tubes.

Residential investment to take a breather

As noted in the September issue of Provincial Outlook, activity in Ontario’s housing market has been surprisingly brisk in the first half of 2012. More recent data, however, indicate that the long awaited cooling is now upon us. Home sales in the province slowed since summer, and we expect them to maintain a more moderate pace in 2013. This cooling of activity will translate into a decline in new home construction in the coming year. We forecast housing starts to decline from a seven-year high of 76,200 units in 2012 to 65,600 units in 2013 and 58,500 units in 2014.

Public-sector squeeze

The recent publication of the Government of Ontario’s public accounts brought encouraging news in that the provincial deficit in 2011-2012 was $2.1 billion less than previously expected. Still, at $12.9 billion—and projected to reach $14.4 billion in the current fiscal year—the deficit represents a tough drag to slay in the medium term. The challenges will be similarly daunting at the federal level. Fiscal restraint, therefore, will remain a necessary focus of public administrations in Ontario throughout the forecast horizon. Estimates from the Ontario Ministry of Finance show that government spending on goods and services, and capital investment declined for six consecutive quarters to the second quarter of 2012, and we expect further drag on growth coming from the public sector in 2013 and 2014.
Scope for some improvement in 2013

In light of its disappointing performance in 2012, we believe there is scope for Quebec's economy to show better results in 2013. Some of the factors holding the pace back in 2012 will cease to do so in the year ahead and allow real GDP to accelerate to 1.6% in 2013 from 0.9% in 2012. While representing an improvement, a rate of 1.6% would still rank at the lower end of the provincial growth rankings. Among other things, the Quebec economy will face headwinds from fiscal restraint and a cooling of its housing market. We expect results to improve further in 2014; yet, with a projected rate of 1.9%, growth will remain subdued.

Weak growth in 2012

The Quebec budget for 2013-2014 presented (earlier than usual) in November echoed our disappointment in the economic performance of the province in 2012—the details of which we discussed in the September issue of Provincial Outlook when we cut our real GDP growth forecast to 1.0% for the year (from 1.6% previously). The budget's analysis concurred that weaker than expected performance in several sectors—including consumer spending and exportswas weighed substantially on growth in the first half of 2012. In this issue of Provincial Outlook, we note that the strengthening in growth that we expected for the second half of 2012 gained only minimal traction by the fall. There were some setbacks in sectors such as mining, manufacturing, and transportation services, which prompted us to match the government's revised 0.9% call for 2012.

Temporary weights to be lifted

We remain of the view that the pace of growth in the provincial economy will accelerate somewhat in 2013. Some of the factors that contributed to the weakness in the early part of 2012 will cease to be a drag. These factors include a six-month long labour disruption at an aluminum plant, a rise in the provincial sales tax on January 1, warmer than usual weather conditions, and months of student protests, which temporarily weighed on Quebec's exports, consumer spending, demand for electric power, and education services. The outlook for 2013 will be further brightened by improving underlying US demand for Quebec export commodities. Recovery in US housing construction will benefit Quebec-made building materials such as wood products.

Still facing headwinds in 2013

That being said, the provincial economy will continue to face significant headwinds. First and foremost, growth will be dragged down by fiscal restraint at all levels of government. In its 2013-2014 budget, the Quebec Government reiterated commitments to ambitious program spending targets, which will see absolute declines in expenditures in areas other than health, education, and family applying downward pressure on the economic contribution from the public administration sector. The budget also announced reductions to the medium-term infrastructure plan that will result in outright capital expenditure cuts beginning in calendar year 2013, following eight years of rapid increases. Other than the public sector, we expect the recent cooling in housing market activity to translate into lower levels of residential investment in 2013. These headwinds will subdue growth in Quebec to a rate of 1.6%.

Slight acceleration in 2014

We believe that there is further scope for improvement in Quebec's outlook for 2014 with US demand expected to gain strength and the provincial housing situation to stabilize. We project real GDP to grow by 1.9% in 2014.
More traction on the way

After screeching to a halt last year, economic growth in New Brunswick has struggled to regain traction in 2012. Anticipated strength in private-sector capital investment and an improvement in the labour markets failed to materialize, thereby compounding a period of public-sector restraint in the province. The notable declines in investment and employment have weighed on what was expected to be a promising year for the province with our forecast now calling for growth of only 0.8% in 2012. As the US economy gains momentum in the coming year, we expect the province’s export sector to reap the benefits and contribute to a faster pace of expansion in 2013, albeit a moderate improvement at 1.7% as fiscal austerity will continue to weigh on economic activity.

A bump on the road to budget balance

The provincial government’s finances turned out to be somewhat better than expected last fiscal year with the final estimate of the deficit for 2011-2012 coming in at $188 million below its initial budget forecast. The positive news ended there, however, as the government’s second-quarter 2012 fiscal update revealed a projected deficit for the current fiscal year nearly double its 2012 budget target of $182.9 million. Further significant fiscal restraint will thus be required in order to achieve a balanced budget by 2014-2015. Planned reductions in public capital expenditure in the coming year after a modest increase this year will add to the expected drag on economic growth in 2013.

Domestic economy hits the brakes...

A sizeable drop in public-sector employment this summer depressed hopes for a sustained employment recovery as government austerity measures took hold. As a result, the province lost nearly all of the jobs regained since the end of the recession. We expect the deterioration in the labour market to reverse slightly in 2013, with the benefits reviving what has been a disappointing year for consumer spending in 2012. Earlier expectations that business investment would increase in 2012 for the first time since 2008 did not materialize. Non-residential construction plunged to its lowest level in more than seven years in the third quarter of 2012. Despite private capital investment showing signs of picking up more recently, the completion of two of the province’s major projects (Point Lepreau refurbishment this year and Sussex Potash expansion early 2013) will likely keep business investment subdued in 2013.

...but is gearing up for 2013

With goods exports to the US making up the largest share of GDP of any province, we expect New Brunswick’s economy to get a boost from any improvement in the outlook south of the border in 2013. A strengthening US housing market, in particular, will support the province’s forestry exports along with the revival of the Miramichi lumber mill. The start up of Point Lepreau nuclear plant in November 2012, after a prolonged four-year refurbishment, will re-energize the province’s electricity exports in 2013. While mining projects such as Trevali’s Half Mile Lake are expected to ramp up production in the coming year, the production gains will be insufficient to offset declines from the closure of the Xstrata Brunswick mine in March 2013. Mining production is expected to begin an upward trajectory in 2014, however, with the Sussex Potash expansion ramping up to full capacity that year and production likely commencing at the Sisson Brook tungsten mine in 2015.
Delays, delays...but it will come
After much anticipation for shipbuilding to put wind in Nova Scotia’s economic sails, delays have kept the outlook for the province subdued, and 2012 has so far seen a relatively sluggish pace of expansion. Key developments on the horizon, including work for the shipbuilding contract and additional offshore exploration, will lead to improved growth in the medium term; however, unscheduled downtime at the Sable Island natural gas project and the announcement of Deep Panuke natural gas production delayed to mid-2013 are keeping the provincial economy in waiting mode. While we expect the pace of growth to pick up in 2013, we revised our forecasts for the province downward to 0.9% in 2012 and 1.9% in 2013 to account for the Sable Island issues and Deep Panuke delay.

Natural resources fail to deliver the expected boost in 2012
Improvements in Nova Scotia’s natural resource industries have not materialized as expected, thereby contributing to significant weakness in the province’s international exports in 2012. Maturation-related volume declines and repair work this fall at the Sable Island natural gas field pushed natural gas production to its lowest level since the project began to operate in 2000. The announcement of another delay for the start of production at the Deep Panuke natural gas project will mean that a boost to energy exports is not forthcoming in the latter stages of 2012 and that levels will be lower than earlier expected in 2013. The start up of production at the newly named Port Hawkesbury paper mill will provide a lift to 2013 exports while indications of continued strength in the US auto sector will shine a bright spot on the province’s largest commodity export, rubber tires. Despite expected price softening, the strength in crab and lobster demand will continue to keep fish exports afloat.

Steady, subdued employment growth in 2013
Employment has been volatile in Nova Scotia in 2012, but we expect it to register a 0.8% gain overall in the year, which would be an improvement from virtually no growth in the previous three years. Strong gains in the private sector more than offset public-sector losses in 2012. Private-sector job gains will continue to support employment growth, albeit at a still subdued 0.3% rate in 2013, thereby lending only modest help to consumer spending and the housing market.

Despite delays, optimism still on the agenda
While the natural gas production setbacks prompted us to lower our near-term outlook for the provincial economy, we, nonetheless, believe that in 2013 and 2014, the province will be on a stronger growth track. The timing of projects and various delays have ‘back loaded’ the anticipated boost to the economy during the forecast horizon. We expect growth to accelerate to 1.9% in 2013 and 2.1% in 2014 from a subdued rate of 0.9% in 2012. Helping in 2014 will be a full year of production at Deep Panuke and offshore energy exploratory work (by Shell and, possibly, British Petroleum in light of the company’s recent preliminary approval of $1 billion in offshore exploration bids). Beyond the forecast horizon, prospects will be bolstered by the ramping up of work related to the shipbuilding contract and the development of the Maritime Transmission Link should this project go ahead.
The little island that could...

Despite slowing population growth and fiscal restraint, PEI’s economy continued to chug along supported by a dynamic export sector and surprisingly resilient domestic demand. The effects of these structural and demographic challenges are likely to put the brakes on the domestic side going forward; however, momentum in the province’s key export sectors will support a moderate improvement in growth in 2013. Our forecast calls for 1.8% real GDP growth in 2013, up from 1.4% expected in 2012, and a revised 1.6% in 2011.

Full steam ahead for exports

The emerging aerospace industry has been a key source of strength for the province’s economy in 2012, fuelling nominal merchandise export growth to the highest rate in the country. Sales of turbo jets and propellers skyrocketed on the backs of large order volumes, lifting aerospace products to become the province’s second-largest export commodity group (lagging only the traditional staple of the economy, potato products). Strong gains in US-bound shipments of lobster and French fries contributed to the biggest increase in PEI’s agricultural and fish exports since 2008 despite a dry, hot summer that delayed an expected rebound in potato production. After a significantly slower than expected summer, cruise ship traffic set sail in October with the scheduled number of ships reaching a record level and leaving expectations high for further gains in 2013. While the sustainability of outsized gains in machinery and equipment exports is uncertain, continued US demand for the province’s traditional products and a return to reasonable weather will support export growth in 2013, thereby keeping PEI’s economic prospects bright.

Domestic economy tapping the breaks

A significant pullback in government spending both in 2012 and 2013 is expected to have a substantial dampening effect on domestic economic activity. Committed to a three-year plan to return to budget balance, the public sector, making up 40% of the provincial economy, will act as a notable drag on growth. The effects of this fiscal restraint can be seen in the employment trends in 2012 with public-sector job losses in the fall reversing gains made earlier in the year. Further reductions at both the provincial and federal levels are expected to limit any re-acceleration of employment growth in 2013. A return to sustainable levels of population growth will compound this restraint after four years of rapid growth, which helped fuel household demand during that period. Growth in retail sales moderated substantially in 2012, and we expect further moderation in 2013. While housing starts remained historically elevated overall in 2012, we project them to come down in 2013.

On the whole, PEI will keep chugging along

With the introduction of the harmonized sales tax in April 2013, the provincial tax base will be expanded to include items, such as adult clothing, electricity, and new homes, which were previously excluded. This broadening of the base will likely create some volatility in consumer spending patterns in 2013. Nonetheless, we expect the new value-added sales tax regime to bring longer-term benefits to the province through efficiency gains, which businesses will be able to use to boost hiring and investment in the province. Despite the strong headwinds facing PEI, favourable gusts from south of the border will support the province’s export sectors in 2013 while emerging industries of biotechnology, aerospace, and renewable energy provide scope for an even better performance in 2014.
Riding the oil production rollercoaster

Maintenance shutdowns at offshore oil facilities have left Newfoundland and Labrador’s key energy sector nearly running on empty with crude oil production declining 28.5% in the first nine months of 2012. The projected hit to oil and gas output was amplified as the province’s largest oil field underwent extended maintenance late this summer. The decline in volume of extraction from Hibernia and the significant knock on economic activity have led us to revise our forecast, with growth now expected to contract by 0.7% in 2012. The return to full production of the province’s largest contributor to GDP will provide a strong rebound in 2013 with growth forecasted at 4.4%; however, ongoing oil maturational-related declines will limit the pace in 2014.

Minerals to support growth in 2013

Accompanying the fall off in energy production was a surprising decline in the value of Newfoundland and Labrador’s other mineral shipments, largely the result of weaker commodity prices. The gross value of mineral shipments is expected to decline by nearly 11% in 2012 because the spot price for iron ore plunged this summer. Lower iron ore prices prompted Labrador Iron Mines to reduce output and defer some capital spending into 2013 with a restart dependent on firmer prices. That being said, the mining sector is expected to support growth in 2013 with other large-scale projects progressing toward their production phases. An anticipated subdued rebound in iron ore prices and ownership backing from overseas will sustain investment in the Direct Shipping Iron Ore and Kami projects while a capacity expansion at the Iron Ore Company of Canada will keep mining prospects bright for 2013 and beyond.

Employment gains sustain consumer spending in 2012

Across the province, employment bounced back from the slowdown this summer to reach a record level by the fall, serving as a backdrop for the strongest household income growth of the Atlantic Provinces and some of the higher year-over-year gains for retail sales in the country. For 2013, sustained momentum in consumer spending is likely to continue to support the domestic economy while business investment is likely to moderate its pace after three years of gains exceeding 20%. Construction activity is expected to ease in 2013 after providing substantial support to the economy in recent years. Completion of the Terra Nova Off-Station project in 2012 and the end of construction at the Long Harbour nickel processing plant in 2013 likely will lead overall capital spending in the province to decline in 2014; however, the ramping up of construction activity on the Hebron oil field and pre-development work at the Muskrat Falls hydroelectric site will provide some offset.

Strong rebound in 2013; payback in 2014

We expect oil production to rebound strongly in 2013 and mining output also to ramp up, thereby providing a significant one-shot boost to economic growth in the coming year (4.4%)—elevating Newfoundland and Labrador to the top spot in the provincial growth rankings. For 2014, we expect the decline in capital investment to slow economic growth significantly to just 0.6%. The longer-term prospects for the province will remain well supported by offshore exploration activity, further increases of mineral output, the commencement of oil extraction at the Hebron oil field, and the possibility of new mega projects (including Muskrat Falls and a proposed $5 billion railway).
### Forecast detail

Average annual % change unless otherwise indicated

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### Key provincial comparisons

2011 unless otherwise indicated

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### PROVINCIAL OUTLOOK | DECEMBER 2012

#### Tables

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ECONOMICS | RESEARCH

14
### New Brunswick

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<td>28,226</td>
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<td>28,928</td>
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<td>10,018</td>
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<td>10,593</td>
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<td>11,129</td>
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<td>% change</td>
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<td>% change</td>
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<td>-17.6</td>
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<td>111.3</td>
<td>113.2</td>
<td>113.5</td>
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<td>0.3</td>
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<td>Real GDP</td>
<td>33,653</td>
<td>34,685</td>
<td>34,581</td>
<td>35,243</td>
<td>35,424</td>
<td>35,725</td>
<td>36,404</td>
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<td>% change</td>
<td>2.5</td>
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<td>8.7</td>
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<td>Retail sales</td>
<td>11,616</td>
<td>12,089</td>
<td>12,102</td>
<td>12,652</td>
<td>13,097</td>
<td>13,282</td>
<td>13,731</td>
<td>14,174</td>
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<td>% change</td>
<td>4.3</td>
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<td>0.1</td>
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<td>1.4</td>
<td>3.4</td>
<td>3.2</td>
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<td>Housing starts</td>
<td>4,750</td>
<td>3,982</td>
<td>3,438</td>
<td>4,309</td>
<td>4,644</td>
<td>4,600</td>
<td>3,900</td>
<td>3,800</td>
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<tr>
<td>% change</td>
<td>-3.0</td>
<td>-16.2</td>
<td>-13.7</td>
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<td>7.8</td>
<td>-9.0</td>
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<tr>
<td>Consumer price index</td>
<td>2002=100</td>
<td>112.5</td>
<td>115.9</td>
<td>115.7</td>
<td>118.2</td>
<td>122.7</td>
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<td>3.0</td>
<td>-0.1</td>
<td>2.2</td>
<td>3.8</td>
<td>1.9</td>
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<td>Real GDP</td>
<td>4,622</td>
<td>4,665</td>
<td>4,677</td>
<td>4,800</td>
<td>4,876</td>
<td>4,944</td>
<td>5,033</td>
<td>5,131</td>
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<td>% change</td>
<td>0.9</td>
<td>0.3</td>
<td>2.6</td>
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<td>71</td>
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<td>74</td>
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<td>0.7</td>
<td>1.2</td>
<td>-1.4</td>
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<td>1.9</td>
<td>0.8</td>
<td>1.2</td>
<td>1.3</td>
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<tr>
<td>Unemployment rate</td>
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<td>12.0</td>
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<td>11.4</td>
<td>11.3</td>
<td>10.7</td>
<td>10.2</td>
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<td>Retail sales</td>
<td>1,621</td>
<td>1,703</td>
<td>1,681</td>
<td>1,770</td>
<td>1,869</td>
<td>1,944</td>
<td>2,001</td>
<td>2,063</td>
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<tr>
<td>% change</td>
<td>7.4</td>
<td>5.1</td>
<td>-1.3</td>
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<td>4.0</td>
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<td>Housing starts</td>
<td>750</td>
<td>712</td>
<td>877</td>
<td>756</td>
<td>940</td>
<td>900</td>
<td>800</td>
<td>700</td>
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<td>% change</td>
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<td>2002=100</td>
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<td>117.5</td>
<td>117.3</td>
<td>119.5</td>
<td>123.0</td>
<td>125.9</td>
<td>128.1</td>
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<td>% change</td>
<td>1.8</td>
<td>3.4</td>
<td>-0.1</td>
<td>1.8</td>
<td>2.9</td>
<td>2.1</td>
<td>2.0</td>
<td>2.2</td>
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### Newfoundland & Labrador

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<tr>
<td><strong>Real GDP</strong></td>
<td>Chained $2007 millions</td>
<td>29,736</td>
<td>29,425</td>
<td>26,388</td>
<td>28,058</td>
<td>28,912</td>
<td>28,710</td>
<td>29,973</td>
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<td></td>
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<td>-10.3</td>
<td>6.3</td>
<td>3.0</td>
<td>-0.7</td>
<td>4.4</td>
<td>0.6</td>
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<td>219</td>
<td>212</td>
<td>219</td>
<td>225</td>
<td>230</td>
<td>233</td>
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<tr>
<td></td>
<td>% change</td>
<td>0.8</td>
<td>1.1</td>
<td>-3.0</td>
<td>3.4</td>
<td>2.7</td>
<td>1.9</td>
<td>1.4</td>
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<tr>
<td><strong>Unemployment rate</strong></td>
<td>%</td>
<td>13.5</td>
<td>13.2</td>
<td>15.5</td>
<td>14.4</td>
<td>12.7</td>
<td>12.6</td>
<td>12.0</td>
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<tr>
<td><strong>Retail sales</strong></td>
<td>$ millions</td>
<td>6,528</td>
<td>7,009</td>
<td>7,120</td>
<td>7,451</td>
<td>7,830</td>
<td>8,214</td>
<td>8,577</td>
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<td></td>
<td>% change</td>
<td>8.6</td>
<td>7.4</td>
<td>1.6</td>
<td>4.6</td>
<td>5.1</td>
<td>4.9</td>
<td>4.4</td>
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<tr>
<td><strong>Housing starts</strong></td>
<td>units</td>
<td>2,649</td>
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<td>3,606</td>
<td>3,488</td>
<td>3,800</td>
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<td>18.6</td>
<td>23.1</td>
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<td>-3.3</td>
<td>8.9</td>
<td>-10.5</td>
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<tr>
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<td>2002=100</td>
<td>111.1</td>
<td>114.3</td>
<td>114.6</td>
<td>117.4</td>
<td>121.4</td>
<td>124.0</td>
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<td>0.3</td>
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<td>3.4</td>
<td>2.2</td>
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©Royal Bank of Canada.
Collective Agreement
APRIL 1, 2012 TO MARCH 31, 2014

between

CROWN IN RIGHT OF ONTARIO

as represented by
Management Board of Cabinet

and

AMAPCEO
Association of Management, Administrative and Professional Crown Employees of Ontario
Collective Agreement 2012 to 2014 between AMAPCEO and MBC

distance shall be determined by reference to the following publications:

- Ontario/Canada Official Road Map, published by the Ministry of Transportation.

- Distance Tables, King’s Secondary Highways and Tertiary Roads, published by the Ministry of Transportation.

43.5.1 Points assigned to each location in accordance with 43.3.1 and 43.3.2 shall be reviewed annually.

43.5.2 Amendments to any isolation allowance entitlement under 43.1 resulting from the review shall be implemented effective from April 1 of each year.

ARTICLE 44 – SALARY

44.1 Effective April 1, 2012, the salary rates in effect on March 31, 2012, shall remain in effect, and are set out in Salary Schedule A (for clarity, the same salary schedule as on page 158-164 of the 2009-2012 collective agreement).

44.2 Effective October 1, 2013, the salary rates set out in Salary Schedule A shall be replaced by Classification Levels and Salary Ranges Schedule B.

ARTICLE 45 – MERIT PAY AND PAY FOR PERFORMANCE BONUS

45.1 Merit Pay

For employees in AMAPCEO classifications who are not at the maximum of their salary range:

45.1.1 Effective until March 31, 2013, a merit increase for a twelve (12) month work cycle coinciding with the employee’s anniversary date shall be processed in an amount of 0-5% of his or her salary at the discretion of the Employer. An employee’s merit increase for satisfactory performance shall be three and a half percent (3.5%) of his or her salary.

45.1.2 Effective April 1, 2013, a merit increase for a twelve (12) month work cycle coinciding with the employee’s anniversary date shall be processed in an amount of 0-5% of his or her salary at the discretion of the Employer. An employee’s merit increase for satisfactory performance shall be three percent (3%) of his or her salary.

45.1.3 Where an employee’s performance rating results in a merit increase that will cause his or her salary to exceed the maximum salary for his or her classification,
Re Halifax Regional Municipality and Halifax Regional Professional Firefighters Association, I.A.F.F., Local 268

[Indexed as: Halifax (Regional Municipality) and I.A.F.F., Loc. 268 (Re)]

Nova Scotia

T.S. Kuttner, J. Hayes and D. McDougall, Q.C.

Heard: March 21 & 22, 1998
Decision rendered: April 30, 1998

Interest arbitration — Procedure — Amalgamation of municipalities — Whether first contract analogy opposite — Replication predominant principle.

Interest arbitration — Criteria — Ability to pay and wage restraint as economic factors — Identifying external and internal comparators.

Interest arbitration — Appropriate to re-establish historical relationship between wage rate structure of police and firefighters by narrowing differential.

[See Brown & Beatty, 1:0000; 2:1200; 8:1000]

Cases referred to

Board of School Trustees, School District 1 (Fernie) and Fernie District Teachers’ Assn. (Re) (1982), 8 L.A.C. (3d) 157

Building Service Employees, Loc. 204, and Peel Memorial Hospital (Re) (1969), 20 L.A.C. 31

C.U.P.E. and New Brunswick (Re) (1982), 49 N.B.R. (2d) 31

Construction and General Labourers Workers, Loc. 1096 v. Brunswick Foundation (Saint John) Ltd. (1990), 90 C.L.L.C. ¶16,012

General Truck Drivers and Helpers Union, Loc. 31 and British Columbia Railway Co., Shime, June 1, 1976


Halifax (Regional Municipality) and Municipal Assn. of Police Personnel (Re), M.G. Picher, J. Hayes, P. McClellan, N.S. Arb. Bd., November 27, 1997


Moncton (City) and Moncton Firefighters Assn., I.A.F.F., Loc. 999, T.S. Kuttner, February 7, 1983


Yarrow Lodge Ltd. and H.E.U. (Re) (1993), 94 C.L.L.C. ¶16,047, 21 C.L.R.B.R. (2d) 1

Statutes referred to

Civil Service Collective Bargaining Act, S.N.S. 1978, c. 3
Halifax Regional Municipality Act, S.N.S. 1995, c. 3
\[s. 9\]

Public Sector Compensation Restraint Act, S.N.S. 1991, c. 5

Public Sector Compensation (1994-97) Act, S.N.S. 1994, c. 11

Trade Union Act, R.S.N.S. 1989, c. 475
\[s. 31\]

Authorities referred to


King, MacKenzie, Industry and Humanity (1918)


Webbs, Industrial Democracy (1897)


INTEREST ARBITRATION AWARD for new regional fire service.

R.A. Pink, Q.C., and L.A. Veinotte, for the union.
E. Durnford, Q.C., and B. MacAulay, for the employer.

AWARD

INTRODUCTION

[1] This interest arbitration comes before the Board by reason of an Agreement entered into 6 February 1998 between The Halifax Regional Professional Firefighters Association, International Association of Firefighters, Local 268 (IAFF Local 268) and Halifax Regional Municipality (HRM), pursuant to which the Board is to set the wages and terms of a Collective Agreement between
them (Arbitration Submission, Exhibit E-1/U-1). The remaining terms and conditions of the Collective Agreement have been agreed to and implemented as of 6 February 1998 with wages to be effective 1 November 1997, the day following expiry of the previous collective agreement binding between the parties (HRM Collective Agreement, Exhibit E-2). The Arbitration Submission reflects the Order of Justice Nathanson of the Nova Scotia Supreme Court confirming the binding force of the original agreement between the parties to submit this matter to arbitration, and this Board was established accordingly. (See *International Association of Firefighters Loc. 268 (Halifax Regional Professional Firefighters Assn.) v. Halifax (Regional Municipality)*, unreported decision issued 28 January 1998, [1998] N.S.J. No. 22 (QL) [now reported 165 N.S.R. (2d) 383].) Prior to the hearing of this matter the parties agreed to the extension of time stipulated in the Agreement for its commencement, and subsequent to the Hearing to a further extension of time within which the Board is to issue its written Decision, to 30 April 1998. On issuance of this Award the parties will enter into a full Collective Agreement comprising all of those terms to which they have agreed as of 6 February and the two items determined by the Board — wages and term.

[2] Voluminous materials were filed with the Board by each of the parties in support of their submissions on the items in dispute — in the case of IAFF Local 268 no less than 12 volumes worth comprising some 158 exhibits, supplemented at the Hearing by the filing of a further 9; in the case of HRM, two volumes comprising some 23 exhibits, supplemented by the filing of an additional 14 at the Hearing. Between the two of them, the parties submitted 32 interest arbitration cases for the Board's consideration as well as legislative and doctrinal materials. Their written submissions were fulsome — in the case of IAFF Local 268 a 270-page brief; in that of HRM, a 75-page brief — and of great assistance. Their oral submissions given over the two days of hearing were doubly so. For this the Board commends both the parties and their counsel.

[3] Notwithstanding the plethora of material and documentation brought to its attention — or perhaps because of it — this Board has been unable to come to a unanimous determination as to the wages and term of the Collective Agreement to be entered into between the parties. There is such disparity between them on the appropriate
resolution of the two items in dispute, and the gulf between the parties is so great as to defy concerted resolution by a tripartite Board. However, a majority decision can be reached. The Nominee of IAFF Local 268 concurs in the result reached by the Chair, although reluctantly, and has written concurring reasons [post, p. 159]. The HRM Nominee dissents for reasons given [post, p. 164].

I BACKGROUND

[4] Halifax Regional Municipality was created by legislative enactment — the Halifax Regional Municipality Act, S.N.S. 1995, c. 3, whereby the Cities of Halifax and Dartmouth, the Town of Bedford and the Halifax County Municipality were amalgamated into a single Regional Municipality with a combined population of over three hundred and fifty thousand. As with all such regionalization exercises, the amalgamation of such disparate local governments, — spread over a wide geographic area, each with its own history and sense of identity, for the greater part extending back to pre-Confederation times, — was not without controversy, and indeed such controversy continues. Regionalization witnessed the demise of local municipal structures and the birth of new regional municipal institutions, with all the difficulties of transition and adjustment which such a major transformation of municipal government entails.

[5] In the wake of regionalization came regional police and fire services: the Halifax Regional Police Service, responsible for the policing of Halifax, Dartmouth and Bedford (the Royal Canadian Mounted Police having been contracted to provide police services in Halifax County); and the Halifax Regional Fire and Emergency Services (HRFES) with the mandate to provide fire and emergency services throughout the entire geographic area which comprises HRM. Prior to amalgamation 37 fire departments provided fire and emergency services within the four sub-units which now comprise HRM: Halifax, Dartmouth, Bedford and Halifax County. Firefighters in Halifax, Dartmouth, Bedford and the County Towns of Sackville, Cole Harbour/Westphal and Lakeside/Blackpoint were organized and their terms and conditions of employment with their respective employers governed by six separate collective agreements. Firefighters within the remaining area of Halifax County were not organized. By operation of the Halifax Regional Municipality Act, HRM has become the employer of all firefighters,
both organized and unorganized, engaged in the providing of fire and emergency service throughout the Region. Moreover HRM was deemed a transferee for the purposes of section 31 of the Trade Union Act, R.S.N.S. 1989, c. 475, thereby engaging the successor rights provisions of the provincial labour relations legislation (Halifax Regional Municipality Act, s. 9).

[6] Insofar as wage rates and term were concerned, collective bargaining between the predecessor employers and the various locals of the I.A.F.F. representing firefighters in the six pre-existing bargaining units had been truncated by provincial wage restraint legislation, first the Public Sector Compensation Restraint Act, S.N.S. 1991, c. 5, and second, the Public Sector Compensation (1994-97) Act, S.N.S. 1994, c. 11. The latter “froze labour relations between public sector employers and employees and rolled-back pay rates by three percent” (QE II Health Sciences Centre v. N.S.G.E.U. (N.S.C.A.) Docket # 144277, unreported decision dated 8 April 1998, per Justice Freeman at p. 1 [now reported 166 N.S.R. (2d) 1941]). That legislation expired 31 October 1997 and since then the ordinary regime of free collective bargaining under the Trade Union Act once again governs labour relations in the Nova Scotia municipal sector.

[7] Commencing in mid-1996 with the effective date of the amalgamation, HRM administered the existing collective agreements with their widely varying terms and conditions of employment. As one would expect HRM entered vigorously upon the process of rationalizing its fire and emergency services and of standardizing the working terms and conditions of its firefighters and this was facilitated by the successor trade union status obtained by IAFF Local 268 by application to the Nova Scotia Labour Relations Board (LRB Order no. 4388, unreported decision issued 26 August 1996, Exhibit U-21). In point of fact, the parties have succeeded in rationalizing the terms and conditions of the pre-existing collective agreements through the process of free collective bargaining, and the great bulk of their differences, save for term and wage rates, have been resolved through that process, as witness the tentative HRM Collective Agreement filed (Exhibit E-2).

[8] The HRM Collective Agreement recognizes a distinction between core and non-core areas defined by managerial structure, but in effect one mirroring the old organized and unorganized
sectors of fire and emergency services in the County of Halifax. Of
the approximately 400 members in the bargaining unit some 375 are
engaged in the core area, a further 30 in the non-core area beyond.
However, these numbers alone do not paint an accurate picture of
the number of personnel engaged by HRM in fire and emergency
services. This is because, as is common in rural areas throughout
Canada, HRM relies upon a sizable volunteer firefighter force —
comprising 200 individuals within the core area, and approximately
900 more in the non-core area. Furthermore, it should be noted that
even within the core area itself there is great disparity in the distri-
bution of firefighters which reflects, of course, variations in
population density and urban infrastructure. Of the 350 firefighters
in the core area, close to 300 are engaged in the former cities of
Halifax and Dartmouth — what might be termed the “inner” core
area — and here, fire and emergency services are fully provided by
career firefighters without the assistance of a volunteer force. These
are almost evenly split between the two former cities — approxi-
mately 150 firefighters in each of Halifax and Dartmouth.

[9] The Board does not wish to leave this brief overview of the
background to this matter without reference to the long and proud
tradition of fire-fighting in HRM, which in the case of Halifax dates
back to the mid-18th century and in that of Dartmouth to the early
19th century. In the modern period, this long tradition of fire-
fighting was wedded with that of collective bargaining, character-
ized by robust and enduring bargaining relationships. Halifax
firefighters first affiliated with the IAFF in 1926 (Exhibit E-3) and
in the early 1960s IAFF Local 268 and IAFF Local 1398 were cer-
tified as bargaining agents for the Halifax and Dartmouth firefighters
respectively (LRB Order no. 734 issued 7 May 1962 (Exhibit E-4);
LRB Order no. 694 issued 10 August 1961 (Exhibit E-10)).

[10] As one would expect in such an urban environment, fire-
fighters are called upon to respond to the full range of emergencies
characteristic of any urban population. Halifax-Dartmouth — the
inner-core of HRM — is the major commercial centre of the
Maritimes and a full range of industrial and commercial structures
is found within its bounds. So too is this the case with institutional
structures in the health and educational sectors, Halifax-Dartmouth
boasting a sophisticated hospital and post-secondary education
infrastructure. Because Halifax-Dartmouth is a port city it has an
enhanced strategic importance both commercially and militarily. It is the seat of the Canadian Forces East Coast Naval Fleet and the Naval Dock Yard houses a major ammunition depot. At Shearwater there is a Canadian Forces Airbase. Halifax-Dartmouth is our major Atlantic port and the trans-shipment hub for a vast range of goods imported into and exported out of Canada. As one would find at any port of this size, a major oil refinery is located at Dartmouth. In addition, there are the usual rail and air transportation facilities one would associate with a major urban centre. The Board recounts all of this to emphasize the great range of circumstances, situations, localities and environments in which fire and emergency services are carried out by firefighters engaged by HRM.

II. SUBMISSIONS

A. Common Ground

[11] It is common between the parties that the only matters remaining in dispute between them are “the term of the agreement and the amount of wages to be paid to employees in the bargaining unit” although the wages to be established by the Board are to be retroactive to 1 November 1997 (Arbitration Submission, Exhibit E-1(U-1, s. 4; s. 10). Further, it is agreed that in settling these matters the Board “will have complete discretion” (s. 4). Moreover, although the matter of “ability to pay” may be raised by either party in argument, that issue in no way restricts the jurisdiction of the Board (s. 3). In addition, the parties are in agreement that the wage rate for First Class Firefighter, established in the Collective Agreement formerly binding between the City of Dartmouth and the Dartmouth Firefighters Association Local 1398 IAFF, is the base rate upon which the Board is to calculate wage rates to be included in the Collective Agreement to govern between HRM and IAFF Local 268. As a result of the 3% legislative roll-back, that base wage rate is $40,255.00 (Dartmouth Collective Agreement, Art. 6.01, Exhibit E-4(U-94). The Board takes especial note of this fact inasmuch as, at the time of the hearing, there was some uncertainty as to the effect, if any, of the decision of the Court of Appeal in the *QE II Health Sciences Centre v. N.S.G.E.U.* case then pending. As noted earlier that decision has now issued, and in the circumstances, the Board is of the opinion that it has no effect on the agreement between the parties as to the base rate of $40,255.00 upon which the Board is to calculate wage rates for the Inaugural Collective
Agreement between them, nor upon its jurisdiction to do so. This matter is more fully addressed in the Appendix included in this Award [post, p. 157].

[12] As was the case with the Arbitration Board charged with fixing the wage rates of the Halifax Regional Police, unreported decision issued 27 November 1997 [Re Halifax (Regional Municipality) and Municipal Assn. of Police Personnel, M.G. Picher, J. Hayes, P. McClellan] (Exhibit E-14; IAFF Local 268 Authorities, E-19), here too the parties have agreed that internal parity is to apply as between HRM firefighters governed by the new Collective Agreement as of its commencement date 1 November 1997, the only differential being as between core and non-core salaries (HRM Collective Agreement Art. 44, app. A1-2; Exhibit E-2). Moreover, in contrast to the situation confronting the Arbitration Board in the 1997 Halifax Regional Police Arbitration, here the parties have agreed between themselves as to the new pay rate differential percentages for the various classifications to be governed by the HRM Collective Agreement (ibid).

[13] So much as to commonality of submissions on substance. As to process, the parties are in agreement that the Board is bound by the “replication” principle. As counsel for HRM put it: “... this Board must attempt to arrive at an agreement that HRM and Local 268 would have arrived at had they been left to bargain under the threat of a strike or lockout” (HRM Submissions p. 15). For IAFF Local 268 counsel agreed that “the basic premise behind interest arbitration” is the replication principle (IAFF Local 268 submissions, para. 315 at p. 109). But beyond agreement on that standard against which the Board is to measure its Award, the parties cannot agree. They differ as to the relevant criteria to be taken into account by the Board in the fulfillment of its mandate so to replicate the collective bargaining process.

B. IAFF Local 268 Submissions

[14] In its exhaustive submissions IAFF Local 268 identifies a broad range of factors as relevant criteria to be taken into consideration by the Board in arriving at its determination. These it canvasses in some detail, supports by statistical data, and summarizes in numerous graphics and charts. The thrust of its submissions are fourfold: first, that HRM firefighters should be compensated at a wage rate comparable to that enjoyed by other firefighters across
Canada in urban centres of similar profile to that of HRM; second, that in any event the wage rates of HRM firefighters should lead those in the Atlantic region insofar as HRM is its most populous and complex urban centre; third, that parity if not superiority of wages should characterize the relationship between HRM firefighters and HRM police; and fourth that a combination of economic factors combine to support its position.

[15] As to economic factors, IAFF Local 268 stresses that its wage rates have been artificially depressed as a consequence of six years of provincial wage restraint legislation. This, compounded by cost of living increases, justifies catch-up to the national and regional norms. Moreover, municipal regionalization has occasioned rationalized fire-fighting and emergency services within HRM and resultant expenditure savings, and early retirement programs consequent upon regionalization have generated further payroll expenditure savings. Furthermore, the HRM tax base is underutilized and assessment rates conservatively set precipitating a declining budget for fire-fighting and emergency services disproportionate to that typical of other comparable urban centres both national and regional. All of these factors lead IAFF Local 268 to conclude that ability to pay should be considered, if at all, as a minor factor in the determination of an appropriate HRM firefighter wage structure — and this particularly when one has regard to the salary structure implemented for senior managerial personnel as well as elected municipal officials.

[16] IAFF Local 268 includes in its submission three sets of comparables which drive its wage proposal. These are: (i) Canadian comparables; (ii) Atlantic Canada comparables; and (iii) Stipends Committee comparables. Factors looked at were population, fire-fighting incidents, workload, unemployment and other economic measurements. In the case of the Canadian comparables, eleven cities across Canada with a similar population to that of HRM were selected. In Quebec these were Laval and Quebec City; in Ontario, — Ottawa, Hamilton, London, Brampton and Windsor; in Saskatchewan — Saskatoon and Regina; and in British Columbia — Surrey and Burnaby. Selected as Atlantic Canada comparables were the major cities in the region — Moncton, Fredericton, and Saint John, New Brunswick and St. John’s Newfoundland. Stipends Committee comparables were those cities
selected by the Stipends Advisory Committee established by the HRM Commissioner to determine the appropriate level of compensation for HRM elected officials (HRM Stipends Advisory Committee Report, 6 September 1995; Exhibit U-11). These were Calgary and Edmonton, Alberta; Saskatoon and Regina, Saskatchewan; Winnipeg, Manitoba; Kitchener, Toronto, Ottawa and London, Ontario; and St. John’s, Newfoundland. In addition as between police and firefighters, the same Canadian, Atlantic and Stipends Committee comparables were considered as were First Class Firefighter and First Class Constable salaries in the Cities of Halifax and Dartmouth for the 19-year period 1980-1998. IAFF Local 268 suggests that the 1997 Halifax Regional Police Award should be given great weight by this Board in its deliberations.

[17] All of the foregoing leads IAFF Local 268 to propose a wage rate for First Class Firefighters of $51,225.00 effective 1 November 1997, with an increase effective 1 November 1998 calculated at the cost of living plus an additional 1%. As to the term of the agreement IAFF Local 268 proposes one which dovetails with that awarded by the Arbitration Board in the 1997 Halifax Regional Police Arbitration — 20 months to expire 30 June 1999. Should a longer term be imposed by the Board then it is submitted that annual increases calculated at the cost of living plus an additional 1% be awarded (IAFF Local 268 Submissions, p. 139).

C. HRM Submissions

[18] Although less extensive, the written submissions made on behalf of HRM are no less forcefully and effectively put. Their thrust is quite different — rather than look at the profile of firefighter wage rates broadly across the region and the nation, HRM has focused in depth on the economic factors which affect these parties and this collective bargaining relationship. Such a focus calls into play a very different set of variables and relevant factors for the Board to take into consideration in arriving at its decision. HRM rejects the Canadian comparables pleaded by IAFF Local 268 as inapposite, given the very different social and economic factors obtaining in other regions of the country. Likewise it rejects the Stipends Committee comparables as irrelevant, which, even if applicable to senior managerial personnel, were driven by a perceived, if not actual, national labour market, whereas the labour market which
applies here is indisputably local. HRM does recognize Atlantic Regional comparables as the predecessor municipalities and locals of IAFF used such comparables in the past while engaging in free collective bargaining. Indeed, HRM goes so far as to acknowledge first “that HRM firefighters should be among the top paid in the Atlantic Region” and second, “that HRM firefighters have fallen behind those of some of their regional counterparts” a situation which it proposes to address “over a reasonable period of time” (HRM Submissions pp. 38-39).

[19] HRM stresses repeatedly the tight conditions which characterize the provincial economy and within which this Award must be made. It has laid great emphasis on the very real impact which its agreement to implement internal parity at one stroke has had upon the great bulk of the members of this bargaining unit. Any wage rate set must take account of this very real initial adjustment, often quite dramatic, to wage rates previously set between the predecessor employer and bargaining agents. Immediate internal parity averaged over the bargaining unit is equivalent to an increase of $3300 per employee. On the other side, its budgetary impact is no less dramatic — 1.3 million dollars annually. HRM argues that this gives legitimacy to an ability to pay argument. Moreover, sweeping generalizations about an underutilized tax base and conservative assessment rates do not adequately address the reality of the tax burden on a population struggling under adverse economic conditions. HRM submits that the legislated six-year wage restraint policy of the Nova Scotia government counsels not catch-up but rather continued restraint, although self-imposed, as public sector employers and trade unions ease back into a regime of free collective bargaining. Thus it suggests that it is appropriate to look to settlements within the Nova Scotia public sector and indeed settlements generally in both the public and private sectors throughout the Atlantic region, all of which have been extremely modest, as guidance in the Board’s deliberations. HRM suggests that the 1997 Halifax Regional Police Award is an anomaly, improperly drawn, to be accorded only minimal consideration by this Board.

[20] All of the foregoing leads HRM to propose a Collective Agreement of four years’ duration to expire 31 October 2001 with annual wage increases of 1.5% to 2% annually, calculated on a First Class Firefighter base rate of $40,255.00 (Exhibit E-20).
III Decision of the Board

A. General Principles

[21] Both parties readily accept what has become axiomatic in the interest arbitration jurisprudence, namely that:

... the task of an interest arbitrator is to simulate or attempt to replicate what might have been agreed to by the parties in a free collective bargaining environment where there may be the threat and the resort to a work stoppage in an effort to obtain demands ... an arbitrator’s notions of social justice or fairness are not to be substituted for market and economic realities.

Those are the words of Arbitrator Dorsey summarizing what he terms “a consensus in British Columbia” in Re Board of School Trustees, School District 1 (Fernie) and Fernie District Teachers’ Assn. (1982), 8 L.A.C. (3d) 157 at p. 159.

[22] That consensus is not limited to British Columbia, but is universal throughout Canada. It was accepted in Nova Scotia by Professor Darby, now Chair of the Nova Scotia Labour Relations Board, acting as Chair of a Board of Arbitration established under the Civil Service Collective Bargaining Act, S.N.S. 1978, c. 3, to resolve an interest dispute in N.S.G.E.U. and Nova Scotia Civil Service Commission (Tech — Nurse Arbitration) unreported decision issued 11 June 1985 (HRM Authorities, E-1). There he accepted as governing the theory articulated by Professor Arthurs in three cases arising in Ontario in the 1960s, summarized by Professor Weiler in Re Building Service Employees, Loc. 204, and Peel Memorial Hospital (1969), 20 L.A.C. 31, in the following terms cited by Professor Darby at p. 4:

“Arbitrators should attempt to simulate the results which would be reached by hospitals and unions, with their relative economic and bargaining positions, who reached agreement under the sanction of a strike” [at p. 35].

[23] Both parties referred us to arbitral jurisprudence ranging over close to a forty-year period across Canada in support of this principle, most recently by Arbitrator Priel in a decision within the firefighters’ sector, Re Regina (City) and Regina Professional Firefighters Assn., I.A.F.F., Loc. 181, unreported decision issued 23 December 1997 (HRM Authorities, E-2). There he referenced a large number of Saskatchewan interest arbitration cases and in particular that of Arbitrator Laing in an Award between the same parties, the Re Regina (City) and Regina Professional Firefighters Assn., I.A.F.F., Loc. 181 case, unreported decision issued 11 July 1991 (IAFF Local 368 Authorities U-2), citing from the earlier decision at p. 6:
“It appears to be well accepted that the role of an Arbitration Board in an interest arbitration in the public sector, where the right to strike is non-existent, or at best illusory by reason of the likelihood of back-to-work legislation, is to attempt to replicate what the parties might have arrived at, had both parties been left to free market forces, which include the right to strike and the right to lockout. An interest arbitration board’s impression of what the parties might have eventually settled for, must of necessity depend in large part on the evidence presented in the hearing. With respect to that evidence, the Board must take into account not only the “power” position of the parties and attempt to determine who might prevail if an unrestricted economic warfare was permitted, but must be guided in large part by the “reasonableness” of the respective positions of the parties. Reasonableness is to be determined in the overall context and economic climate that prevails at the time the dispute is determined. Because a request is reasonable does not mean that an interest Arbitration Board must grant the same. Reasonableness as to any one demand is not to be looked at in isolation, but rather in the context of the aggregate of demands being advanced. Successful collective bargaining depends on compromise, and the role of the interest arbitration board is to attempt on the basis of the evidence heard to arrive at something close to the type of compromise that would have been achieved by the parties if left to their own devices” [pp. 7-8].

[24] The replication principle derives from a central tenet of our polity: that industrial democracy is a necessary incident of political democracy. This is the basis of all collective bargaining legislation in Canada whether in the private or the public sector. Although of late questioned by some contemporary economic and political theorists, as well as by Courts, when asserted as a constitutional principle — most notably by our Supreme Court in the Labour Trilogy [Reference re: Public Service Employee Relations Act] (1987), 38 D.L.R. (4th) 161, — its continued vibrancy as an informing public policy cannot be seriously doubted. That such is the case is evident from the tenor of the recently released decision of the Court of Appeal in QE II Health Sciences Centre v. N.S.G.E.U. where Justice Freeman, speaking for the majority, characterized the Public Sector Compensation (1994-1997) Act as “clearly emergency fiscal legislation thrust upon public sector labour relationships, which previous to the restraint legislation had been ruled by free collective bargaining under the Trade Union Act and such special enactments as the Civil Service Collective Bargaining Act, R.S.N.S. 1989, c. 71” (p. 10 [p. 201 N.S.R.]). Further in the Summary and Conclusion of his Reasons for Judgment he described the 3% wage roll-back imposed by the legislation as a “harsh measure” intended “to combat the evil of a runaway deficit” but
“not intended to have any lingering effect ...” [at p. 212 N.S.R.]. Indeed, he saw, in the legislative extension of collective agreements to 1 November 1997, one day after the removal of constraints on free collective bargaining “an unmistakable expression of legislative intent” that “the employers and employees were set free to resume normal labour relations including collective bargaining after a three-year interruption as though, to the fullest extent possible, the Act had never existed” (p. 31 [pp. 212-213 N.S.R.]).

[25] These powerfully expressed words mirror the deep roots of industrial democracy within our political tradition, perhaps most fully explored and considered in *The Report on Task Force on Labour Relations* (1968 Woods Task Force) which, among its principal findings declared:

One of the most cherished hopes of those who originally championed the concept of collective bargaining was that it would introduce into the workplace some of the basic features of the political democracy that was becoming the hallmark of most of the western world. Traditionally referred to as industrial democracy, it can be described as the substitution of the rule of law for the rule of men in the workplace [p. 96, para. 296].

[26] Woods referenced the seminal work of the Webbs, *Industrial Democracy* (1897) as a principal source of the concept in the English tradition. Its counterpart in our own can be found early articulated in MacKenzie King’s study *Industry and Humanity* (1918). In cases of voluntary submission to binding arbitration such as this, the judicial disapproval of an inherent power in the arbitral tribunal to bind the parties to such a process for the resolution of future bargaining disputes, except in the most exceptional of circumstances, reflects this deep-seated commitment to the principle of industrial democracy. See *Grey-Owen Sound Health Unit v. O.N.A.* (1979), 104 D.L.R. (3d) 32 (C.A.); and *O.N.A. v. Haldimand-Norfolk Regional Health Unit* (1983), 150 D.L.R. (3d) 193 (S.C.C.). It is within the spirit of the centrality of free collective bargaining to our tradition of industrial democracy that this Board undertakes its task.

**B. Relevant Criteria**

1. **General Considerations**

[27] Over the years, interest arbitrators throughout Canada have developed a catalogue of relevant criteria to ensure that the process in which they are engaged will be firmly seated on a principled and
rational basis. All of these, in one formulation or another can be said to be but variations of a set of criteria first articulated by Arbitrator Shime almost a quarter of a century ago in General Truck Drivers and Helpers Union, Loc. 31 and British Columbia Railway Co. (1 June 1976), a decision which surprisingly, given its influential stature, has never been fully reported. An expansive discussion of the case is found in the Award of Chief Justice Richard of the New Brunswick Court of Queens Bench acting as Arbitrator in Re C.U.P.E. and New Brunswick (1982), 49 N.B.R. (2d) 31. It reiterates the Shime criteria and gives excerpts from the Shime Award justifying the irrelevance (pp. 38-41). These are:

1. Public sector employees should not be required to subsidize the community by accepting substandard wages and working conditions;
2. Cost of living;
3. Productivity;
4. Comparisons — internal;
5. Comparisons — external;
6. Comparisons — external not in the same industry but work of a similar nature.

[28] Neither Arbitrator Shime nor those who followed claim this list of criteria to be exhaustive. Nevertheless it can be said to be programmatic, and other criteria identified in the jurisprudence have been built upon the basic structure outlined in the General Truck Drivers and B.C. Railway case. Thus Justice Richard added as relevant factors the current state of the economy, the required awareness of the relation between the private and the public sectors, and the profile of the labour force there being considered which comprised full-time and part-time employees. Other arbitrators too have catalogued developing economic conditions at the macro, meso and micro levels as critical factors to be taken into account in the setting of the wage rates by the interest arbitration process. Both parties before us have done likewise.

[29] Nevertheless commentators have noted that within the universe of relevant criteria, pre-eminence of place has almost invariably been given, both by arbitrators and by legislators to the comparability factor. (See for instance Professor Swan’s article “Apples and Oranges: Comparability as a Criteria”, Interest Arbitration (Toronto: Carswell, 1981), 267-283 at p. 268.) Internal and external comparables as well as the desirability to maintain
appropriate relationships in conditions of employment as between classifications in the Civil Service are two of the five criteria enumerated in the Nova Scotia Civil Service Collective Bargaining Act to be taken into consideration by Arbitration Boards established under its provisions. Although in the instant case the parties elected voluntary binding arbitration and the Board here established is not subject to that Act, its provisions, touching as they do the interest arbitration process in the public sector, are relevant to our process, reflecting as they do the felt sense of the legislature when it turns its mind to the issue.

[30] The Board wishes to dispel a misapprehension which some may have as to the comparability factor. It is not premised upon conscious bargaining choices as is sometimes asserted. Whether in their historical bargaining relationships particular parties have articulated comparability or relativity as between themselves and other bargaining relationships is not determinative. Rather, other bargaining relationships become relevant if the empirical evidence supports the drawing of a particular comparison or relativity as between two groups of employees based upon objective criteria, including the nature of the work, skills, abilities and qualifications required and circumstances in which they are exercised. All of this is but another way of saying that the interest arbitration process takes place within the general climate of the market in much the same way as does the collective bargaining process. But because the parties have forsworn recourse to economic sanction — a process which is rational in its own terms — to test the limits of what the market will bear vis-à-vis their particular relationship, an arbitration board must do the same by a process which is likewise rational. Indeed, George Adams, Canada’s premier practitioner of the arbitrator’s art has noted that it is the pre-eminence given to the comparability factor “that makes interest arbitration an inherently conservative process” and this is as it should be, for it is but a substitute for the preferred method of resolving such disputes — that of free collective bargaining. (See G.W. Adams, “The Ontario Experience with Interest Arbitration: Problems in Detecting Policy”, Interest Arbitration (Toronto: Carswell, 1981), 133-174 at p. 146.) To the extent that this case might be analogized to that of first contract arbitration, as IAFF Local 268 suggests, the authorities counsel the same conservative approach. (See Re Yorrow Lodge Ltd. and H.E.U. (1993), 21 C.L.R.B.R. (2d) 1 (B.C.L.R.B., Lanyon) at 48.)
2. External Comparisons

[31] Is there an appropriate external comparator universe which the Board should take into consideration in coming to its conclusions? IAFF Local 268 proposes that there are three: municipal fire departments in the Atlantic Region; municipal fire departments across Canada which serve a similar population base; municipal fire departments nationally in cities included in the Stipends Committee Comparables.

(i) Stipend Committee Comparables

[32] The last comparator universe can be readily disposed of. It is one developed to determine appropriate compensation rates for elected officials in the newly established HRM. The Stipends Advisory Committee was not engaged in the interest arbitration process, nor is the establishment of compensation rates for individuals to be governed by the collective bargaining process. The comparator universe established by the Committee was based on principles that are simply inapplicable to the process in which this Board is engaged. It is evident that the compensation rates determined by the Stipends Committee process are competitive on the national level, and that a rationale based on the complexity of the government structure resulting from regionalization has been articulated to support that outcome. Moreover, as HRM submitted here, even if the Stipends Committee Comparables were used to establish senior managerial personnel rates, the labour market pool for such positions is a national one which is clearly not the case before us. Indeed, the IAFF Local 268 submission on the Stipends Committee Comparables as an appropriate comparator universe appears to be driven by the principle that “What is sauce for the goose is sauce for the gander.” At least one Labour Board has expressly held that even if it is arguable that such could be elevated to a principle of law, and there are examples which would support the proposition, “it is not a viable one in the collective bargaining context” (Construction and General Labourers Workers, Loc. 1096 v. Brunswick Foundation (Saint John) Ltd. (1990), 90 C.L.L.C. ¶16,012 (N.B.I.R.B.) at p. 14122, para. 21).

(ii) Canadian Comparables

[33] The argument based on a comparator universe comprising municipal firefighter services in Canadian centres of comparable population is, on first impression, an attractive one. Although it may
be that such a comparator universe is used among major metropolitan centres, there is little evidence that such is the case with municipalities of the size here being considered. In the Board's view it does not bear up under closer examination. Simply put, there are too many variables which impact upon the social and economic contexts in which firefighter services are provided across the country to be able to draw from the statistics any conclusion which would withstand rigorous scrutiny. The cumulative effect of widespread variations in the vitality of the ten provincial economies (and within each of these the strengths and weaknesses of local economics), disparities in cost of living, variations in municipal governance and the structure for the delivery of fire-fighting and emergency services, and differences in the legislative infrastructure which support those services — is such as to cast doubt on the value of drawing any but the broadest of comparisons from the data presented for consideration by the Board. Thus, beyond recognizing that across the country, fire-fighting is acknowledged as one of those critical areas and principal sectors "which are usually considered to have inordinate public interest because the interruption of service threatens one or more of life or limb; peace, order, and good government; or the basic sinews of the economy" (G.W. Adams, *op. cit.*, p. 129) and that wage rates commensurate with its critical importance are justified, little more can be drawn from a national comparator universe.

(iii) Atlantic Comparables

[34] It has already been noted that the parties are in agreement that a comparator universe comprising the major cities in Atlantic Canada is a viable one. Rather more emphasis was placed on the appropriateness of this comparator by IAFF Local 268 than was by HRM, but nevertheless HRM expressly acknowledged recourse to such comparison in the bargaining relationships between the predecessor parties. This is only natural, as recognition of the Atlantic provinces, and even more specifically the Maritime provinces as comprising a distinct economic region within Canada is a commonplace. Similarities of population base and density, of economic structure and profile, of capital infrastructure, of the balance between private and public engagement in economic activity, of structure and delivery of social, educational and health care services — all serve to support the validity of an Atlantic comparator universe for our purposes. The Board considers comparisons
between the wage rates paid to firefighters in HRM and those paid in Moncton, Fredericton, and Saint John, New Brunswick and in St. John's, Newfoundland to be a relevant factor to be taken into account in its determination and it has done so.

3. Internal Comparisons

[35] IAFF Local 268 proposes two sets of internal comparisons which should be drawn upon by the Board in its deliberations here: first HRM Civilian Dispatchers, and second First Class Constables in the Halifax Regional Police. In the case of the former it argues for re-establishment of the pre-existing relativity between Fire Dispatchers and First Class Firefighters in the predecessor municipalities of Halifax and Dartmouth in both of which cases the wage rates for firefighters were superior by a magnitude of 30% to 40%. In the case of First Class Constables the argument is to obtain at least parity if not superiority to the wage rates accorded in the November 1997 Halifax Regional Police Award.

(i) HRM Civilian Dispatchers Comparison

[36] Again, the Board can dispose quickly of the first submission which is premised on a perceived misalignment of the relativity of wage rates as between HRM First Class Firefighters and HRM Civilian Dispatchers. The short answer to this submission is that the HRM Civilian Dispatchers are a new classification created consequent upon amalgamation with which no historical relationship of wage relativity has ever existed. True, the personnel serving in this new classification are drawn partially from the predecessor firefighter bargaining units which included a dispatcher classification, but there is simply insufficient evidence before the Board so as to allow it to draw any definitive conclusions for its purposes here. The Board rejects this submission of IAFF Local 268.

(ii) The Police-Firefighter Comparison

[37] IAFF Local 268 submits that there is a historical relationship between police and firefighter compensation rates which is general throughout the two sectors and that the Board should have regard to this reality in its determination. Its argument is put in terms of parity, and indeed this was the initial wage demand put forward by it on 24 October 1996 (Exhibit U-102). The current rate for First Class Constable was set by the Arbitration Board in the HRM Police Award at $48,000 effective 1 November 1997 with an increase to
$49,500 effective 1 July 1998, the agreement to have a 20-month term expiring 30 June 1999. (Award, p. 10). As the Board noted at the Hearing, that demand is not consistent with its present positions premised on its Canadian comparator universe, which would result in a First Class Firefighter wage rate $51,225 effective 1 November 1997, superior to that of a police constable by $3,225 or some 6.7%. There is simply no evidentiary basis which would support even parity of wage rates as between the two services, much less the superiority of firefighter wage rates of this magnitude.

[38] However, there is validity to the underlying proposition that the police-firefighter comparison is one to which the Board should give consideration in arriving at its decision. Indeed, the submission taps into a long-standing jurisprudence and widespread commentary which recognizes that a relativity of wage rates between the two protective services can be tracked at all levels whether local, provincial, regional, or national. In the 1991 Re Regina (City) and Regina Professional Firefighters Assn., I.A.F.F., Loc. 181 Award, Arbitrator Laing confirmed, on the basis of the evidence before him that historical relationships between firefighters and police officers can be established — ranging from virtual parity in the Province of Ontario to differentials from 1.5% to 6.5% across the Prairie and Western Provinces — always in favour of the police (p. 12 f). In Re Moncton (City) and Moncton Firefighters Assn., I.A.F.F., Loc. 999, unreported decision dated 7 February 1983 (IAFF Local 268 Authorities U-27), a Board of Arbitration chaired by the Chair of this Board concluded that a historical relationship of skill and wage comparability between the two protective services is characteristic as well of the Atlantic Provinces (at p. 5).

[39] The commentators too have recognized an historical relationship between firefighters and police. George Adams, although critical of the internal coherence of such a comparison, nevertheless acknowledges its widespread use. He writes:

The adjudication of salaries for fire fighters is a classic example of parasitic wage comparisons. Because of the unique nature of the work, private sector comparisons cannot be made. Over time, however, relationships between local police and fire fighting salaries have developed with fire fighters’ salaries following police salaries by a relatively constant differential. These types of comparisons, when measurable and constant do afford workable criteria as their popularity in practice suggests, but several factors impede their automatic utilization. Comparisons to others implies that the affected parties will
never be leaders within their group. Further, if the whole industry is subjected to arbitration on that basis, in time the entire adjudicative enterprise will freeze unless tied to a workable and external comparison. Comparisons depend on a regime of exchange for their vitality and in time this may be displaced by adjudication. The difficulty of finding this "link" for police bargaining is, therefore, crucial to the fire fighter (op. cit., at p. 147).

The characterization of such wage comparisons as "parasitic" is somewhat harsh, and in all likelihood given the general tenor of the piece, is intended to emphasize the difficulty which the trailing group faces in breaking out of a negative differential pattern, particularly through a process as conservative as that of binding interest arbitration. Perhaps a more accurate and less inflammatory descriptive of such relationships is that they are "symbiotic" — and this, as earlier noted, is clearly supported by the evidence throughout Canada in the case of the two protective services. The matter is revisited most recently, and in a positive light, by Professor Jackson in his study "Interest Arbitration under Ontario's Police Services Act: An Arbitrator's Perspective" Labour Arbitration Yearbook (Toronto: Butterworths, 1993) 297 at pp. 309f.

[40] One need not search far to discover its root cause — the interrelationship between the protective services provided, and their critical importance to the public interest. In the Moncton (City) case the matter was put in this fashion:

Arbitrators and arbitration boards have long recognized the principle that comparable or interrelated groups of employees performing work requiring similar skills and ability, ought to be remunerated equally. It is thus not unusual to find similarity of wage rates not only between employees of two or more employers in a single industry performing the same risks to a required standard of skill and ability, but as well similarity of wage rates between groups of employees of a single employer performing disparate tasks, but of a nature which requires similar or comparable skills and ability.

We have much evidence before us that fire fighters and policemen are two such groups of employees who have historically been considered to be performing work which requires a comparable level of skills and abilities meriting comparable wage rates. This interrelationship and comparability of the two groups and their wage rates has been recognized by arbitrators in many jurisdictions including New Brunswick. Comparability of wage rates between the two employees has been and continues to be standard in all major cities throughout Canada and the Atlantic Region including New Brunswick. We are aware of the employer's position "that Moncton City Council does not recognize nor intend to perpetuate wage rates that are identical or proximate in Moncton's Police and Fire Services." But the principle of identical or
proximate wage rates between these two groups of employees cannot be destroyed by a mere side wind. It would take evidence of the most cogent nature establishing significant changes in the tasks performed by the two groups of employees, and requiring substantially different levels of skill and ability for their performance, to convince this Board that the historical inter-relationship between the wage rates of the two services need no longer be maintained. But no such evidence was forthcoming. We can only conclude that there has been no change in either criteria of comparability [pp. 5-7].

This Board, in common with those in other jurisdictions throughout Canada gives great weight to the maintaining of the historical relationship of wage rate comparability between police and firefighters in arriving at its determination.

4. Economic Climate

[41] General economic conditions must, of necessity, influence both general and particular outcomes in our labour relation system, whether in robust times in which case one would expect outcomes reflective of a strong economy, or in more fragile times when one would expect outcomes which reflect a weaker economy. Ours is an economy which nationally, regionally, and provincially has suffered severe strains due to a host of factors. Although it can said to have weathered the worst, it is still sufficiently fragile so as to require constant vigilance lest it slip backward rather than progress forward. It is within this context that one must address two particular economic factors on which each of the parties makes submissions: ability to pay and wage restraint.

(i) Ability to Pay

[42] Traditionally, the argument against accepting ability to pay as a guiding criterion in determining public sector wages has been premised on the theory articulated by Arbitrator Shime that “public sector employees should not be required to subsidize the community by accepting sub-standard wages and working conditions”. But one must be cautious not to conclude from that principle that there is not a ceiling to the economic burden which the citizenry can be expected to bear under a “deep pocket” theory of the public employer’s ability to pay. True, we may not be able to point to a balance sheet as proof of such inability, but one need only take note of the not uncommon phenomenon of the citizens’ tax revolt to recognize that for the public employer, as for the private, there is a bottom line. The more modern commentators and the contemporary arbitral jurisprudence are both more finely attuned to the
overarching significance of broader economic realities to particular bargaining relationships in the public sector. In this regard, one cannot ignore that the early ability to pay doctrine was rooted in Keynesian economic theory and its tolerance for deficit financing which, although once orthodox has now become heresy — so much so, that governments of whatever stripe across Canada have abjured it as they strive for the balanced budget.

(ii) Wage Restraint

[43] In the QE II Health Sciences Centre case, the Court of Appeal emphasized the emergency nature of the Public Sector Compensation (1994-1997) Act, fashioned as fiscal restraint legislation “to remedy the evil of a runaway provincial deficit” and to which primacy over free collective bargaining was given (p. 10 [p. 201 N.S.R.]). And although with its demise the Court stressed that employers and employees were once again “set free to resume normal labour relations including collective bargaining ... as though, to the fullest extent possible, the Act never existed” [pp. 212-213 N.S.R.], one cannot read into that statement a denial of the continuing relevance of economic conditions to labour relations in the Province. The principal thrust of the Court’s decision was that it was through the collective bargaining process rather than by legislative command that labour relations were to be developed. Thus, the Board does not read the case as licence to award a settlement in the teeth of the legislative policy of fiscal restraint which informed the 1994-1997 Act.

[44] Arbitrator Hope came to much the same conclusion in the Vancouver Police Board and Vancouver Police Union award, unreported decision 7 September 1993 (IAFF Local 268 Authorities U-17). Where, although recognizing as legitimate a bargaining goal to re-establish pre-existing comparabilities distorted by wage restraint legislation, he cautioned that “the achievement of that goal cannot be pursued in defiance of the legislative program that gave rise to the gap” (pp. 24-5). So too here, the Board must be cognizant that its deliberations take place against the background of an economic climate of restraint which invariably must have an impact upon the entire collective bargaining process and as well upon the ultimate resolution of the particular dispute before it. Thus, in fashioning its Award the Board must take account not only of the equities raised in the particular bargaining relationship, but as well
of the pervasive reality of economic restraint, all the while striving to maintain the continued integrity of the collective bargaining process which it is meant to replicate.

C. Application of Principles and Criteria

[45] The Board has canvassed the perceived equities raised in the particular collective bargaining relationship here under consideration — internal and external relativities — and it has considered carefully the climate of fiscal and economic restraint within which this interest arbitration process takes place. In arriving at its Award it must take the replicative approach and strive to simulate the result which would have been reached by the parties through the bargaining process under the threat of economic sanction, given their relative economic strengths and bargaining positions. Like all prognostication, one must recognize frankly that this cannot be an exact calculation. That being said, sensitivity to the principles and criteria found in the jurisprudence and the literature, of which the parties have shown themselves to be well aware, enables the Board to come to a determination which arguably approaches the outcome which would have been reached between the parties through the process of free collective bargaining under the threat of economic sanction.

[46] The Board accepts as a guiding premise that which has driven collective bargaining in the firefighter sector throughout Canada, namely, that outcomes reflect a relativity of wage rates as between firefighters and police engaged by the same employer. That factor outweighs others put forward by the parties, be these national comparables within the firefighter sector as argued by IAFF Local 268, or provincial public sector comparators in the health and education disciplines as argued by HRM. This leaves the Atlantic comparator universe which was recognized by both parties, although less enthusiastically by HRM. On the evidence before the Board, taking into account necessary adjustments in the case of Moncton to reflect the pre-existing Moncton Police Force wage rate structure prior to its absorption into the RCMP, the average differential between firefighter and police wage rates in the Atlantic Provinces is 4.06%. However, the Board notes that the St. John’s, Newfoundland case with its reverse wage rate differential, is anomalous at both the regional and national levels, and should perhaps be discounted. In that case, a Maritime Province comparator
universe would yield an average differential wage rate between the two protective services of 5.2%.

[47] The Board was provided with full statistics on the relativity of wage rates as between First Class Firefighters and First Class Constables in the former Cities of Halifax and Dartmouth for a 19-year period from 1980 to 1998 (IAFF Local 268 Submissions, pp. 205-206). It has discounted the years under which the bargaining relationships were subject to wage restraint legislation because of its distorting effect. This leaves a 12-year time frame to be assessed. In the case of Halifax the differential between the First Class rank of the two protective services ranged from a low of 0.65% to a high of 11.05% with a weighted average of 8.09% for the 12-year period. In the case of Dartmouth the differential between the First Class rank of the two protective services ranged from a low of 1.26% to a high of 17.95% leaving a weighted average within the 12-year time period of 6.76%. This gives a blended weighted average for the two former Cities over the 12-year time period of a 7.6% differential between the wages of First Class Firefighters and First Class Constables.

[48] The effect of the 1997 Halifax Regional Police Award was to create a differential between the First Class wage rates of the two protective services of 19.23%. This is far in excess of the average differential wage rates as between the two protective services which obtained in either of the pre-existing municipalities, and indeed in excess of any differential on record. It is clearly out of line. It is neither the intention nor the function of this Board to question the integrity of the 1997 Halifax Regional Police Award — one which it notes was unanimously agreed to by a tripartite panel chaired by an Arbitrator of national repute. Moreover, the Board rejects the HRM submission that little weight need be given to the earlier award. To the contrary, given the historical relationship between the police and firefighter sectors the Board is convinced that, if left to the free collective bargaining process, the parties would have, in the circumstances, moved to re-establish an appropriate relativity of wage structure as between the two HRM protective services. Indeed, the acknowledgment by HRM that its firefighters’ salaries have fallen behind those of some of their regional counterparts, and its proposal to address that factor “over a reasonable period of time”
is an implicit acknowledgment of the need to re-establish an appropriate differential as between the wage rates of First Class Officers in the two protective services. For those set elsewhere in the Region likewise reflect a wage rate relativity as between the two protective services in each of the sectors under consideration.

[49] This leads the Board to consider whether the proper approach is to re-establish a differential based upon the Maritime comparator universe or one based solely on the pre-existing local comparators. The Arbitration Board which set the wage rate for the HRM police sector in the 1997 Halifax Regional Police Award was of the view that the size of the HRM police force, as the largest municipal force within Atlantic Canada, had significant bearing, leading it to conclude that “this force should as a general rule, be a leader among municipal police forces in Atlantic Canada from the standpoint of wages” (Award, p. 9). Although it is tempting to come to the same conclusion here with respect to the firefighters, the Board has determined that it cannot do so. The Board is not at all convinced that, if left to the free collective bargaining process under the threat of economic sanction, the parties would have arrived at such an outcome in this set of negotiations.

[50] Past experience indicates that the wage differential between the two protective services in the Cities of Halifax and Dartmouth was greater than that which obtains generally in the Maritimes, and there is little to suggest that it should be any different now. Certainly, if the wage differential is to be narrowed from that historically established, this should be done through the process of free collective bargaining and not imposed by that of interest arbitration. In addition, the Board cannot but help take note of the fact that, whereas HRM, in attempting to resile from its original agreement to submit this matter to binding arbitration, thereby indicated its willingness to test the matter through the process of free collective bargaining, IAFF Local 268, by insisting that the matter be resolved through the interest arbitration process, thereby signalled its reluctance to trust its fortunes to the collective bargaining process. The Board concludes from this that it ought not go beyond local conditions in setting HRM firefighter wage rates. So limiting itself accords with the submission of HRM that a wider comparator universe does not give due regard to local labour market conditions, characterized as they are by a low turnover rate in the firefighter sector.
[51] The Board has determined then to re-establish the historical relationship between the wage rate structure of the two protective services by narrowing the differential between the wage rate for HRM First Class Firefighters and HRM First Class Constables. It proposes to raise the wages of firefighters accordingly, based upon a base rate of $40,255. The question then becomes within what time frame and on what schedule should this be effected. Putting aside for the moment its submissions on parity or even superiority of wage rates, the thrust of the argument which IAFF Local 268 makes is that any adjustment be full and immediately effective 1 November 1997. Moreover it insists on a collective agreement coterminous with that governing the HRM police force. For its part, HRM proposes a graduated increase spread over a four-year period. However, even at its best, i.e. 2% annually for 4 years this would leave a differential of 13.59% between the two protective services. Such a term would have an unacceptable distorting effect on the differential, given the short 20-month term of the collective agreement now governing the HRM police sector. Even calculated at a 3-year term, the Employer proposal would result in a 15.97% differential. This is still more than twice the blended weighted average differential rate of 7.6% which IAFF Local 268 would be most likely to obtain through the process of free collective bargaining. True, it is unlikely that it would do so within a 20-month period given (i) the severity of the tax burden such would place on the ratepayers, and (ii) the climate of economic restraint under which public and private sectors settlements in the 1% to 2% range annually continue to be the provincial norm. A term somewhere between that proposed by each of the parties — 20 months vs. 4 years — would in all probability have been arrived at through free collective bargaining which the Board is mandated to replicate. In the circumstances, the setting of a 34-month term, halfway between that proposed by each of the parties, would be faithful to the replication principle.

[52] A further factor here, as was the case with the HRM police force, is that the setting of a wage rate for the HRM firefighters shares some affinity with a First Contract situation. This calls into play the Shime admonition that public sector workers ought not to be put in the position of subsidizing the community by accepting substandard wages, much less by their imposition. Indeed, it is the sense of the Board that, implicit in the submission of the wage issue
to voluntary binding arbitration, was an acceptance of that principle even within a climate of wage restraint. A wage rate which re-establishes the historical relationship between the wages paid to the two protective services is neither substandard nor excessive. There is a real likelihood that it is the rate that the parties would have arrived at by way of free collective bargaining under threat of economic sanction in this round of bargaining. Doubtless, the impact of such a significant upward adjustment on the HRM budget would have been softened by some form of graduated implementation, although that is not the historical practice between the parties which was to set one time wage increases effective for the term of the governing collective agreement. (See HRM Book of Collective Agreements.) This is particularly so, given the pattern set by recent settlements in the provincial public sector, which track the QE II and the Teachers’ settlement in the neighbourhood of 2% annually, and of which the Board must be, and is, acutely aware.

[53] The Board is cognizant of the fact that immediate internal parity has already resulted in significant wage gains for the majority of the members of this bargaining unit — those formerly engaged by the City of Halifax, the Town of Bedford and the County Towns of Sackville, Cole Harbour/Westphal and Lakeside/Blackpoint. However, by the same token it must be recalled that parity was based on a 3% rolled-back wage rate first negotiated in 1991 by IAFF Local 1398 and the City of Dartmouth. For the Dartmouth firefighters, who comprise close to 40% of the HRM bargaining unit, parity alone affords no wage gain whatsoever. Thus, even given the effect of parity, all of the factors here discussed, in their aggregate, lead the Board to conclude that it should award a wage rate which establishes a 7.6% differential between the First Class Officer Rank of the two HRM protective services, but on a graduated basis over the term of the Collective Agreement. An incremental rate of increase approximately twice that proposed by HRM over a 34-month period would accomplish this end. Accordingly, the Board makes the following Award:

**TERM:**
Thirty-four (34) months to commence 1 November 1997 and to terminate 31 August, 2000.

**WAGES:**

<table>
<thead>
<tr>
<th>Effective</th>
<th>Rate</th>
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<tr>
<td>1 November 1997</td>
<td>$41,400</td>
</tr>
<tr>
<td>1 May 1998</td>
<td>$42,600</td>
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IV CONCLUSION

[54] For all of the foregoing reasons the Board issues its Award and as agreed between them, the parties are to effect a Collective Agreement accordingly. The Board retains jurisdiction as to the interpretation of this Award and its implementation.

APPENDIX

[1] Some concern has been expressed by HRM as to the possible effect on this Award of the decision of the Court of Appeal in QE II Health Sciences Centre v. N.S.G.E.U. That decision was handed down subsequent to the hearing of this matter but before issuance of the Award. In anticipation of the decision HRM filed with the Board a proviso of the QE II settlement (Exhibit — 30) and made the following submission:

One “freeze” aspect, however, important to note and deal with, is the 3% rollback. In 1994, as part of the restraint legislation, there was a 3% rollback in pay rates. When the freeze ended in November 1, 1997, an issue emerged involving other parties than those before you (N.S.G.E.U. and the QE II) that the 3% rollback should be automatically restored on November 1, 1997. An arbitrator agreed with this position but was overturned by Justice Goodfellow of the Nova Scotia Supreme Court. His decision, in turn, has been appealed to the Nova Scotia Court of Appeal which has heard but not rendered its decision. If that appeal succeeds, then any adjustment which the Board might award without regard to that factor, will have to be reduced by 3 percent effective November 1, 1997 (assuming the Board were to award that amount to all or some of the affected employees effective on that date). This proviso is a term of the QE II settlement [pp. 65-6].

[2] Whatever the effect of the Court of Appeal decision in the QE II case, the Board is of the view that it has no effect whatsoever on the Award here made. The whole gist of the decision of the Court is that the free collective bargaining process sprang back to life on the demise of the restraint legislation and that this result was effected by the legislative extension of the collective agreements caught by the Public Service Compensation (1994-1997) Act to 1 November 1997, one day following its lapse. The Court explicitly held that section 9(1) of the 1994-1997 Act, which imposed a 3 percent roll-back, did not amend the collective agreements caught by its terms. These were restored unaltered to their former effectiveness on the day following the demise of the Act — and this would include the
originally bargained pay rates. However, the Court gave an important gloss to its ruling when it wrote:

If the pay rates in the collective agreements were amended to 97 per cent of their negotiated levels, that would be the pay level in effect when the agreements expired November 1, 1997, and that would provisionally govern pay rates pending the negotiation of new collective agreements [p. 27 [p. 210 N.S.R.]].

[3] That approach is consistent with the preference which the Court gave to free collective bargaining over against legislatively imposed wage restraints in its reading of the legislation. Were parties to bargain the roll-back then such a bargain would be effective on restoration of the collective agreement. That is precisely what has occurred here in the City of Dartmouth Collective Agreement. As originally bargained, effective 1 January 1991-31 December 1991, it provided for a First Class Firefighter wage rate of $41,499 (Exhibit U-93, art. 6.01). However, once extended, first by the Public Sector Compensation Act and subsequently by the 1994-1997 Act, the Collective Agreement was amended to provide for a First Class Firefighter Wage rate of $40,254.03 (U-94, art. 6.01). Indeed, this is clearly flagged for the reader on the cover of the later Collective Agreement which notes “This printing includes revisions approved July 1995 by the Public Sector Compensation Board.”

[4] But even if this were not the case, there is another way of looking at the matter. Here, the parties through the process of free collective bargaining have expressly agreed in their Arbitration Submission that “Wages as established by the Board will be retroactive to November 1, 1997” (s. 10). Even were the pre-roll-back rate to have been resurrected on the expiry of 1994-1997 Act such Agreement would erase its effect. In accordance with that Agreement as contained in this Arbitration Submission, the Board has awarded wage rates effective 1 November 1997. Although these are calculated on the parity roll-back rate of $40,255, the wage rates set for the HRM Collective Agreement are expressed in dollar amounts rather than in percentage increases. This is similarly the case with the 1997 Halifax Regional Police Award rates of $48,000 and $49,500. It is with respect to these that an appropriate differential was set in the within Award so as to maintain an historical relationship of wage relativity.

[5] It is the intention of the Board that the wage rates awarded here re-establish an appropriate wage differential between the rates
paid to the First Class Rank of the two HRM protective services, which the Board determines to be 7.6%. This is to be achieved incrementally over the 34-month term of the HRM Collective Agreement to govern the firefighter sector. Should the Board be incorrect in its analysis of the decision of the Court of Appeal in the QE II Health Science Centre case upon this bargaining relationship, its intention is that the rates here set should be operative, not to be deemed increased by 3% as a result of that decision. However, if the effect of the Court of Appeal decision is to increase the rate of remuneration paid to the Halifax Regional Police Force by 3% above the rate set by the 1997 HRM Police Arbitration Award, effective 1 November 1997, then the Board may be spoken to as to the effect, if any, such should have upon the Award here made.

[6] In any event as noted in the main body of the Award, the Board retains jurisdiction to address any issue as to the interpretation or implementation of its Award.

ADDENDUM (Hayes)

After considerable reflection I have decided to concur in the final disposition of this matter by the Chair although I do not agree with certain of the reasons he has given.

I have chosen to support this award because it accepts the fundamental principle that there should be an appropriate relationship between the salaries of police and firefighters. Canadian arbitrators have universally followed this approach which recognizes the unique contribution to the community of persons who are expected to put their lives at risk in the course of their employment. Such persons are different from all other employees and should be compensated with this in mind. It is for this reason that police/firefighter and firefighter/firefighter pay comparisons lie at the centre of any firefighter interest arbitration. There is no reason at all why Halifax firefighters should be treated differently than their colleagues across the country. While, for reasons set out below in some detail, I do not believe that the award has gone far enough, the decision does accept much of the core firefighter submissions. It should therefore be seen as one more significant step toward an appropriate compensation level for HRM firefighters and is supportable for that reason alone.

The reason for my reluctance should be obvious. The firefighters employed by HRM will not as the result of this award, achieve a
salary level reasonably equivalent to the salaries achieved by their police colleagues represented by the Municipal Association of Police Personnel (MAPP) in the Picher arbitration [Re Halifax (Regional Municipality) and Municipal Assn. of Police Personnel, November 27, 1997, M.G. Picher, J. Hayes, P. McClellan]. The fact is that the citizens of HRM continue to benefit as taxpayers by paying less for the salaries of firefighters than do citizens of most other municipalities of equivalent size in Canada. The evidence is clear that the residents of Halifax are blessed with a first class fire service which is second to none. What this means of course is that, to the extent that there is a shortfall in their salaries, the firefighters continue in effect to subsidize the public. That bargain cannot be expected to continue indefinitely and it is obvious that the shortcomings of this award will require resolution in the next round of collective bargaining. The weakness of this award is that it does not fulfil its own promise. It accepts that the historical police/fire differential should be re-established but then does not do it properly. By introducing a series of step increases and extending the term of the contract beyond the expiry of the MAPP collective agreement, it does not accomplish what it suggests should be done. In my respectful view greater attention should have been paid to the MAPP precedent which was a unanimous award of a Board chaired by an arbitrator with a national reputation. As a member of both Boards, I am uniquely qualified to observe that HRM was equally well represented on both occasions by experienced counsel using similar arguments. It is not possible in my view to adequately explain the difference in result in the two cases.

It is particularly difficult to explain in that the present Chair accepts the MAPP result which was itself a product of the replication of collective bargaining principle. Indeed he goes further and states [ante, p. 153] that:

Moreover, the Board rejects the HRM submission that little weight need be given to the earlier award. To the contrary, given the historical relationship between the police and firefighter sectors the Board is convinced that, if left to the free collective bargaining process, the parties would have, in the circumstances, moved to re-establish an appropriate relativity of wage structure as between the two HRM protective services.

If we had followed the replication principle, which was urged upon us by both HRM and the union, and, if we had followed through
on the conclusion stated above, the result would have been significantly more favourable to the firefighters. The Chair recognizes that there is no HRM precedent for the step increases which have been introduced by this award. So much for replication. It would have been far better for us to finish the job, as the MAPP Board did, and to have granted two reasonable increases on the police model.

As suggested above I am not able to concur with some of the reasoning contained in the decision of the Chair and prefer to balanced more cautious approach taken by Arbitrator Picher. I would have more readily credited all of the factors and comparators which were identified by both HRM and the union in this arbitration. They were all arguably relevant and helpful in evaluating the issues in dispute albeit that some were of more importance than others. The relative weight or significance of such comparators may vary over time depending upon the circumstances. This should have been made clear.

Most specifically, I am concerned about the language used by the Chair with respect to the national comparator analysis presented by the union. That same analysis, together with others, was accepted by the Picher Board but given less weight in this case. The Chair notes that there are “many variables” across the country which reduces the value of the analysis.

There will of course always be variables and differences. As no community is the precise match of another, communities will differ even if they are in the same province or in the same region. This could also be said of efforts to compare increases gained by different employee groups; for example, teachers, nurses, public employees. One group may achieve enhanced job security or pension benefits at the expense of a lower base rate. Unless one is made aware of such matters one may be comparing “apples with oranges”.

The point is that one does not abandon a comparator analysis because it is not capable of perfection. It is much more difficult to do the significant research required to provide a Board with detailed comparative information than it is to identify obvious differences. There is always a practical limit. However, if the comparators are fairly chosen, they can provide useful assistance in evaluating the merits of salary proposals which are made. It provides a helpful “reality check” to see what First Class Firefighters are being paid in reasonably comparable Canadian cities.
It should go without saying that Halifax is a major city similar in significant respects to the national comparators suggested by this union. In presenting the national comparator analysis, the firefighters could have done no more to assist the Board. Mr. Pink presented an extraordinary brief which provided comparator data in support of every submission he made. When it cannot be seriously suggested that there is any city in Atlantic Canada which compares with HRM, it is only logical to look outside the region. This does not mean that one has no regard for other Atlantic comparators. It does mean however, as Arbitrator Picher recognized, that it is necessary and entirely proper to consider comparators beyond the region also.

This may be one of the exceptions which proves the rule as it will clearly not be necessary to do this in every case. For example, in Ontario there are numerous municipalities of reasonably equivalent size to which many can be compared. In the case of Toronto, Montreal, and Vancouver, for example however, it is necessary to look beyond their respective provinces because there are no local or regional comparables. It is the same thing with Halifax. HRM has no fair comparator either in Nova Scotia or in Atlantic Canada. This is not to say that HRM salaries need necessarily match those paid in Toronto. It does however mean that it is fair to examine salaries paid to firefighters in cities comparable in size to HRM in other provinces. With all due respect, this seems blindingly self-evident. The union’s national comparator methodology in this regard in this arbitration was fully justified.

That was also the point of the stipends committee comparators. It was not a case of “sauce for the goose” in the sense of salary envy. All that was submitted was that, if it was reasonable to look at national comparators for purpose of salaries for local elected HRM officials, it was similarly reasonable to examine national comparators for purposes of salaries for local HRM firefighters. It was an analytic process point which was being made.

I also feel obliged to respond to the comments made concerning the attempt of HRM to resist from the interest arbitration process. The Chair draws the extraordinary conclusion that “IAFF Local 268, by insisting that the matter be resolved through the interest arbitration process, thereby signalled its reluctance to trust its fortunes to the collective bargaining process”. He goes even further
and states that “[t]he Board concludes from this that it ought not go beyond local conditions in setting HRM firefighter wage rates” [ante, p. 154].

This type of reasoning is dangerous and flat out wrong. The parties agreed for their own reasons to this process and this Board should have refrained from institutional mind reading. It is likely that, to their joint credit, both parties chose to prevent any possibility of strikes or lockouts for police or firefighters in the public interest. They both decided that the salaries for those groups could be sorted out in the new amalgamated HRM without risk of disruption using a rational process. When the MAPP award was released HRM obviously had second thoughts. The courts determined that HRM could not resile.

In such circumstances it is beyond me how HRM can now benefit from what is, in effect, its own wrongdoing. By way of contrast the union proceeded in good faith and maintained its course. Apart altogether from the public interest why, from a collective bargaining point of view, would it have changed its mind? Given the reputation of its author and the fact that the MAPP decision was a unanimous award, the union could reasonably have anticipated that it would have been closely followed by any subsequent interest arbitrator. Why would any party, particularly in the case of a fire service, put a community needlessly at risk of a strike or lockout if it believed that it could achieve its objective without exposing the public to a risk of harm?

As the courts have held, neither party had the right to change the rules unilaterally midstream. The Chair is quite wrong to rely upon the failed attempt of the employer to withdraw as somehow assisting its position. HRM was required to deal with the MAPP decision in this proceeding (and it did) as the union was required to deal with the subsequent QE II settlement (and it did). If the union had known that the Chair would conclude that it had harmed its position by refusing to resile, it might have done something entirely different. There is absolutely no evidentiary basis for any conclusion that the union has any reluctance at all to strike if necessary, indeed it has done so in the past. It would be unfortunate to say the least should this reasoning lead either party to be apprehensive about proposing a dispute resolution process, as an alternative to a strike or lockout, in the future — if this is to be regarded after the fact as a sign of
weakness. What is even worse is what happened here. The party which 
refused to relise is made to pay a price. This stands the rule of law, as I have understood it, on its head.

Having said all of this I have decided to support the salaries determined by the Chair for the reasons given at the commencement of this opinion. They amount to this. This award makes it plain that a fundamental principle for the setting of appropriate firefighter salaries is that a reasonable relationship with police salaries be established. This is conventional wisdom accepted by interest arbitrators across Canada. It should never be necessary to plough this ground again within HRM. We all know that “Rome wasn’t built in a day” and regrettably that will also be the case for HRM firefighter salaries. That is really all that can be said. Nothing in this award expresses any view as to what a future police/firefighter differential, if any, should be. That is a matter for collective bargaining. I expect that in the next round of bargaining a more reasonable relationship will be restored based on the logic of this award. I fully expect that the citizens of HRM would endorse such a result which has been the product of collective bargaining and interest arbitration across the country.

DISSENT (McDougall)

I very much regret that I find myself in the position of dissenting in this matter from the Majority Award of my two distinguished colleagues.

I recognize that the Majority have made reference to the recent settlements in the provincial public sector in the QE II and the Nova Scotia Teachers’ Union matters. My difficulty is that I would have preferred that the Majority set out, as was done by HRM in its submission, the terms of the QE II wage settlement and the Nova Scotia Teachers’ Union wage settlement. I would also have preferred that the Majority, in their award of salary levels and effective increment dates, place greater emphasis on the fact that the QE II settlement represents the settlement by the largest public sector health institution in Nova Scotia and the settlement between the Province of Nova Scotia and the Nova Scotia Teachers’ Union involved the largest public sector union in Nova Scotia. I would also have preferred that the Majority take into greater account the key fact that these two settlements occurred in early 1998, well after the City
of Halifax police arbitration award dated November 27, 1997. [Re Halifax (Regional Municipality) and Municipal Assn. of Police Personnel, M.G. Picher, J. Hayes, P. McClellan, N.S. Arb. Bd.]. It is obvious that the arbitration board in the City of Halifax police matter did not have before it this important evidence of these lead public sector negotiated settlements at the time of their arbitration award. The specific terms of each of those wage increase settlements we as follows:

1. **Government of Nova Scotia — Nova Scotia Teachers' Union**  
   Term: 2 yrs (Nov 1/97 — Oct 31/99).  
   Dec 1/97: 3%  
   Aug 1/98: 1.9%  
   Apr 1/99: 1.9%

2. **QE II Hospital Settlement**  
   Term: 3 yrs (Nov 1/97 — Oct 31/00).  
   Dec 1/97: 3%  
   Nov 1/98: 1.9%  
   Apr 1/99: 1.9%  
   Apr 1, 2000: 1.5%

The similarity of these offers is very clear. So is their predominant place in the March 1998 economic conditions in Nova Scotia.

The Majority have omitted consideration of the $500,000 which HRM agreed to spend in bringing the so-called “% Differentials” of all the various ranks in all the various fire-fighting units, prior to amalgamation — into a common % Differential applicable to the appropriate ranks of the new HRM fire-fighting department.

The Majority does make mention of the “significant wage gains” by the majority of members of this bargaining unit, specifically those formerly engaged by the City of Halifax, the Town of Bedford, as well as Sackville, Cole Harbour/Westphal, and Lakeside/Black Point. There is no mention, however, in the Majority’s text of the fact that, in addition to the $500,000 noted above, HRM, in order to being further internal parity by raising all firefighter class 1 rates to the highest common denominator of Dartmouth ($40,255), committed an additional $1,300,000 to salaries. This is because the First Class Firefighters’ annual salaries in those locations compared to the Dartmouth annual salary of $40,255 were:
Halifax: $36,801
Bedford: $34,633
Sackville: $34,776
Westphal/Cole Harbour: $33,313.

Given the significance of the teachers’ public sector settlement and the QE II Hospital public sector settlement, both of which, as noted earlier, post-dated the Halifax Police Arbitration Award, and given the significance of the HRM expenditures on increased salaries for the firefighters of $1.3 million (to bring all first-class firefighters to the highest common denominator — Dartmouth firefighter rate of $40,255) — and given the further expenditure by HRM of an additional $500,000 to provide a common % differential among all ranks in the new HRM fire-fighting department (— all as part of the same collective agreement salary package as is this interest arbitration award) — I would have awarded the following annual salary grid for all HRM First Class Firefighters:

<table>
<thead>
<tr>
<th>Date</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 1, 1997:</td>
<td>$41,463</td>
</tr>
<tr>
<td>November 1, 1998:</td>
<td>$42,251</td>
</tr>
<tr>
<td>April 1, 1999:</td>
<td>$43,054</td>
</tr>
<tr>
<td>April 1, 2000:</td>
<td>$43,700</td>
</tr>
</tbody>
</table>

Term of the collective agreement to run for three (3) years:
(Nov 1/97-Oct 31, 2000)

The salary raises of Halifax and Dartmouth firefighters over the past 15 years, compared to those of Halifax and Dartmouth police constables, do not form any sort of steady comparable on which an interest arbitration award can be found — in my respectful view. Also, there was at the time of the last negotiated settlement of the Halifax and Dartmouth firefighters respectively, no references in either collective agreement of a comparable relationship with police constables. (In fact it was specifically negotiated out of the last Dartmouth firefighters’ collective agreement and never appeared in any Halifax firefighters’ collective agreement.)

The Majority in their Award has picked up a number of other points which I have emphasized in the course of our executive sessions. Accordingly, there is not a great deal to be achieved at this point in setting out many pages detailing all of the points which I feel to be of relevance. I would like to conclude this dissent, however, by referring briefly to several additional points where my views as to emphasis respectfully differ from those of the Majority:
1. Turnover

There is virtually no turnover involving members of the HRM predecessor fire departments leaving their jobs prior to retirement. As Professor Darby noted in his “Tech” Nova Scotia arbitration decision [N.S.G.E.U. and Nova Scotia Civil Service Commission (Tech — Nurse Arbitration), June 11, 1985], this is a most significant point. It is axiomatic that many workers who feel underpaid leave their jobs for others in the community. As noted, this has not happened with firefighters. Indeed, we heard evidence that there have been as many as 800 to 1000 applicants for vacant firefighter positions in the greater Halifax metropolitan region. This is clearly a very highly prized job in this community. The evidence indicates that it is highly valued, not only for its pay levels but also for features such as its 24 hours on, three days off shift rotations.

2. HRM Ratepayers

In my respectful view, the Majority’s Award places too great an emphasis on the need for the firefighters to maintain a certain salary level relative to police, while putting too little emphasis on the position of ratepayers in the greater Halifax metropolitan area. It is these ratepayers who will have to carry the burden of the final salary award. The Majority have noted that most of these ratepayers working in unionized situations, have themselves faced restraint and received wage increases in the 1-2% area. I would have respectfully placed more emphasis on this factor.

3. Period of Restraint

I have also placed more emphasis than the Majority on the climate of restraint in wage settlements which applies in Nova Scotia generally in the first quarter of 1998 and which is applicable to HRM ratepayers.

4. Role of Interest Arbitration Board

In my respectful view, the authorities cited to us by the parties emphasize that it is not the role of an interest arbitration board to “lead”. This is because, as I understand these authorities, interest arbitration boards are to, as far as possible, “replicate” the results of collective bargaining between the parties. George Adams and others have cautioned that interest arbitration boards be very careful not to feed off each other. In a province such as Nova Scotia, where interest arbitration is relatively rare (except for local conditions, not wages, in teachers/school board), it should not be difficult to follow...
this caveat when dealing with a ruling on wages. It is in this sense that I have placed more emphasis on major public sector wage settlements which have been the subject of actual negotiations rather than predominant emphasis on another interest arbitration board result — that of the police arbitration decision in November 1997.

While I have differed from my distinguished majority colleagues’ result in this matter, I do wish to extend my appreciation for their consideration of my viewpoints on the merits of these matters and for the various opportunities they have afforded me to express my views on all aspects of this matter. My majority colleagues obviously have extensive experience and distinguished careers in labour law and the adjudicative process which I fully recognize, my differing view notwithstanding.

ADDENDUM (McDougall)

I literally have only a few minutes for this Addendum before these awards must be sent to the parties.

I have just received the additional reasons filed by the Union Nominee on this arbitration board [ante, p. 159].

He is part of the majority who have jointly agreed on the salaries and increment dates in this matter. Most of my comments, therefore, have already been made on his position. I feel, however, that I should make some very brief comments on his additional reasoning.

The Police MAPP Arbitration Award was filed in late November 1997 and pre-dates the Teachers’ negotiated settlement with the Nova Scotia Government and the QE II negotiated settlement, both of which were in early 1998. In addition, the Police Award offers very little reasoning to support its conclusions on salary and increment dates.

In my respectful view, it was also a highly inflationary award. It awarded percentage salary increases from three times to ten times greater than the percentage increases found anywhere else in the public or private sectors in Canada (including Nova Scotia). It also awarded these increases in a very brief span of time — i.e. a very short “Term”. That was too great a burden on the HRM ratepayers, in my respectful view.

It is for this reason that my proposed salary increases, increment dates and term are modelled directly on the QE II settlement — the most recent major negotiated settlement in the Nova Scotia public sector.
The Stipends Committee, to which the Union Nominee refers in his reasons, is simply irrelevant. That Committee was not put in place by HRM councillors or HRM management. It was put in place by an interim consultant who coordinated the merger. He was not a member of HRM management before the merger, nor is he after the merger. He also had little, if any, experience in industrial relations.

Our arbitration Chairman’s salary increases and term finding, with which the Union Nominee has concurred, speak for themselves. In my view, however, they too are inflationary and overburdensome on the HRM ratepayers, but at least not to the extent of the Police MAPP Arbitration salary increases. The firefighters in this HRM community have a very good reputation. Their terms and conditions of employment are very attractive. Their extremely attractive shift schedules and the fact that the firefighters job is one of the most sought after in this Halifax Regional Municipality — confirm that.

Re British Columbia Public School Employers’ Association (School District No. 54 (Bulkley Valley)) and British Columbia Teachers’ Federation (Bulkley Valley Teachers’ Assn.)

[Indexed as: School District No. 54 (Bulkley Valley) and Bulkley Valley Teachers’ Assn. (Vadeboncouer) (Re)]

File No. A-97/98

British Columbia
J.M. Gordon

Heard: March 3, 1998
Decision rendered: April 27, 1998

Benefits — Severance pay — Eligibility coincident with effective date of termination.

Lay-off — Notice — Eligibility for severance pay not triggered by notice of intent to terminate.

[See Brown & Beatty, 6:2320; 7:7100; 8:3800]

Cases referred to
Re University of Toronto and University of Toronto Faculty Association

[Indexed as: University of Toronto and U.T.F.A. (Re)]

Ontario
M. Teplitsky, Q.C.

Decision rendered: October 5, 2010

Interest arbitration — Criteria — Ability to pay — Provincial compensation restraint legislation not applicable to unionized public sector employees — Employer’s bargaining position impacted by government’s assertion that any negotiated increases will not be funded — Replication principle not favouring employer’s submission that arbitrator should take legislation into account — Ability to pay rejected as criterion of interest award determinations by arbitrators — Recognizing legislation as relevant would be tantamount to recognizing ability to pay as relevant criterion and would compromise independence of arbitrator.

Interest arbitration — Criteria — Salary increase determinants — University sector leader and salaries reflect market leader status — Consumer price index very relevant factor — University comparables important factor even though comparables “chase” sector leader — Total compensation awarded more than sufficient for consumer price index protection, somewhat above overall increases in public and private sectors, and leaves faculty at top of market.

[See Brown & Beauty, 1:0000; 2:1201; 4:1610; 8:1000; 8:2320]

Cases referred to
Beacon Hill Lodges and S.E.I.U. (Re), Adams, June 25, 1982
McMaster University and McMaster University Faculty Assn. (Re) (1990), 13 L.A.C. (4th) 199, 19 C.L.A.S. 75
University of Toronto (Governing Council) and University of Toronto Faculty Assn. (Re) (2006), 148 L.A.C. (4th) 193, 85 C.L.A.S. 11

Statutes referred to
Canadian Charter of Rights and Freedoms
Public Sector Compensation Restraint to Protect Public Services Act, 2010, S.O. 2010, c. 1, Sch. 24 (Bill 16)

INTEREST MEDIATION/ARBITRATION for renewal of parties’ memorandum of agreement.

J. Sack and S. Barrett, for the association.
J. Brooks and E.M. Brown, for the employer.
AWARD

The parties appointed me as mediator/arbitrator for the periods July 1, 2009 to June 30, 2010 and July 1, 2010 to June 30, 2011.

The mediation phase dealt with non-monetary issues — workload and dispute resolution. The parties were successful in reaching resolutions subject to certain details of which I remain seized. These represent substantial gains for UTFA and necessitate amendments to The Memorandum of Agreement. For reasons which will become apparent, mediation on pension, salary and benefits was unsuccessful.

There has been a very recent review of the principles applicable to interest disputes between these parties. Chief Justice Winkler issued an award on March 27, 2006 for the years 2005-2006 and 2006-2007 [148 L.A.C. (4th) 193]. Because I am in agreement with the Chief Justice’s useful analysis of the guiding general principles, it is unnecessary for me to review these. I must, however, consider one matter which confronted the parties in this round of mediation/arbitration but was not an issue when Chief Justice Winkler made his award.


This Act precludes any increases in compensation for a 2-year period — March 24, 2010 to March 31, 2012. It applies to approximately 350,000 public sector employees who are not represented by a Union or an association. This total includes approximately 1,300 U of T employees. UTFA members are not directly affected by this legislation because they are represented by an association. Presumably the reach of the Act was limited because of a concern that including unions and associations would infringe on freedom of association in the Charter of Rights. As matters stand, 1,300 U of T employees are not eligible for increases. The rest are. This is an unsatisfactory outcome within any organization and particularly a University which promotes collegiality. In the larger picture, private sector employees receive wage increases. Some in the public sector do not. No doubt this dichotomy must strike the affected public sector employees as unfair.

In any event, the Government attempted to achieve indirectly what it had been unwilling to legislate, judging by the following
"Frequently Asked Question" document issued on March 24, 2010. The relevant portions include the following:

"105. The Government provided further comment on the Budget statement above in a Frequently Asked Question ("FAQ") document issued on March 24, 2010 (Tab 18, University Documents) concerning employees in the broader public sector represented by trade unions or organizations that collectively bargain compensation with employers as follows:

Q. Why only non-bargaining employees of public sector employers, and not those who bargain collective (e.g. unionized)?

A. All broader public sector employees would be asked to contribute to protect public services during these challenging times. It is only the fair thing to do. Non-bargaining employees would see their compensation structures frozen for two years.

Employees who are part of a union or who bargain compensation collectively would see their current agreements honoured. When these agreements expire and new contracts are negotiated, the Government will work with transfer payment partners and bargaining agents to seek agreements of at least two years’ duration that do not include net compensation increases.

The fiscal plan provides no funding for compensation increases for future collective agreements.

It doesn’t matter whether contracts expire next month, next year or the year after that—all employers and employee groups will be expected to do their part."

In this release, the Government asserts that any negotiated increases will not be funded. Because public sector employers are dependent on Government funding in whole or in part, this is a very serious threat, which would impact any employer’s bargaining position.

The University submitted that in the context of a replication model of interest arbitration, I should take this legislation and the accompanying policy statement into account in fashioning any award. UTFA was adamant that such a course would be de facto recognition of ability to pay as a relevant criterion in a public sector interest arbitration and would compromise the independence of arbitrators. My reasons for rejecting the University’s submission are these:

This interest dispute is governed by a Memorandum of agreement between the parties which was initially made on June 28, 1977. It has been amended from time to time and the last consolidation of which I am aware is dated December 31, 2006. Included in Article 6 is this direction to the arbitrator: “attempt to reflect the agreement the parties would have reached if they had been able to agree”. In my
respective opinion, because the parties in their bargaining should have known that an interest arbitrator would not take the legislation into account, the replication principle supports the opposite conclusion than the University is contending for.

The parties know that ability to pay has been rejected by interest arbitrators for at least 4 decades. Chief Justice Winkler, in his award cited the following passage from an award by Arbitrator Shime in Re McMaster University [13 L.A.C. (4th) 199]:

"...there is little economic rationale for using ability to pay as a criterion in arbitration. In that regard I need only briefly repeat what I have said in another context, that is, public sector employees should not be required to subsidize the community by accepting substandard wages and working conditions...[internal citations omitted]....[T]hus, for example, if I were faced with data showing that the salary scale for assistant professors at McMaster was less than that of other universities in Ontario, I would have no hesitation in increasing the amount to achieve the same standard for McMaster regardless of the university's fiscal position."

It is plain that what drives the Government's legislation and policy is its legitimate concerns about the huge provincial deficit and its impact on the Government's ability to provide services. Obviously "0%" public sector increases make funding of services easier. The full title to the legislation makes this intent clear. This is a clear case of either requiring or asking public sector employees to subsidize the public because public services benefit the public as a whole. A more equitable approach to protect these services would be to spread the "pain" widely by measures which increase revenues (more taxes or user fees) although I recognize that such measures would be less popular than the one adopted by the government. I agree with UTFA that recognizing the "Act" as relevant would be a recognition of ability to pay as a relevant criterion and recognizing the policy statement would compromise my independence. I would appear a minion of government. Thus, in fashioning this award, I have not taken into account either the legislation or the policy.

On the other hand, the legislation and the policy may impact collective bargaining outcomes, particularly in a "strike-lockout" regime. Evidence of some "0" contracts was adduced. In the next round of bargaining between these parties, University sector comparables will probably be lower. Because University sector comparables should be considered, dispute resolution between these parties may be affected. And, interest arbitrators will consider these
comparables regardless of the reasons which have contributed to the result because these will be relevant collective bargaining facts. However, there is no impact in this round because most Universities had settled for 2009-2010 and 2010-2011 before the Compensation Restraint Act was passed.

Salaries

I accept as Chief Justice Winkler concluded, that UTFA's members should be "at the top of the market". They clearly are. To the extent that comparative total compensation can be determined by me on the available evidence, the average faculty salary at the U of T is significantly higher than at other comparable Universities. Additionally, UTFA members make smaller pension contributions than other comparables.

The Position of the Parties

Consistent with the Government's directive, the University proposes a "0" increase in each year. UTFA asks for approximately 3.5% in each year, the average increase at other comparable institutions. The University also proposes an increase to faculty pension contributions and UTFA seeks augmentation for retirees. A few benefit issues were resolved. (See Schedule "A")

In fashioning this award I propose to follow Chief Justice Winkler's approach which included a "multi-factorial" analysis. Chief Justice Winkler also recognized the corollary to the principle that public sector employees do not have to subsidize the public; namely, that the community does not have to subsidize public sector employees. Chief Justice Winkler referred to Arbitrator Adam's award in Re Beacon Hill Lodges and SEIU at pg. 4-5 where he wrote:

"The ideal of interest arbitration is to come as close as possible to what the parties would have achieved by way of free collective bargaining in the sense that to do more would affect an unwarranted subsidization of nursing home employees by the public and to do less would result in nursing home employees subsidizing the public..." [p. 199 L.A.C.]

I turn to the various factors.

CPI

In my opinion, based on the approach in prior rounds of bargaining, CPI is considered retrospectively. In other words, for 2009-2010 and 2010-2011, the relevant CPI increases are 2008-2009 and 2009-2010. UTFA submitted that these were approximately 2% in each year. In fact, the total increase in the CPI, whether one looks at June
2008 – June 2010 or July 2008 – July 2010, is approximately a total of 2%. The Faculty’s position in the past has been that CPI protection is the minimum that the ATB increase should generate. In fact, over the past 30 years, total increases in the ATB have coincided almost exactly with the increase in the CPI for the same period. In any bargaining round, the ATB increase has been higher or lower than the CPI increase. For example, in the settlement for 2007-2008 and 2008-2009, the ATB increase exceeded the CPI for those years. Although increases in CPI are not determinative, the fact of a 30-year coincidence between the total ATB increases and the increases in CPI, and the obvious role of CPI in the ATB increase given a compensation structure which includes PTR, CPI is a very relevant factor.

General Economic Conditions

For the two years in question, it seems to me that overall economic conditions are poor. The optimism expressed in the Spring of 2010 has faded less than 6 months later and predictions are pessimistic. Unemployment continues at rates in excess of 8%. This is better than in the USA but too high to suggest substantial economic recovery. Recent declines in residential real estate activity are also ominous. However, it is difficult to translate general economic conditions into an award in considering not for profit sectors. In a private sector dispute if economic conditions have hurt the employer’s financial position, this can be shown and is direct evidence of the impact of economic conditions. A direct correlation does not exist in the public sector. In a recent award between SEIU and Extendicare (The Master Agreement) the arbitrator declined to consider the “Act” but he awarded 1.45% for 12 months, a total of 2% for 16 1/2 months because of economic conditions. This award is about 25% less than both other increases in the health care sector and private and public sector settlements generally. In deciding public sector disputes, I have always considered that what the community generally is receiving from its employment in wage increases is the best measure of the impact of economic conditions. Applying a deduction for economic conditions which is not tied to an objective standard strikes me as either arbitrary or mere guesswork.

Private and Public Sector Settlements

To recognize the principle that the public does not have to subsidize public sector employees, it is necessary to examine what the private and public sector have achieved in wage increases over the
relevant period. Ministry of Labor statistics for 2009 show wage increases for all settlements of 2.1%. For 2010, the overall average is 2.3%. Obviously the Faculty's demands, if given effect to would result in the public subsidizing the award. Equally, 2 "0's" as sought by the University would result in UTFA subsidizing the public.

In this context, I need to address a submission advanced by Mr. Sack. As Canada's leading practitioner in interest disputes on the Union side, his submissions are entitled to great weight. However, I find myself on this rare occasion unable to agree with him. Mr. Sack submitted that rather than examining private sector settlements broadly, I should consider those sectors which provide services akin to those supplied by UTFA's members: professional and technical services, management of companies and enterprises, educational services, health care and social assistance and public administration. These sectors achieved wage gains in the 2009 fiscal year between a low of 3.9% and a high of 7.8%.

In my respectful opinion these groups and these statistics are not helpful. Comparables are usually examined for two different reasons. One reason is to determine whether the equitable principle of equal pay for equal work is being followed. Ordinarily, persons living and working in the same general area performing the same work should receive more or less the same compensation. UTFA's members enjoy the highest average total compensation in the University sector. Any award I make will continue their position at the "top of the market". How the equal pay for equal work principle applies to these other groups is impossible to determine because there is no evidence of what the average earnings in these other sectors are or how these sectors actually compare to a university setting which is research intensive.

Another use of comparables is to determine a wage increase in any particular year. Mr. Sack submits that if a firefighter or police officer in City X received a 3% increase, a firefighter in city Y should receive the same increase; so too in the university sector. What this analysis omits is that this approach only applies if the firefighter in City Y had a historical relationship of approximate parity with either the firefighter or the police officer in City X. UTFA is at the top of the market. It has never been in a position of approximate parity with other universities. Its position at the top of the market will not be disturbed with an increase less than that achieved at other universities where faculty are likely seeking catch-up increases with
UTFA. UTFA is driven to argue that its relative position at the top of the market must continue with no change. There is no arbitral authority for this proposition of which I am aware. Moreover, such a principle would stultify bargaining. Indeed, UTFA would be hostage to the bargains of its colleagues at other institutions. As opposed to being an important factor in wage determination, these results would be controlling. Moreover, in the context of the U of T which is “at the top of the market” being chased by the rest of the sector, the inevitable result would be “whipsawing”.

University Comparable

For each of 2009-2010 and 2010-2011, these are in the 3%-4% range with an average of 3.5%. These increases were negotiated both before and after the onset of the “recession” Historically, the parties have considered these comparable and they are an important factor.

However, as I have noted, one should recognize that those comparable are “chasing” the sector leader, which is the U of T. “Catch-up” arguments are available to them. Were it necessary to award 3.5% to keep UTFA at the “top of the market”, I would do so, notwithstanding such a level of increase considerably exceeds what the public, on average, is achieving in wage increases. Arbitrator Shime indicated in McMaster, supra, that the equal pay for equal work principle would trump the principle that the community should not subsidize the public sector. By analogy, the same approach would apply to “top of the market”. As I have said, that is not this case.

Taking all of the above factors into account, I have concluded that the following increases to the ATB for 2009-2010 and 2010-2011 should be awarded:

Commencing July 1, 2009, 1.25% or the following flat dollar increase if its value is greater than 1.25%:

— an increase to the annualized salary for tenured/tenure stream professoriate of $1,720;

— an increase to the annualized salary for teaching stream faculty of $1,215;

— an increase to the annualized salary for Librarians of $1,143

Commencing January 1, 2010, 1.00% not compounded or the following flat dollar increase if its value is greater than 1%:

— an increase to the annualized salary for tenured/tenure stream professoriate of $1,376;
— an increase to the annualized salary for teaching stream faculty of $972.
— an increase to the annualized salary for Librarians of $914.

Commencing July 1, 2010, 1.25% or the following flat dollar increase if its value is greater than 1.25%:
— an increase to the annualized salary for tenured/tenure stream professoriate of $1,791;
— an increase to the annualized salary for teaching stream faculty of $1,265;
— an increase to the annualized salary for Librarians of $1,190.

Commencing January 1, 2011, 1.00% not compounded or the following flat dollar increase if its value is greater than 1%:
— an increase to the annualized salary for tenured/tenure stream professoriate of $1,433;
— an increase to the annualized salary for teaching stream faculty of $1,012;
— an increase to the annualized salary for Librarians of $952.

The formula for the flat dollar increases is complicated, so I shall remain seized should there be any errors or difficulties in the way I have expressed it or in its implementation.

With the other improvements, I am awarding the overall total compensation for the two years is over 5%. This is more than sufficient for CPI protection and somewhat above the average of overall increases in the public and private sectors. Recognition of comparable university settlements requires some upward adjustment. This award leaves the faculty "top of the market".

The usual PTR will be awarded for July 1, 2010.

All of these amounts are fully retroactive. I turn to the Pension issues.

Pension

The University sought a substantial increase in member contributions based on the pension plan’s deficit and because at some comparable universities, pension plan contributions are higher.

Although this demand is framed within the pension context, it is, in reality, an attempt to reduce total compensation. I am not satisfied that a reduction in total compensation is warranted. Rather, I have found that an increase is appropriate. To take away with the left hand what was given with the right seems inconsistent.
Pension Augmentation

UTFA argued strenuously for augmentation. Although the University framed its opposing argument as one of principle, I do not view it that way. The relevant CPI increases for purposes of augmentation were very low. There is no pressing need at this point for any augmentation. There is no reason why augmentation cannot be achieved in subsequent rounds. There is no doubt that the pension plan is in difficulties. Adding to the liabilities of the plan without guaranteeing the funding for the additional liability is not wise at this time. This demand is dismissed.

PERA

UTFA sought increases. I find that an increase to $1,500.00 per annum for all UTFA members is appropriate. A further increase for Pre-Tenure and Pre-Promotion Teaching Stream Faculty to $1,750.00 is also awarded. This applies to all Pre-promotion Teaching Stream Faculty whether or not they are working on 3-year contracts. However, they must be in the pre-promotion stream. This shall be applied retroactively.

Per Course Stipend and Overload Rate

These rates should be increased to $15,000.00 for 2009-2010 and $15,340.00 for 2010-2011. This shall be applied retroactively.

Pending implementation of this award I remain seized.

SCHEDULE "A"

MAY 13, 2010 UNIVERSITY OF TORONTO AND UTFA ARBITRATION
BEFORE MARTIN TEPLOUTSKY, Q.C. — ADDITIONAL ISSUES
RESOLVED

1. Child Care Benefit — On a go forward basis revise the existing benefit to adjust the individual per child maximum amount annually so that the entire amount of the capped fund will be spent. For the 2010 year and the 2011 year, on a one time only basis, unspent funds from the 2008 allocation ($350,000) and from the 2009 allocation ($240,000) will be added to the total capped fund available for 2010 in the amount of $295,000 and 2011 in the amount of $295,000, and the benefit amount per child will be adjusted so as to pay out the full amount of the $1,295,000 fund in each of those two years. Each year thereafter, the per child maximum will be adjusted so that the full $1,000,000 capped fund is allocated.

2. SRA — Establish a Working Group to discuss the current SRA and issues related thereto.

3. Benefit Issues — Establish a new Joint Benefits Committee as per the attached. Martin Teplytsky remains seized if necessary on the “disclosure” and “most” vs. “all” issues.
4. Adoption Leave — Agreed in principle that adoptive parents to have same paid top up and unpaid leave as biological parents, parties to meet to clarify harmonization of this benefit.

5. UTFA Dues Redirection — Without prejudice to either parties' position on whether this issue is or is not an Article 6 issue, the existing options for UTFA dues redirection to be revised to provide that UTFA dues may be redirected to the University of Toronto's President's Scholarship Fund available for first year undergraduate students or the United Way.

6. Early Retirement — The parties will complete their discussions concerning an agreed upon form of written notice of early retirement which will include a 30 day cooling off period.

CONFIDENTIAL AND WITHOUT PREJUDICE — MAY 13 2010

Joint Benefit Committee

1) The Committee will consist of 3 representatives from the University and 3 from the University of Toronto Faculty Association (UTFA). The Chair will rotate between the parties.

2) The Committee will meet at least quarterly

3) Terms of Reference for Joint Benefit Committee:
   a. Review of claims experience, including trends, impact of negotiated plan changes, and impact of external changes (e.g. Health Canada, OHIP changes, Ontario Drug Benefit Plan) that affect plan provisions and/or claims patterns. Plans include Health and Dental, LTD, Life and Joint Membership.
   b. Review of annual plan financial statements and renewal/premium recommendations from HR/Finance.
   c. Participate in an advisory capacity in the selection of plan administrator(s), should plans be marketed.
   d. Review claim rejection/denial reports to identify trends or patterns.
   e. Review and provide advice on communication materials for plan members, including plan booklets, annual communications re premiums, and web communications.

4) Claims Denials/Rejections for Medical/Dental plans:
   Where a member has brought forward to UTFA a denied claim that has been unsuccessfully appealed to the Plan Administrator, UTFA may forward the claim, with accompanying documents including any relevant medical information, to the Committee for review to identify whether there is any concern re the claim adjudication, or lack of clarity re the rejection. If the committee is unable to resolve the issue, UTFA may forward the claim, on behalf of the member, to the Chair of the GRP for adjudication. Such adjudication shall be in accordance with the current plan provisions.

The Committee will have access to a Benefits Consultant as required to review issues and consider alternate benefit plan designs.
MAIN AGENDA

Articles

1. Article 8: Skill Broadening and Wage Structure

Management's Interest

Ensure there are timelines for filing job challenges.

Management's Proposal

Add language into Article 8.4.4 as paragraph 1 as follows:

a. Job Challenges are to be filed within thirty (30) days from the date the job was initially placed onto the Band.

b. After the initial placement and timelines in (a) above have elapsed, Job Challenges can only be brought forward if the PWU can demonstrate significant alterations in duties and/or technological changes have occurred. Evidence will be restricted to one year prior to the filing of the grievance.

c. After the initial placement and timelines in (a) above have elapsed, if OPG can demonstrate significant alterations in duties and/or technological changes have occurred, they can make a claim that a job should be rated lower. Evidence will be restricted to one year prior to the filing of the grievance.

2. Article 10: Selection to Vacancies

Management's Interest

- Ensure return on investment and work unit viability.
- The ability for OPG to hire externally from the First Nations or Métis communities within the Hydro Plant Groups.

Management's Proposal

- Treat temporary employees as external candidates for the purposes of Article 10.
- Tenure provision applicable to non-supervisory positions as follows:
  - 5 years in existing classification and existing location for laterals and demotions.
  - 3 years in existing classification and existing location for promotions.
  - Management at its discretion has the ability to waive tenure.
- Add to Article 10 that tenure must be met by the closing date of the posting in order to be eligible to apply for vacancies.
- Add language to Article 10.1.1 so that it reads as follows:
No person shall be appointed to a vacancy in the PWU - CUPE Local 1000 jurisdiction until all qualified regular PWU - CUPE Local 1000 represented applicants have been selected with the exception that OPG will have the ability to hire up to five (5) external hires annually from First Nations or Métis communities proximate to present and future Hydro Generating Stations. Non-represented employees may be appointed to positions within the PWU’s jurisdiction but will only be able to use that portion of their service which was acquired while a member of the PWU.

3. **Article 11.0: Worksite/Location Redeployment**

**Management’s Interest**

Management wants to enhance its flexibility to deploy staff to meet changing businesses and organizational structures.

**Management’s Proposal**

- Add language to Article 11.0 (1) so that it reads as follows:
  - Within a worksite or between worksites in close proximity to each other within a location that has multiple worksites, management may deploy employees within equal Job Groupings.
- Delete Article 11.0 (2)(i).

4. **Article 12: Purchased Services Agreement**

**Management’s Interest**

Improve flexibility and reduce the administrative burden associated with getting PSAs.

**Management’s Proposal**

- Suspend Article 12 for term of the collective agreement.
- Add language to Article 12.2.6 to establish an hours guideline to determine whether a PSA is below threshold.
5. **Article 16: Duration of the Agreement**

**Management’s Interest**

Achieving a term of agreement that is compliant with the Government directive to seek no net increase in compensation for a duration of at least two years.

**Management’s Proposal**

Amend Article 16 with a term of no less than two years.

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6. **Part A, Item 6.5: Postponed Vacations**

**Management’s Interest**

- Stop the liability of vacation carry-over from accruing year over year.

**Management’s Proposal**

- Amend Part A, Item 6.5 so that it is clear that time not approved for carry-over and not used prior to December 31st as per the collective agreement will be paid out as soon as practicable after December 31st.
- Amend Part A, Item 6.5 so that it is clear that time approved as carry-over as per the collective agreement and not used by April 30th will be paid out as soon as practicable after April 30th.

7. **Part A, Item 12.0: Disability Benefits and Income Protection**

**Management’s Interest**

- Reduce the costs associated with the sick leave plan.

**Management’s Proposal**

- Amend the language in Part A, Item 12.1 and 12.1A to read: “Normally employees will be expected to arrange routine medical or dental appointments during non-working hours. Where such appointments cannot be arranged during non-working hours and the employee can be release from his/her duties, then the time shall be charged against an employee’s sick leave time except in the case of medical appointments of less than a half day where normal earnings will be maintained.”
- Amend the language in Part A, Item 12.1 and 12.1A to reduce the number of days where a MAR is required from 5 days to 3 days.

Management’s Interest

Reduce costs associated with the Health Benefits plan and contain cost of expected future benefits, while maintaining reasonable coverage for PWU represented employees.

Management’s Proposal

Implement an annual cap on Physiotherapy coverage of $800.

9. New Item: Pension and Benefits Sustainability Committee (Not to be reproduced in the collective agreement)

Management’s Interest

Engage the PWU in meaningful discussions pertaining to the sustainability of the pension and benefit plans.

Management’s Proposal

Create a Pension and Benefits Sustainability Committee via a miscellaneous letter to read: “The parties agree to establish a joint committee to review the pension and benefit plans with the overall goal of ensuring sustainability. The committee will meet within XX days of ratification and will make a joint recommendation(s) to the PWU Sector 1 and 2 Vice Presidents and OPG’s Vice President – HR Services by XX/XX/XXXX for consideration.”

10. Part A, Item 16.2.5: Health Insurance Plan (Excluding Summer Students Regardless of Wage Schedule Paid From)

Management’s Interest

Reduce costs associated with the Health and Benefits plans to help ensure sustainability of the plan going forward.

Management’s Proposal

Delete Part A, Item 16.2.5.
11. Part A, Item 20: Compensation for Travelling Expense

Management’s Interest

Need to reduce the costs associated with assigning an employee to a temporary work headquarters.

Management’s Proposal

Pay incremental mileage as opposed to site to site.

12. Part A, Item 43.0 – Wage Structure

Management’s Interest

Adhere to the Government directive to seek no net increase in compensation for a duration of at least two years.

Management’s Proposal

Net zero increase in compensation.

Part B

13. Part B, Item 1: Hours of Work

Management’s Interest

Notice periods are too long and result in excessive lack of notice payments.

Management’s Proposal

Reduce notice for change to hours of work and/or location to 3 days in all parts of the collective agreement (does not apply to notice currently less than 3 days).
14. Part B, Item 3: Payment of Meals

Management’s Interest

Reduce the costs associated with providing meals on extension and pre-arranged OT.

Management’s Proposal

- If forewarned the employee shall provide all overtime meal(s).
- Reduce requirement to provide a meal on extension OT only when OT is 2.5 hours or greater.
- Cost of meal not to exceed $15.

15. Part B, Item 17: Shift Work – Printing Services Department

Management’s Interest

Notice periods are too long and result in excessive lack of notice payments.

Management’s Proposal

Reduce notice for change to hours of work and/or location to 3 days in all parts of the collective agreement (does not apply to notice currently less than 3 days).

Part C

16. Part C, Item 1: Hours of Work

Management’s Interest

Notice periods are too long and result in excessive lack of notice payments.

Management’s Proposal

Reduce notice for change to hours of work and/or location to 3 days in all parts of the collective agreement (does not apply to notice currently less than 3 days).
17. Part C, Item 12: Provision of Meals

Management’s Interest

Reduce the costs associated with providing meals on extension and pre-arranged OT.

Management’s Proposal

- Reduce 23 hours notice to 12 hours notice in all parts of the collective agreement.
- Where appropriate notice is given, the employee will provide all meals.
- Reduce requirement to provide a meal on extension OT only when OT is 2.5 hours or greater.
- Cost of meal not to exceed $15.

Part D

18. Part D, Item 5: Provision of Meals

Management’s Interest

Reduce the costs associated with providing meals on extension and pre-arranged OT.

Management’s Proposal

- Reduce 23 hours notice to 12 hours notice in all parts of the collective agreement.
- Where appropriate notice is given, the employee will provide all meals.
- Reduce requirement to provide a meal on extension OT only when OT is 2.5 hours or greater.
- Cost of meal not to exceed $15.

19. Part D, Item 6A: Principles Re Resourcing for Relief, Acting & Temporary Assignments (Nuclear)

Management’s Interest

Enhance flexibility when resourcing Relief, Acting & Temporary Assignments specific to employees covered by Part D, Item 6A.

Management’s Proposal

Delete Part D, Item 6A.
20. Part D, Item 6B: Principles Re Resourcing for Relief, Acting & Temporary Assignments (Non-Nuclear)

Management’s Interest

Enhance flexibility when resourcing Relief, Acting & Temporary Assignments specific to employees covered by Part D, Item 6A.

Management’s Proposal

Remove “Non-nuclear” from title.


Management’s Interest

Notice periods are too long and result in excessive lack of notice payments.

Management’s Proposal

Reduce notice for change to hours of work and/or location to 3 days in all parts of the collective agreement (does not apply to notice currently less than 3 days).


Management’s Interest

- Reduce the costs of putting IMS technicians on shift to accomplish critical work programs.
- Notice periods are too long and result in excessive lack of notice payments.

Management’s Proposal

- Amend language in Part D, Item 12.3 as follows:
  - Although The content, preparation, posting and administration of the shift schedule is the **sole** responsibility of the Company, **and** annual province-wide secret ballot vote by I&M Technicians will determine whether the shift schedule will be composed of 8 or 12 hour shifts. The choice of a simple majority of those voting will prevail. Shift preferences will be made known to the Company prior to the commencement of the new schedule. A province wide 12 month I&M schedule will be posted 30 days prior to its starting date.
  - Reduce notice for change to hours of work and/or location to 3 days in all parts of the collective agreement (does not apply to notice currently less than 3 days).
Part E

23. Part E, Item 7: Shift Differential and Shift Work

Management’s Interest

Notice periods are too long and result in excessive lack of notice payments.

Management’s Proposal

Reduce notice for change to hours of work and/or location to 3 days in all parts of the collective agreement (does not apply to notice currently less than 3 days).

24. Part E, Item 9: Provision of Meals

Management’s Interest

Reduce the costs associated with providing meals on extension and pre-arranged OT.

Management’s Proposal

- Reduce 23 hours notice to 12 hours notice in all parts of the collective agreement.
- Where appropriate notice is given, the employee will provide all meals.
- Reduce requirement to provide a meal on extension OT only when OT is 2.5 hours or greater.
- Cost of meal not to exceed $15.

Part F

25. Part F, Item 1: Hours of Work

Management’s Interest

Notice periods are too long and result in excessive lack of notice payments.

Management’s Proposal

Reduce notice for change to hours of work and/or location to 3 days in all parts of the collective agreement (does not apply to notice currently less than 3 days).

Management’s Interest

Reduce the costs associated with providing meals on extension and pre-arranged OT.

Management’s Proposal

- Reduce 23 hours notice to 12 hours notice in all parts of the collective agreement.
- Where appropriate notice is given, the employee will provide all meals.
- Reduce requirement to provide a meal on extension OT only when OT is 2.5 hours or greater.
- Cost of meal not to exceed $15.

27. Part F, Item 14: Temporary Transfers for Shift Maintenance Personnel to Nuclear Stations

Management’s Interest

Notice periods are too long and result in excessive lack of notice payments.

Management’s Proposal

Reduce notice for change to hours of work and/or location to 3 days in all parts of the collective agreement (does not apply to notice currently less than 3 days).
28. Part G, Item 2: Hours of Work

Management’s Interest

- Establish a shift window for 12-hour shifts in Part G that will allow different start and stop times based on the specific needs of the various classifications as determined by management.
- Notice periods are too long and result in excessive lack of notice payments.

Management’s Proposal

- Add language into Part G, Item 2.1.6 as paragraph 1 that provides a window for start and stop times.
- Add new language to Part G, Item 2.1.1 as paragraph 4 that provides for the ability to allow different start and stop times based on the specific needs of the various classifications as determined by management.
- Reduce notice for change to hours of work and/or location to 3 days in all parts of the collective agreement (does not apply to notice currently less than 3 days).


Management’s Interest

Reduce the costs associated with providing meals on extension and pre-arranged OT.

Management’s Proposal

- Reduce 23 hours notice to 12 hours notice in all parts of the collective agreement.
- Where appropriate notice is given, the employee will provide all meals.
- Reduce requirement to provide a meal on extension OT only when OT is 2.5 hours or greater.
- Cost of meal not to exceed $15.

Management’s Interest

Notice periods are too long and result in excessive lack of notice payments.

Management’s Proposal

Reduce notice for change to hours of work and/or location to 3 days in all parts of the collective agreement (does not apply to notice currently less than 3 days).


Management’s Interest

- Clarify when tenure is met in the application of Part G, Item 26.
- Notice periods are too long and result in excessive lack of notice payments.

Management’s Proposal

- Add language to Part G, Item 26 defining that tenure must be met by the closing date of the posting in order to be eligible to apply for vacancies.
- Reduce notice for change to hours of work and/or location to 3 days in all parts of the collective agreement (does not apply to notice currently less than 3 days).

Clean Up

32. Article 11.3 (1): Definitions
- Reference should be 8.4.3

33. Article 11: Surplus Staff Procedure
- Delete preamble

34. Part A, Item 9.3 and 10.1.3: Remembrance Day and Service with Reserve Component of the Canadian Armed Forces
- Should read: “Canadian Forces”
35. Part A, Item 13.2: Probationary Employees
   • Clarify the parties understanding and practice by amending Part A, Item 13.2 as follows: “The Company will pay 100 percent (100%) of all claims and fees in accordance with Extended Health Benefit Plan coverage for all probationary and regular employees who are covered by the Semi-Private Hospital Accommodation Plan, and Power Workers’ Union Employees, Pensioners and Dependants Health and Dental Benefits Understanding Your Plan. Coverage will commence on the employee’s Established Commencement Date and will cease on the employee’s termination date.”

36. Part A, Item 14: Pension and Insurance
   • Delete reference to matching contributions

37. Part A, Item 16.2.5: Health Insurance Plan (Excluding Summer Students Regardless of Wage Schedule Paid From)
   • Clarify the parties understanding and practice by amending Part A, Item 16.2.5 title to remove “summer.”

38. Part A, Item 39: Escalator Clause
   • Delete

39. Part E, Item 7: Shift Differential and Shift Work
   • Add language from 2009 Memorandum of Settlement regarding Lack of Notice and Positive Time Balances.

40. APPA, Item 5.11 and 5.12: Daily Travel Allowance and Room and Board Allowance (Subsistence)
   • Ensure correct rates are used as per OPG’s letter to PWU (dated August 26th, 2010)

41. Midterms
   • Discuss/Amend/Delete
1. Compensation
   - Per Government direction received July 16, 2012:
     i. Zero compensation increase for term of the agreement
     ii. Any movement through the established grid must be fully offset from within the total compensation package

2. Article 24 – Escalator Clause
   - Suspension of the escalator clause for the term of the agreement.

3. Article 9 – Collective Agreement Term
   - Discuss a term that is a minimum of two years’ duration

4. Article 16 – Complaint and Grievance/Arbitration Procedure
   - Designate a Chief Arbitrator
   - Develop a more efficient, better defined grievance/arbitration process
   - Develop a system to better track grievances between the parties

5. Article 35.4 – Family Care
   - Discuss a provision for OPG to automatically recoup funds for any Family Care time taken and not worked back within a specified time period

6. Articles 51, 52, 53 and 54 – Relocation Assistance
   - Discuss the principle of tenure before employees are eligible for relocation assistance

7. Article 57.1 – Banked Overtime
   - Discuss methods of limiting the liability associated with banked overtime within the calendar year.

8. Article 64
   - Discuss realignment of Units of Application

9. Article 65.6.3 – Selection Priority for Vacancies
   - Discuss equal priority consideration for temporary employees and external hires
10. Article 67 – Purchased Services Agreement (PSA)
   - Implement streamlined decision making and dispute resolution process
   - Discuss general improvements in the efficiency of the process so that it does not hinder accomplishing work

11. Reduce Administrative Burden
   i. Article 65.3 – Advance Planning
      - Discuss the removal of this Article
   ii. Article 65.5.2
      - Discuss only posting rotations of one year duration or greater
   iii. Vacation Carryover
      - Discuss utilization of any vacation carryover by April 30th of the following year

12. Pension Plan
   - Discuss modifications to the single-employer pension plan as contemplated in the 2012 Ontario Budget

13. Post-Retirement Benefits
   - Discuss changing the post-retirement benefit vesting period to 55 years old and 10 years of service

14. General Administrative
   i. Article 34.2 (iii)
      - Update the collective agreement to reflect settlement to OPG 3167 / OPGI-2011-2733 regarding floating holidays for temporary employees
   ii. Article 4.3
      - Update the collective agreement to reflect the with prejudice External Experience Value (EEV) settlement
   iii. In accordance with Article 99, review all Letters of Understanding and Mid-Terms (not otherwise mentioned in Management’s Agenda) for either deletion or renewal
   iv. Discuss a process and timeline for completion of the final printed version of the collective agreement

OPG reserves the right to add, amend or remove agenda items.
Board Staff Interrogatory #103

Ref: Exh F4-3-1, page 25

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

The application refers to a number of cost containment initiatives in relation to benefits. Some of those initiatives were referenced in previous applications including the EB-2007-0905 proceeding (e.g., the outsourcing of benefit administration and the introduction of the Millennium Health & Dental Plan for new external hires). Were any of the cost containment initiatives discussed in the current application implemented since the last cost of service application? If so, please identify these new initiatives.

Response

Yes, the following cost containment initiatives presented in the evidence at Ex. F4-3-1, page 25 have been implemented since the last application:

a) Implementation of the 55 and 10 rule for Society-represented and Management Group employees.

b) Outsourcing incremental Pension Administration (outsourcing incremental Benefits administration will be implemented later in 2014).

c) 24-month Health and Dental benefit claim window.
Board Staff Interrogatory #104

Ref: Exh F5-1-1, Part A, page 30

Issue Number: 6.8
Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

The Nuclear Staffing Benchmarking Report prepared by Goodnight Consulting notes that an adjustment was required because OPG has a 35 hour work week while comparator U.S. utilities have a 40 hour work week. A shorter work week would necessitate more staff to complete the same workload which would result in more staff or more overtime. Has OPG ever attempted to negotiate a change to a 40 hour work week? If not, why not? If yes, why did the PWU and/or Society object?

Response

The majority of OPG’s workforce (i.e., approximately 60%) work a 40 hour work week. Consideration has been given to moving the entire workforce to a 40 hour work week and in instances the unions have sought to the adoption of 40 hour work week. OPG has reviewed and considered these requests and have determined that the current mix of 35 hour and 40 hour workers is appropriate.
Board Staff Interrogatory #105

Ref: Exh F4-3-1, Attachment 6

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

The application includes a table entitled “Total Benefits (Current Benefits and Pension & OPEB)” and notes that pension and OPEB cost increases are driven primarily by changes in discount rates and that is a factor beyond OPG’s control. On the other hand, benefits are determined based on Collective Agreement negotiations (i.e., not external factors). Please revise the table referred to above by adding 2 columns to show pension/OPEB and current benefit costs separately.

Response

The requested break down is provided in Attachment 1 to this response.
### FTE, Compensation and Benefit Information
for OPG’s Regulated Facilities
("Appendix 2k")

Numbers may not add due to rounding

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### FTE, Compensation and Benefit Information
for OPG’s Regulated Facilities
(“Appendix 2k”)  
Numbers may not add due to rounding

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Board Staff Interrogatory #106

Ref: Exh F4-3-1 Attachment 1 (pages 151 and 152 of F4 pdf document – Attachment pages unnumbered), F4-3-1 page 10 Table 2

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

In his study, Dr. Chaykowski states:

A comparison between OPG and these major comparators, in the general wage increases negotiated with the PWU over the period 2000 through 2013, indicates that:

- OPG wage increases consistently track at or somewhat lower than the increases observed at these comparators (refer to Figure 6);
- The cumulative wage increase at OPG, over the 2001-2013 period, is substantially lower than at either Bruce Power or Hydro One (refer to Figure 7); and
- Pay comparisons by specific occupation (e.g. OPG vs. Bruce Power) shows that earnings at OPG are generally lower.[Footnote reference to EB-2010-0008 Exhibit F4 Tab 3 Schedule 1 Chart 11 (Filed 2010-05-26)] [Emphasis in original]

Table 2 on page 10 of F4-3-1 provides a comparison of 2013 wages for comparable PWU positions at OPG and Bruce Power, which supports the last bullet above.

However, Dr. Chaykowski concludes:

Therefore,

- OPG wage settlements are consistently either at or below the wage increases that have been negotiated at the most appropriate comparators in the electricity industry; and the salary levels of individual occupations compare closely as well. [Emphasis in original]

a) Based on the evidence summarized on the previous page, on what basis did Dr. Chaykowski conclude that “salary levels of individual occupations compare closely as well”?
b) Did OPG provide Dr. Chaykowski with the findings of the National Utility Survey conducted by Aon Hewitt?
   i. If yes, how are the Aon Hewitt results reflected in Dr. Chaykowski’s conclusion.
   ii. If no, why not?
Response

a) This conclusion refers to the third bullet in the preamble to the question above which states: “Pay comparisons by specific occupation (e.g. OPG vs. Bruce Power) shows that earnings at OPG are generally lower”; and which, as noted, is supported by the accompanying footnote. However, the footnote contains a typographical error in that it should refer to Chart 12 and not Chart 11.

b) Yes
   i. The conclusion reflects the assessment in Dr. Chaykowski’s Report, set out in Section 6.3 that, “Either or both of [Bruce Power and Hydro One] would constitute reasonable comparators because they are similarly unionized, operate within the same jurisdiction (i.e., are subject to the same labour relations regulatory regime), and hire workers within the same general labour market in the electricity and (broader) utilities industries – both of which are among the most highly organized industries in the country”; and Dr. Chaykowski’s conclusion takes into account that the design of AON Hewitt survey is, in contrast, based on a broad cross-section of firms, and does not include Hydro One. Therefore, Dr. Chaykowski’s conclusion focuses on comparisons with the organizations that are considered to be the key comparators to OPG (i.e., Bruce Power and Hydro One).

   ii. Not applicable.
Board Staff Interrogatory #107

Ref: Exh F5-4-1 pages 9 and 12

Issue Number: 6.8
Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

On page 9 of this exhibit, under “Survey Design”, it is stated that the results include “Target Short-term Incentive” and “Target Long-term incentive”. On page 12, it is stated: “Participants were also asked to provide any changes to their short-term incentive plan targets between 2011 and 2013”.

a) Please confirm that the references to “target … incentives” and to “changes to … incentive plan targets” only relate to the incentive compensation if the expected/intended performance as designed into the plan is achieved, and not based on actual payout based on the actual performance of the firm or unit for the survey period.

b) Similarly, please confirm that “changes to the short-term incentive plan targets” would reflect changes in the incentive plan designs (e.g. % or amount of salary/bonus at risk) and not to changes in performance between 2011 and 2013.

c) In each comparator Group, how many, or what percentage of firms, have short-term or long-term incentive plans?

d) Does OPG have short-term or long-term incentive plans in its employee compensation? If so, for which groups of employees (PWU, Society and/or Management)?

Response

a) Yes, the references to target incentives noted in part (a) above relates to the expected or intended performance, not actual payouts based on actual performance.

b) Yes, the reference to short term incentive plan changes noted in part (b) above relates to changes in incentive plan design, and not to changes in performance.

c) The number and percentage of firms in the comparator groups with short-term or long-term incentive plans are as follows:

i) In Comparator Group #1, 4 of the 19 (21%) companies reported offering Long-term Incentives (“LTI”) to some incumbents, and 14 of the 19 (74%) companies reported offering Short-term Incentives (“STI”) to some of their incumbents.

ii) In Comparator Group # 2, none of the 5 (0%) companies reported offering LTI to some of their incumbents, and 3 of the 5 (60%) companies reported offering STI to some of their incumbents.
d) OPG has a short-term incentive plan for Management Group staff, and a limited incentive for Authorized Nuclear Staff, which includes all three employee groups (Society, PWU and Management).
Board Staff Interrogatory #108

Ref: Exh F5-4-1, Decision EB-2010-0008 page 85

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

In the Board’s previous payment amounts decision (p.85), the Board directed OPG to conduct an independent compensation study to be filed with the next application. The Board found that the compensation benchmark should be set at the 50th percentile as it is consistent with the Agency Review Panel recommendations.

OPG, in response, retained Aon Hewitt and they prepared the National Utility Survey report with comparisons for PWU, Society and Management staff based on three industry groups; Group 2 is a subset of Group 1. The results of that report are presented on numerous pages in the form of a slide deck. Board staff has summarized those results associated with the 50th percentile in the table below for “Total Cash Compensation”. Aon Hewitt notes, if it’s within +/- 10%, it is "at market" or competitive to the external market. It has now been almost 15 years since the breakup of Ontario Hydro. Please explain why it is necessary to pay PWU staff 20% more than comparator utilities (based on the first two groups that focus on the electricity sector) while Society staff are paid at market.

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<td>Management</td>
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<td>Management</td>
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The National Utility Survey provides one data point for comparison of OPG compensation against benchmark peer groups. This survey identified that the PWU is about 20 per cent higher than Group one and Group two. However, as noted in Tables 2 and 3 of Ex. F4-3-1 (copied below), OPG’s negotiated wage increases with the PWU have consistently been at or below those of the majority of the other OPG successor companies and below those of our closest comparator, Bruce Power.

As noted in Ex F4-3-1 Attachment 1, actual compensation levels are the result of negotiated settlements and depend on relative bargaining power and historically tend to build on previously negotiated settlements. Benchmark information is only one of many inputs to negotiations.

Ultimately the determinative factor on wages is what management and the union can agree upon when faced with the consequences of not agreeing.

**Table 2 - 2013 Wage Comparison of PWU Positions between OPG and Bruce Power**

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<th>PWU Job Category (2013)</th>
<th>OPG</th>
<th>Bruce Power</th>
<th>Difference ($/Hr)</th>
<th>Difference (%)</th>
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<td>Emergency Response Maintainer</td>
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<td>$49.04</td>
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<td>Nuclear Operator</td>
<td>$50.08</td>
<td>$58.32</td>
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<td>$50.08</td>
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<td>Nuclear Security Officer</td>
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<td>Chemical Technician</td>
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</table>

* Wage comparisons for PWU positions are based on top step of the OPG salary bands and top step of the Bruce Power competency based scales or multi-trade scales (if applicable).
Table 3 – PWU Increases Compared Among Successor Companies

<table>
<thead>
<tr>
<th>Year</th>
<th>OPG</th>
<th>Bruce Power</th>
<th>Hydro One</th>
<th>Kinectrics</th>
<th>New Horizons</th>
<th>Inergi</th>
<th>IESO</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>0.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>2.00%</td>
</tr>
<tr>
<td>2002</td>
<td>2.00%</td>
<td>3.10%</td>
<td>3.00%</td>
<td>5.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>2.00%</td>
</tr>
<tr>
<td>2003</td>
<td>3.00%</td>
<td>4.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.50%</td>
<td>2.00%</td>
<td>3.00%</td>
</tr>
<tr>
<td>2004</td>
<td>2.50%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>2.50%</td>
<td>3.25%</td>
<td>4.00%</td>
<td>3.00%</td>
</tr>
<tr>
<td>2005</td>
<td>2.50%</td>
<td>3.00%</td>
<td>3.50%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>2.50%</td>
</tr>
<tr>
<td>2006</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.50%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>2.75%</td>
<td>3.00%</td>
</tr>
<tr>
<td>2007</td>
<td>3.00%</td>
<td>3.25%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
</tr>
<tr>
<td>2008</td>
<td>3.00%</td>
<td>3.20%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
</tr>
<tr>
<td>2009</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
</tr>
<tr>
<td>2010</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.70%</td>
<td>3.00%</td>
<td>3.00%</td>
</tr>
<tr>
<td>2011</td>
<td>3.00%</td>
<td>2.75%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>2.70%</td>
<td>3.00%</td>
</tr>
<tr>
<td>2012</td>
<td>2.75%</td>
<td>2.75%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>2.70%</td>
<td>2.60%</td>
<td>2.50%</td>
</tr>
<tr>
<td>Cumulative</td>
<td>39.5%</td>
<td>44.0%</td>
<td>44.0%</td>
<td>40.4%</td>
<td>43.8%</td>
<td>41.7%</td>
<td>38.5%</td>
</tr>
<tr>
<td>2013</td>
<td>2.75%</td>
<td>3.50%</td>
<td>2.50%</td>
<td>3.00%</td>
<td>2.60%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Cumulative</td>
<td>43.3%</td>
<td>49.1%</td>
<td>47.6%</td>
<td>44.6%</td>
<td>47.5%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>2014</td>
<td>2.75%</td>
<td>n/a</td>
<td>2.50%</td>
<td>n/a</td>
<td>2.65%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Cumulative</td>
<td>47.3%</td>
<td>n/a</td>
<td>51.3%</td>
<td>n/a</td>
<td>51.4%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Board Staff Interrogatory #109


Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

The Auditor General’s report at page 163-164 notes that OPG payroll data indicate that a large number of employees receive salaries that exceed the maximum set out in the base salary schedule. Was Aon Hewitt’s analysis based on salary schedules or actual salaries?

Response

Aon Hewitt’s analysis is based on actual salaries.
Board Staff Interrogatory #110


Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Since the last benchmarking report in 2011, OPG continues to have a number of positions that are overstaffed relative to the benchmark. As noted in the Auditor General’s report at pages 160-161, this occurs mainly in support functions (e.g., general maintenance, administrative support and human resources). OPG’s response discusses the Business Transformation initiative.

a) Please explain why OPG has made essentially no improvements in 2 years in those areas such as the case highlighted by the Auditor General, where Facilities staff has only gone from 173% above in 2011 to 170% above the target staffing level by 2013.

b) Please explain why such positions require a multi-year initiative to at least begin to address the overstaffing issue.

Response

a) OPG Facilities FTEs were reduced by 6% within 18 months (274 FTEs vs. 257 FTEs, as per the table below) by leveraging the attrition of employees working in this function. However, the associated industry benchmark was also reduced by 4% during this period (115 FTEs vs. 110 FTEs) which eliminated some of the improvement that OPG had made.

<table>
<thead>
<tr>
<th>FACILITIES</th>
<th>1-Jul-11</th>
<th>28-Feb-13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Contractor</td>
<td>274</td>
<td>257</td>
</tr>
<tr>
<td>OPG</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Benchmark</td>
<td>314</td>
<td>297</td>
</tr>
<tr>
<td>Delta</td>
<td>115</td>
<td>110</td>
</tr>
<tr>
<td>Delta</td>
<td>199</td>
<td>187</td>
</tr>
</tbody>
</table>

b) As per (a), OPG was leveraging attrition to reduce staff in this area and had made some improvement over the 18 month period.

"Facilities" refers to employees directing and performing routine preventive, corrective and predictive maintenance activities on buildings, systems and components (other than substations) that are not associated with directly producing power from the nuclear plant. Personnel under this work function work on areas such as warehouses, maintenance shops and administration buildings. The number of facilities OPG Nuclear operates also reduces...
its ability to be as efficient as many single station plants in the US benchmark as referenced by Goodnight Consulting in Ex. F5-5-1 Part a, page 51.

Reducing staff levels through attrition is enabled by streamlining, eliminating and reducing work. However, in certain areas these efforts require time and stakeholder collaboration to enable OPG to operate with a reduced staff level.
**Board Staff Interrogatory #111**

**Ref:** Exh F4-3-1 pages 29-30

**Issue Number:** 6.8

**Issue:** Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

**Interrogatory**

OPG states:

The long-term inflation assumption used for projecting pension and OPEB costs continues to be based on the Ontario consumer price index. OPG uses the final year in the most recent forecast from a publicly available economic report, subject to an adjustment if the rate is outside of the Bank of Canada's target range for inflation. The salary schedule escalation rate assumption used to project the 2013-2015 pension and OPEB costs is equal to the long term inflation assumption plus 0.5 per cent. As in the past, OPG’s independent actuary has reviewed and agreed with these assumptions.

Chart 1 on page 30 shows a 2.0% inflation estimate for all years, from 2010 actual to 2015 test year.

a) What is the "publicly available economic report" for the forecast of the Ontario CPI used for the long-term inflation assumption for projecting pension and OPEB costs that OPG uses? Does OPG look at other available forecasts to corroborate this?

b) What is the forecasted Ontario CPI used for estimating the pension and OPEB costs reflected in the 2014-2015 revenue requirement in this application? When this forecast published and what was was the forecast period?

c) Chart 1 shows a superscript "adn" for 2014 and 2015, but there is no associated reference (e.g. footnote). If missing, please provide the footnote or reference.

**Response**

a) As indicated in the cited pre-filed evidence, the setting of the long-term inflation assumption typically includes the following:

- Information from OPG’s independent actuary, which considers available market data;
- A review by OPG of a proprietary economic forecast prepared by Global Insight; and,
- The Bank of Canada’s target range for inflation.

As the above steps provide sufficient assurance over the long-term inflation rate assumption, it is not necessary to consult additional forecasts.
The report consulted by OPG is proprietary and therefore is not publicly available. The information was provided in June 2013.

b) As noted in the evidence excerpt cited in the preamble to the question, the long-term inflation rate assumption reflects the Ontario CPI for the final year in the economic forecast. As in the past, the same long-term inflation assumption is used for all years of the planning period in forecasting pension and OPEB costs since, as is in accordance with accounting standards and actuarial practice, the assumption represents a long-term view of inflation.

The long-term inflation assumption used in the forecast of the 2014 and 2015 costs provided in the Impact Statement at Ex. N1-1-1 is 2.0%, as found in the fourth bullet on page 5 of Ex. N1-1-1, Attachment 1. This is the Ontario CPI rate in the final year of a June 2013 economic forecast received from Global Insight. The forecast covered the period to 2032. The assumption of 2.0% was also used in the pre-filed forecast of 2014 and 2015 pension and OPEB costs (Ex. F4-3-1, page 30, Chart 1), and is the assumption as at December 31, 2013 reflected in the updated forecast of 2014 and 2015 pension and OPEB costs provided in Ex. L-6.8-1 Staff-112.

c) The superscript "4" is a typographical error and should instead refer to footnote 10 found at the bottom of Ex. F4-3-1, page 30.
**Board Staff Interrogatory #112**

Ref: Exh N1-1-1 pages 4-11

Issue Number: 6.8

**Issue:** Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

**Interrogatory**

Please provide an update to the pension and OPEB cost evidence in the Impact Statement filed on December 6, 2013 as follows:

a) Please provide revised evidence using the AA bond yields as at December 31, 2013 rather than at June 30, 2013.

b) Please use the actual returns of the pension plan’s assets as at December 31, 2013 to forecast 2014 and 2015 pension costs rather than the results as at June 30, 2013 with a projected return at 6.25% for the remaining six months of 2013.

**Response**

Chart 1 presents an updated forecast of pension and OPEB costs for the prescribed assets in 2014 and 2015 using the actual December 31, 2013 information, including benefit obligations and pension fund assets and the final assumptions as at December 31, 2013.

OPG is now forecasting an overall decrease of $278.7M (i.e., the sum of $206.9 in Chart 1 and $71.8 in Chart 2) in its test period revenue requirement, inclusive of the related income tax impacts, as compared to the forecast provided in the Impact Statement (Ex. N1-1-1). The change in forecast income taxes is presented in Chart 2.
The updated forecast of OPG’s total pension and OPEB costs was determined by OPG’s independent actuary, Aon Hewitt (“AON”), using the same methodology and rigour as applied in determining costs reflected in the pre-filed evidence and Ex. N1-1-1. The economic assumptions and pension plan asset values underpinning the updated forecast reflect market conditions as at December 31, 2013. AON’s report on the updated estimates of total OPG 2014 and 2015 pension and OPEB costs is provided in Attachment 1. The total OPG costs were attributed to the regulated operations using the methodology described in Ex. F4-3-1, section 6.3.4.

The main drivers of change in the forecast pension and OPEB costs from those provided in Ex. N1-1-1 are higher discount rates as at December 31, 2013 and the adoption of a new scale for future mortality improvement issued by the Canadian Institute of Actuaries (“CIA”) in February 2014. The updated forecast of 2014 and 2015 costs reflects the results of a comprehensive accounting valuation of OPG’s post employment benefit plan obligations, as explained in Ex. N1-1-1, section 2.2.1.

As the final assumptions as of December 31, 2013 were used to project the 2014 and 2015 costs, the 2014 forecast costs are expected to be close to the actual costs for the year, absent any significant unexpected changes in legislation or OPG’s operations and with the exception of

---

1 Numbers may not add due to rounding
2 From Ex. N1-1-1 Chart 2
the long-term disability benefit plan ("LTD") costs which will be calculated using information as of year-end 2014.

The pension and OPEB cost forecasts in Ex. N1-1-1 were based on discount rates determined as of June 30, 2013. Reflecting the impact of financial market conditions on long-term bond rates, the discount rates have increased between June 30, 2013 and December 31, 2013. This has caused a decline in the projected pension and OPEB costs for the test period. Specifically, the discount rates used to project pension, other post retirement benefits and LTD costs have increased from 4.70 per cent, 4.70 per cent and 4.00 per cent, respectively, to 4.90 per cent, 5.00 per cent and 4.10 per cent, respectively (see Attachment 1, page 4).

As discussed in detail in Ex. F4-3-1 (pp. 31 - 34), the discount rates used in determining pension and OPEB costs are based on AA corporate bond yields for bonds with durations similar to those of OPG’s obligations. The updated discount rates were provided by Mercer and calculated in the same way as those reflected in Ex. N1-1-1 and the original pre-filed evidence.

The actual pension plan asset values underpinning the updated forecast of pension costs reflect the actual return on the assets of 9.2 per cent during 2013. This return is discussed further in Ex. L-6.8-1 Staff-116.

In finalizing the comprehensive accounting valuation of OPG’s post employment benefit plan obligations, AON recommended an updated assumption for future mortality improvement, replacing the one used in the projection provided in Ex. N1-1-1. Specifically, AON recommended the use of the Canadian Pensioners Mortality Improvement Scale B ("CPM-B") released by the CIA on February 13, 2014 in the “CIA Final Report: Canadian Pensioners’ Mortality” (“CIA Mortality Report”). AON’s original recommendation, discussed in Ex N1-1-1, section 2.2.2, was made prior to the CIA Mortality Report being finalized and was based on their analysis of the mortality experience using available data of the Canadian population at large. The CIA Mortality Report is provided in Attachment 2.

The CPM-B improvement scale was developed by the CIA for use by Canadian pension and benefit plan sponsors, and is based on a comprehensive study of observed Canadian pensioner experience. The CPM-B scale reflects Canadian experience specific to pensioners (rather than the Canadian population in general), and was developed to become the de facto standard for pension plan mortality in Canada. It is expected to be widely adopted by pension plan sponsors in Canada. As such, AON updated their original recommendation (upon which Ex N1-1-1 was based) for OPG’s plans with respect to mortality improvement assumptions by reflecting the CPM-B improvement scale.

The CPM-B scale was adopted for purposes of valuing the obligations of OPG’s post employment benefit plans as at December 31, 2013, which were reported in OPG’s 2013 audited consolidated financial statements, and consequently updated projections of 2014 and 2015 costs. AON’s discussion of the updated recommendation on the future mortality improvement assumption is found at page 4 of Attachment 1.
The income tax impact of the updated pension and OPEB forecast is calculated in Chart 2 below in the same manner as discussed in Ex. N1-1-1, section 2.2.4 and presented in Chart 4 of that exhibit.

### Chart 2

#### Income Tax Impact of Updated Pension and OPEB Forecasts ($M)

<table>
<thead>
<tr>
<th>Line</th>
<th>Particulars</th>
<th>2014</th>
<th>2015</th>
<th>Test Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Updated Forecast of Pension and OPEB Costs</td>
<td>675.9</td>
<td>618.1</td>
<td>1,294.0</td>
</tr>
<tr>
<td>2</td>
<td>Less: Impact Statement Forecast of Pension and OPEB Costs&lt;sup&gt;4&lt;/sup&gt;</td>
<td>761.7</td>
<td>739.1</td>
<td>1,500.8</td>
</tr>
<tr>
<td>3</td>
<td>Decrease in Regulatory Taxable Income for Pension and OPEB Costs (line 1 - line 2)</td>
<td>(85.8)</td>
<td>(121.0)</td>
<td>(206.8)</td>
</tr>
<tr>
<td>4</td>
<td>Updated Forecast of Pension Plan Contributions</td>
<td>357.6</td>
<td>407.6</td>
<td>765.2</td>
</tr>
<tr>
<td>5</td>
<td>Updated Forecast of OPEB Payments</td>
<td>89.6</td>
<td>95.8</td>
<td>185.4</td>
</tr>
<tr>
<td>6</td>
<td>Less: Impact Statement Forecast of Pension Plan Contributions&lt;sup&gt;5&lt;/sup&gt;</td>
<td>355.3</td>
<td>401.8</td>
<td>757.1</td>
</tr>
<tr>
<td>7</td>
<td>Less: Impact Statement Forecast of OPEB Payments&lt;sup&gt;6&lt;/sup&gt;</td>
<td>89.3</td>
<td>95.8</td>
<td>185.1</td>
</tr>
<tr>
<td>8</td>
<td>Decrease in Regulatory Taxable Income for Pension Plan Contributions and OPEB Payments (lines 4 + 5 - 6 - 7)</td>
<td>2.6</td>
<td>5.8</td>
<td>8.4</td>
</tr>
<tr>
<td>9</td>
<td>Decrease Increase in Regulatory Taxable Income (line 3 - line 8)</td>
<td>(88.4)</td>
<td>(126.8)</td>
<td>(215.2)</td>
</tr>
<tr>
<td>10</td>
<td>Decrease in Regulatory Income Taxes (line 9 x 25% / (1 - 25%))</td>
<td>(29.5)</td>
<td>(42.3)</td>
<td>(71.8)</td>
</tr>
</tbody>
</table>

<sup>3</sup> Numbers may not calculate due to rounding

<sup>4</sup> From Ex. N1-1-1 Chart 4, line 1

<sup>5</sup> From Ex. N1-1-1 Chart 4, line 4

<sup>6</sup> From Ex. N1-1-1 Chart 4, line 5
Actuarial Report

Ontario Power Generation Inc.


January 1, 2014 to December 31, 2015
<table>
<thead>
<tr>
<th>Contents</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Actuarial Report</td>
<td>3</td>
</tr>
<tr>
<td>Schedule 1—Summary of Post Employment Benefit Plan Membership as at December 31, 2013</td>
<td>7</td>
</tr>
<tr>
<td>Schedule 2—Summary of Estimated 2014 US GAAP Results</td>
<td>8</td>
</tr>
<tr>
<td>Schedule 3—Summary of Estimated 2015 US GAAP Results</td>
<td>9</td>
</tr>
</tbody>
</table>
Introduction


This report covers the following plans sponsored by OPG:

- Ontario Power Generation Inc. Pension Plan (“RPP”);
- Ontario Power Generation Inc. Supplementary Pension Plan (“SPP”);
- Non-pension Post Retirement Plan which provides other post retirement benefits (“OPRB”) including retiree medical, dental, life insurance, and retirement bonus benefits; and
- Post Employment Plan which provides long-term disability benefits (“LTD”) including sick leave benefits before LTD begins and the continuation of medical, dental and life insurance while on LTD.

Collectively SPP, OPRB and LTD are known as Other Post Employment Benefits (“OPEB”).

The results cover the fiscal years from January 1, 2014 to December 31, 2015. The results have been developed in accordance with US generally accepted accounting principles (“US GAAP”) under ASC 715, 712 and 710.

The results in this report do not include amounts related to the benefit plans of the Nuclear Waste Management Organization, which are included in OPG’s consolidated financial statements.

Unless otherwise stated all assumptions, data elements, methodologies, plan provisions, and information about assets reflected in this report are the same as those underlying and/or contained in the Report.
Introduction (continued)

All figures are shown in Canadian $000s.

Sincerely,

Aon Hewitt Inc.

Linda M. Byron
Fellow of the Society of Actuaries
Fellow of the Canadian Institute of Actuaries
March 2014

Aon Hewitt Inc.

Gregory W. Durant
Fellow of the Society of Actuaries
Fellow of the Canadian Institute of Actuaries
Results for Fiscal Years 2014 to 2015
OPG’s total estimated pension and OPEB costs for fiscal years 2014 and 2015 as determined in accordance with US GAAP are as follows:

<table>
<thead>
<tr>
<th>(in Canadian $ 000's)</th>
<th>US GAAP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2014</td>
</tr>
<tr>
<td>RPP</td>
<td>$ 527,164</td>
</tr>
<tr>
<td>SPP</td>
<td>25,838</td>
</tr>
<tr>
<td>OPRB</td>
<td>180,655</td>
</tr>
<tr>
<td>LTD</td>
<td>22,404</td>
</tr>
<tr>
<td>Total</td>
<td>$ 756,061</td>
</tr>
</tbody>
</table>

The estimated 2014 costs for the RPP, SPP and OPRB plans are not expected to change, unless a significant event, such as a curtailment or settlement or any other unexpected changes to OPG’s operations were to take place prior to December 31, 2014. The final 2014 cost for the LTD plan will be determined at December 31, 2014 based on applicable information and assumptions at that date.

The estimated 2014 and 2015 costs for the RPP, SPP and OPRB plans reflect the results of a comprehensive accounting valuation conducted in 2013 using data as of December 31, 2012, including updated plan membership information, for the purposes of establishing OPG’s pension and OPRB obligations as at December 31, 2013.

As part of the comprehensive accounting valuation, we reviewed all assumptions and have recommended that certain updated assumptions be used in the calculation of OPG’s pension and OPRB obligations as at December 31, 2013, and 2014 and 2015 costs for these plans. The updated assumptions previously outlined in the Report, with the exception of the mortality improvement assumption discussed in the Actuarial Methods and Assumptions section of this report, remained unchanged upon finalization of the comprehensive accounting valuation. We continue to update membership for the LTD plan annually.
Actuarial Methods and Assumptions
The same actuarial methodology and accounting policies, as set out in the Report, were used in the development of the updated estimates of costs.

- The discount rates have been determined in accordance with US GAAP. The discount rates have been set with reference to that representative of AA corporate bond yields in Canada as at December 31, 2013 having duration similar to the liabilities of the plans. The discount rates used are 4.90% per annum for determining the estimated 2014 and 2015 RPP and SPP costs, 5.00% per annum for determining the estimated 2014 and 2015 OPRB costs and 4.10% per annum for determining the estimated 2014 and 2015 LTD costs;

- The asset value for the RPP as at December 31, 2013 is based on the actual asset value at December 31, 2013 for the pension fund;

- Mortality rates are expected to improve in the future based on observed Canadian pensioner population data. The assumed mortality improvement rates have been updated to reflect the improvement scale developed by the Canadian Institute of Actuaries (“CIA”) based on a comprehensive study of observed Canadian pensioner experience. The Canadian Pensioners Mortality Improvement Scale B (CPM-B) was released by the CIA on February 13, 2014 in the CIA Final Report: Canadian Pensioners’ Mortality. This improvement scale was developed by the CIA for use by Canadian pension and benefit plan sponsors.

  The CPM-B improvement scale applies improvement rates, by age, that decrease in a linear fashion for year 2012 – 2030 and ultimate rates applicable for all years after 2030. It reflects Canadian experience specific to pensioners and was developed to become the de facto standard for pension plan mortality in Canada. The CPM-B improvement scale is expected to be widely adopted by pension plan sponsors in Canada, and is a best estimate of mortality improvement assumption for the Canadian pensioner population. We will recommend the use of this assumption for the purposes of OPG’s next RPP funding valuation effective no later than January 1, 2014;

- The spousal age assumption for active members at retirement has been updated to reflect the demographics of the plan membership. Female spouses are assumed to be three, instead of four, years younger than their male spouses;

- Health care benefit claims costs for the LTD plan have been updated to reflect actual plan experience in 2011 and 2012; and,

- The active membership headcount is first calculated for each business unit based on the assumed decrements and then compared to the estimated active December 31, 2013 and December 31, 2014 headcounts for each business unit. As the calculated headcounts exceed the estimated headcounts, additional employees are assumed to retire to reduce the headcounts. The estimated December 31, 2013 active headcount used is 10,393 (i.e., 6,223 for Nuclear, 1,865 for Hydro / Thermal and 2,305 for Corporate). The estimated December 31, 2014 active headcount used is 10,274 (i.e., 6,282 for Nuclear, 1,717 for Hydro / Thermal and 2,275 for Corporate). For the purposes of projecting membership data from December 31, 2012 to December 31, 2013, base salary in 2013 is assumed to increase by 0% for Management members, 2.75% for the Power Workers’ Union (“PWU”) members, and 0.75% for the Society of Energy Professionals (“Society”) members.
OPG’s latest actuarial valuation as of January 1, 2011 for funding purposes of the RPP is the basis of contributions for 2013. The next actuarial valuation for funding purposes must have an effective date no later than January 1, 2014. This valuation will be the basis of the RPP contributions for 2014 and 2015. We are in the process of preparing the valuation using information as of January 1, 2014. The valuation must be filed with the Financial Services Commission of Ontario by September 30, 2014. The contributions used in the determination of the 2014 and 2015 estimated costs in this report represent a preliminary estimate of the 2014 and 2015 contributions reflected by OPG in its approved 2014-2016 Business Plan.

Plan Provisions
In 2013 the service requirement to receive retiree benefits increased from 2 years to 10 years for Society employees under the age of 55 on April 8, 2013 and Management (Millennium and Heritage) employees under the OPRB plan under the age of 55 on September 1, 2013. This increase in service requirement has resulted in a reduction in OPG’s non-pension post-retirement benefit obligation as at December 31, 2013 and corresponding estimated costs for 2014 and 2015.
Schedule 1—Summary of Post Employment Benefit Plan Membership at December 31, 2013

<table>
<thead>
<tr>
<th>As at December 31, 2013&lt;sup&gt;1&lt;/sup&gt;</th>
<th>PWU</th>
<th>Society</th>
<th>Management – Heritage</th>
<th>Management – Millennium</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Members on Long Term Disability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>314</td>
<td>44</td>
<td>20</td>
<td>3</td>
<td>381</td>
</tr>
<tr>
<td>Average Age</td>
<td>54.5</td>
<td>55.5</td>
<td>56.4</td>
<td>51.0</td>
<td>54.7</td>
</tr>
<tr>
<td>Average Eligibility Service (Years)</td>
<td>23.2</td>
<td>25.6</td>
<td>28.8</td>
<td>8.1</td>
<td>23.7</td>
</tr>
<tr>
<td>Average Deemed Basic Earnings</td>
<td>$77,554</td>
<td>$105,272</td>
<td>$98,990</td>
<td>$102,727</td>
<td>$82,078</td>
</tr>
<tr>
<td>Average LTD Monthly Benefit</td>
<td>$3,860</td>
<td>$5,534</td>
<td>$5,157</td>
<td>$5,501</td>
<td>$4,134</td>
</tr>
<tr>
<td>Number with Health and Dental Coverage</td>
<td>299</td>
<td>43</td>
<td>19</td>
<td>3</td>
<td>364</td>
</tr>
</tbody>
</table>

<sup>1</sup> Preliminary data for disabled members as at December 31, 2013 was provided by OPG in December 2013 and used in determining the December 31, 2013 benefit obligation for post-employment benefits.
The following table provides a summary of the estimated US GAAP results for 2014 for the post employment benefit plans sponsored by OPG. The estimated net periodic pension/benefit cost for the period January 1, 2014 to December 31, 2014 is determined based on the projected balance sheet items at January 1, 2014.

<table>
<thead>
<tr>
<th>(in Canadian $ 000's)</th>
<th>RPP</th>
<th>SPP</th>
<th>OPRB</th>
<th>LTD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Projected Net Asset (Liability) Recognized as at January 1, 2014</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projected Benefit Obligation</td>
<td>$(13,368,826)</td>
<td>$(285,169)</td>
<td>$(2,439,305)</td>
<td>$(267,830)</td>
</tr>
<tr>
<td>Fair Value of Plan Assets</td>
<td>10,893,428</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Net Asset (Liability) Recognized</strong></td>
<td>$(2,475,398)</td>
<td>$(285,169)</td>
<td>$(2,439,305)</td>
<td>$(267,830)</td>
</tr>
<tr>
<td><strong>Estimated Amounts Recognized in Accumulated Other Comprehensive Income as at January 1, 2014</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrecognized Past Service Costs (Credits)</td>
<td>0</td>
<td>0</td>
<td>950</td>
<td>0</td>
</tr>
<tr>
<td>Unrecognized Net Actuarial Loss (Gain)</td>
<td>3,492,617</td>
<td>78,721</td>
<td>319,518</td>
<td>0</td>
</tr>
<tr>
<td>Unrecognized Transition Obligation (Asset)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Accumulated Other Comprehensive Loss (Income)</strong></td>
<td>$3,492,617</td>
<td>$78,721</td>
<td>$320,468</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Components of Estimated Net Periodic Pension/Benefit Cost, January 1, 2014 to December 31, 2014</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employer Current Service Cost</td>
<td>$235,496</td>
<td>$7,437</td>
<td>$51,620</td>
<td>$11,517</td>
</tr>
<tr>
<td>Interest Cost</td>
<td>655,696</td>
<td>14,110</td>
<td>122,963</td>
<td>10,887</td>
</tr>
<tr>
<td>Expected Return on Plan Assets</td>
<td>(624,026)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Amortization of Past Service Cost</td>
<td>0</td>
<td>0</td>
<td>120</td>
<td>0</td>
</tr>
<tr>
<td>Amortization of Net (Gain) Loss</td>
<td>259,998</td>
<td>4,291</td>
<td>5,952</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Cost</strong></td>
<td>$527,164</td>
<td>$25,838</td>
<td>$180,655</td>
<td>$22,404</td>
</tr>
<tr>
<td><strong>2014 Estimated Employer Pension Contributions / Benefit Payments</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amounts used for developing estimated net periodic pension/benefit cost</td>
<td>$400,000</td>
<td>$9,278</td>
<td>$63,336</td>
<td>$27,644</td>
</tr>
</tbody>
</table>
The following table provides a summary of the estimated US GAAP results for 2015 for the post employment benefit plans sponsored by OPG. The estimated net periodic pension/benefit cost for the period January 1, 2015 to December 31, 2015 is determined based on the projected balance sheet items at January 1, 2015.

<table>
<thead>
<tr>
<th>(in Canadian $ 000’s)</th>
<th>RPP</th>
<th>SPP</th>
<th>OPRB</th>
<th>LTD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Projected Net Asset (Liability) Recognized as at January 1, 2015</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projected Benefit Obligation</td>
<td>$ (13,792,082)</td>
<td>$ (297,438)</td>
<td>$ (2,549,220)</td>
<td>$ (262,590)</td>
</tr>
<tr>
<td>Fair Value of Plan Assets</td>
<td>11,527,305</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Net Asset (Liability) Recognized</strong></td>
<td>$ (2,264,777)</td>
<td>$ (297,438)</td>
<td>$ (2,549,220)</td>
<td>$ (262,590)</td>
</tr>
<tr>
<td><strong>Estimated Amounts Recognized in Accumulated Other Comprehensive Income as at January 1, 2015</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrecognized Past Service Costs (Credits)</td>
<td>$ 0</td>
<td>$ 0</td>
<td>$ 830</td>
<td>$ 0</td>
</tr>
<tr>
<td>Unrecognized Net Actuarial Loss (Gain)</td>
<td>3,154,832</td>
<td>74,430</td>
<td>312,234</td>
<td>0</td>
</tr>
<tr>
<td>Unrecognized Transition Obligation (Asset)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Accumulated Other Comprehensive Loss (Income)</strong></td>
<td>$ 3,154,832</td>
<td>$ 74,430</td>
<td>$ 313,064</td>
<td>$ 0</td>
</tr>
<tr>
<td><strong>Components of Estimated Net Periodic Pension/Benefit Cost, January 1, 2015 to December 31, 2015</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employer Current Service Cost</td>
<td>$ 238,024</td>
<td>$ 7,623</td>
<td>$ 53,861</td>
<td>$ 11,291</td>
</tr>
<tr>
<td>Interest Cost</td>
<td>675,765</td>
<td>14,698</td>
<td>128,442</td>
<td>10,673</td>
</tr>
<tr>
<td>Expected Return on Plan Assets</td>
<td>(675,198)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Amortization of Past Service Cost</td>
<td>0</td>
<td>0</td>
<td>120</td>
<td>0</td>
</tr>
<tr>
<td>Amortization of Net (Gain) Loss</td>
<td>208,890</td>
<td>3,755</td>
<td>4,478</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Cost</strong></td>
<td>$ 447,481</td>
<td>$ 26,076</td>
<td>$ 186,901</td>
<td>$ 21,964</td>
</tr>
<tr>
<td><strong>2015 Estimated Employer Pension Contributions / Benefit Payments</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amounts used for developing estimated net periodic pension/benefit cost</td>
<td>$ 450,000</td>
<td>$ 10,208</td>
<td>$ 68,480</td>
<td>$ 27,115</td>
</tr>
</tbody>
</table>
Final Report

Canadian Pensioners’ Mortality

Pension Experience Subcommittee - Research Committee

February 2014

Document 214013

Ce document est disponible en français

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Memorandum

To: All Fellows, Affiliates, Associates, and Correspondents of the Canadian Institute of Actuaries

From: Marc Tardif, Chair
Member Services Council
Dave Dickson, Chair
Research Committee
A. Kim Young, Chair
Pension Experience Subcommittee

Date: February 13, 2014

Subject: Final Report: Canadian Pensioners’ Mortality

On behalf of the Pension Experience Subcommittee, the attached document contains Canadian pensioners mortality tables and improvement scales based on experience studies conducted by the Canadian Institute of Actuaries. There are a number of documents and tables referenced in this document that are available online; links are provided at the applicable reference points.

The primary objective of these studies was to build base mortality tables and mortality improvement scales that may be used for actuarial valuations for funding and/or financial reporting purposes for a broad range of Canadian pension plans. Furthermore, it is expected that such tables and scales may be considered for use under actuarial standards of practice for the determination of pension commuted values and the division of pension benefits on marriage breakdown.

The subcommittee’s role has been to manage and assess the experience study analyses and to present proposed tables for consideration by Institute members and other stakeholders.

It is anticipated that the Committee on Pension Plan Financial Reporting will be updating the educational note guidance regarding the selection of mortality assumptions following publication of this report. In addition, the Actuarial Standards Board has established a project to consider promulgation of revised mortality tables for the pension commuted value standard and the standard for capitalized value of pension plan benefits for a marriage breakdown.

MT, DD, AKY
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EXECUTIVE SUMMARY

The actuarial valuation of pension plans in Canada has often incorporated the use of, or reference to, the mortality experience of group annuity contracts and pension plans largely resident in the United States due to a lack of Canadian pension plan experience data. In 2008, the Canadian Institute of Actuaries embarked on a review of Canadian mortality experience to assess the continued validity of this practice.

This Canadian Pensioners Mortality Report presents the findings of a review of a subset of Canadian registered pension plans (RPP Study) in conjunction with a separate review of mortality experienced under the Canada Pension Plan and the Québec Pension Plan (C/QPP Study). These reviews show that Canadian mortality experience is different from the United States experience that has often been referenced to value Canadian pension plans and that the development of Canadian-based mortality tables and mortality improvement scales is warranted.

This report presents gender-specific mortality tables based on the overall RPP Study data and separate tables based on public and private sector data. In addition, size adjustment factors that reflect mortality differences observed by pension income levels are provided. Limited information is also provided to identify the potential mortality differences that exist for the industries represented in the RPP Study data.

This report also presents both a two-dimensional mortality improvement scale and a transitional one-dimensional scale that approximates, in the near term, the financial effect of the two-dimensional scale. The mortality improvement scales are based on experience from the C/QPP Study and assumptions used in 26th CPP Actuarial Report.

The results included in this report are directly applicable to Canadian pension plans. The results may not be reflective of the mortality and life expectancies inherent in the Canadian population in general and should be used with caution in that context.

The release of this final report follows a period of consultation on the Draft Report for Comments, Canadian Pensioners’ Mortality published on July 31, 2013 (Draft Report). It is important to note that the mortality tables and improvement scales provided with this final report supersede those provided with the Draft Report. To avoid confusion, the mortality tables and improvement scales in this report are named differently from those in the Draft Report.

All comments received on the Draft Report were given due consideration. A summary of the comments received is provided in section 5 of this report along with the most significant implications for the results presented in this final report. The following are noted in particular:

- The mortality tables in the final report are developed using a slightly larger RPP data set and with an allocation by industry for a high proportion of the data;
- The mortality tables in the final report were derived after modifying the RPP Study data to reflect weightings by industry derived from CANSIM data regarding pension plan membership;
- The assumptions for the ultimate mortality improvement rates (applicable from 2030) have been updated to coincide with the assumptions used in the recently published 26th CPP Actuarial Report and to extend non-zero improvement rates to very high ages.
INTRODUCTION

In 2008, the Research Committee of the Canadian Institute of Actuaries (Institute) formed the Pension Experience Subcommittee to:

- Review pensioner mortality experience in Canada; and
- Develop and maintain Canadian pension mortality tables and improvement scales.

To this end, the Institute commissioned two experience studies. The C/QPP Study reviewed the experience of pensioners under the Canada Pension Plan, the Québec Pension Plan, and in combination. For the purpose of developing mortality tables, the C/QPP Study reviewed the mortality experience of all persons receiving a retirement pension from the CPP and QPP for the calendar years 2005, 2006, and 2007 (central year 2006). The complete results of this study are provided in a report prepared by Louis Adam, FCIA, FSA, entitled “The Canadian Pensioners Mortality Table, Information on mortality for the triennial period ending December 31, 2007, with data as at December 31, 2008” (the C/QPP Phase II Report), which can be found here.

The C/QPP Study also reviewed the trends of mortality experience since 1967, the first year that pensions became payable under these programs. Results of this study are provided in the report, also prepared by Louis Adam, entitled “The Canadian Pensioners Mortality Table, Historical Trends in Mortality Improvement and a Proposed Projection Model based on CPP/QPP data as at December 31, 2007” (the C/QPP Phase III Report), which can be found here.

The second study, the RPP Study, reviewed the experience of a number of Canadian registered pension plans, including both public sector and private sector plans. The results of this study are provided within this report. For this purpose, the Institute commissioned MIB Solutions to gather data from Canadian pension plan contributors on lives covered by their pension plans. Following their data collection and validation processes, MIB Solutions provided Bob Howard, a member of the Institute and the subcommittee, with seriatim records derived from the data submitted.

All further analyses and table construction for the RPP Study were prepared by Mr. Howard in accordance with the scope and methodology approved by the subcommittee. This included Mr. Howard seeking and obtaining improved data and sign-offs from some data contributors.

The primary objective of these studies was to build base mortality tables and mortality improvement scales that may be used for actuarial valuations for funding and/or financial reporting purposes for a broad range of Canadian pension plans. Furthermore, it was expected that such tables and scales may be considered for use under actuarial standards of practice for the determination of pension commuted values and the division of pension benefits on marriage breakdown.

This report presents a set of mortality tables based primarily on the experience observed from the RPP Study and mortality improvement scales based on the experience observed from the C/QPP Study and assumptions used in the 26th CPP Actuarial Report. The subcommittee notes that the tables reflect the experience of the data submitted. Actuaries should exercise judgment in their use of the tables. Adjustments to the published tables may be appropriate in many circumstances.

The Institute thanks the 19 administrators/record-keepers (contributors) for contributing data and providing ongoing clarification to the subcommittee. The Institute appreciates the considerable effort expended by the contributors.
The Institute also thanks those members and non-members of the Institute who have dedicated significant time to this work as current and past participants of the subcommittee. In particular, the Institute thanks Louis Adam, Bob Howard, and MIB Solutions for the data compilation and analyses prepared on behalf of the Institute.

The members of the Pension Experience Subcommittee as at February 2014 are: A. Kim Young (Chair), Louis Adam, Michael Banks, Gavin Benjamin, Assia Billig, Paul Burnell, Bob Howard, Hrvoje Lakota, Scott McManus, and Catherine Robertson.

1 MORTALITY TABLES AND MORTALITY IMPROVEMENT SCALES

1.1 Mortality Tables

1.1.1 Base Tables

In the RPP Study, the mortality experience for calendar years 1999 to 2008 of a subset of Canadian public sector and private sector registered pension plans was reviewed. Based on the results of the RPP Study, the following base male and female mortality tables for the year 2014 are provided:

- 2014 Mortality Table (CPM2014)—developed from the combined experience exhibited under the public and private sector plans included in the RPP Study;
- 2014 Public Sector Mortality Table (CPM2014Publ)—based on the separate experience exhibited under the public sector plans included in the RPP Study; and
- 2014 Private Sector Mortality Table (CPM2014Priv)—based on the separate experience exhibited under the private sector plans included in the RPP Study.

The abbreviation “CPM” that refers to Canadian pensioners’ mortality prefaced the table names adopted under the C/QPP Study and in the Draft Report. The table names presented here reflect the adoption of the final tables resulting from the two experience studies.

The final mortality tables for the year 2014 can be found here. Sample rates are provided in appendix 1. As requested by a number of the members of the Institute, tables in respect of each of the years 1999 to 2013 have also been prepared, and can be found here.

1.1.2 Industry Experience

As part of the RPP Study, the subcommittee reviewed the mortality experience by industry. Generally, there are insufficient data to develop mortality tables by industry. However, data on actual to expected (A/E) ratios, relative to the CPM tables, by industry may be useful to actuaries where specific plan experience or similar plan experience is not available. These data are provided in appendix 2.

1.1.3 Blue, White, and Mixed Collar Considerations

Very little study data included collar type. The subcommittee made an attempt to classify the RPP Study data into blue collar, white collar, and mixed based on industry. However, this analysis did not yield satisfactory results and therefore no specific experience by collar type is provided in this report.

1.1.4 Size Adjustment Factors

The RPP Study, and the C/QPP Study, identified significant experience variation by size of pension. Accordingly the subcommittee developed size adjustment factors that can be used with
the base mortality tables. Size adjustment factors for each mortality table are posted on the same worksheet as the table, and can be found here. The rates are also shown in appendix 1.

1.1.5 Application

It is expected that practitioners will adopt a table that is most reasonable and appropriate in the circumstances of the particular plan under review. The subcommittee believes that it is best practice to consider whether modifications to the base tables are appropriate to reflect actual, credible experience of the pension plan under review. If lacking fully-credible experience, the subcommittee suggests that the actuary might consider using experience from other similar plans, the RPP Study size adjustment factors, and/or industry data for adjusting the base table.

Considerations for the use of size adjustments are discussed in section 2.3.

The subcommittee notes that the composite 2014 Mortality Table represents the experience of all registered pension plans included in the RPP Study, with adjustments to reflect the overall distribution of Canadian pension plan membership by industry, and suggests that it could be considered suitable for use under actuarial standards of practice for the determination of pension commuted values and for the division of pension benefits on marriage breakdown.

1.2 Mortality Improvement Scales

1.2.1 Introduction

The C/QPP Study reviewed the trends of mortality experience since 1967, the first year that pensions became payable under those programs. Based on the results of the C/QPP Study, the following male and female improvement scales are provided:

- CPM Improvement Scale B (CPM-B)—improvement rates by age that decrease in a linear fashion for years 2012–2030 and ultimate rates applicable for all years after 2030; and
- CPM Improvement Scale B1-2014 (CPM-B1D2014)—improvement rates by age only designed to approximate the CPM Improvement Scale B for pension valuations in 2014 and 2015.

These improvement scales can be found online here. Sample rates are provided in appendix 1.

1.2.2 Application

The subcommittee proposes that practitioners consider adopting the two-dimensional mortality improvement scale, CPM-B. However, the subcommittee recognizes that some pension valuation and administration systems may not currently accommodate a two-dimensional scale.

Based on these considerations, the subcommittee also developed the transitional, one-dimensional (age only), gender-specific mortality improvement scale, CPM-B1D2014, that approximates in the near term the financial effect of the two-dimensional scale, assuming both sets of rates are applied on a generational basis.

For each age, the mortality improvement rates developed for the one-dimensional scale take into account the evolution of improvement rates anticipated over the next several decades. The two-dimensional scale assumes a slowdown in mortality improvement after 2014 compared to earlier years. As such, it may be inappropriate to apply the one-dimensional scale for the purpose of actuarial valuations after 2016 since it may result in an overstatement of actuarial liabilities.
It would be valid to use the CPM-B scale for valuations where the base table has been adjusted for mortality improvement or experience to 1999 or a later year. CPM-B would then be applied from that particular year. However, the one-dimensional scale CPM-B1D2014 is suitable for use only with a table that has been adjusted for mortality improvement or experience to 2014.

To clarify the use of the two-dimensional improvement scale developed under this study, consider the data in table 1 for the following example:

<table>
<thead>
<tr>
<th>Table 1. Example of using 2-dimensional improvement scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subset of CPM Improvement Scale B</td>
</tr>
<tr>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>80</td>
</tr>
<tr>
<td>81</td>
</tr>
<tr>
<td>82</td>
</tr>
</tbody>
</table>

Suppose it is desired to calculate the probability at the start of 2015 for a male then age 80 to survive for two years. In the notation below, “I” represents the improvement rate and a superscript is the year for the mortality rate or improvement rate, where the base year is 2014.

\[
p_{2015}^{80} = p_{80}^{2015} \cdot p_{61}^{2016} = (1 - q_{80}^{\text{base}} (1 - I_{80}^{2015})) (1 - q_{81}^{\text{base}} (1 - I_{81}^{2015}) (1 - I_{81}^{2016}))
\]

\[
= [1-0.03981*(1-0.02537)]*[1-0.04522*(1-0.02379)*(1-0.02274)]
\]

\[= 0.919733\]

Notation for mortality rates and improvement rates by year does not appear to be standardized within the profession. The subcommittee uses the following definitions, which incidentally were also used by the Society of Actuaries in connection with the two-dimensional Scale BB.

\[q_x^y\] means the probability that a person, age \(x\) nearest birthday at the beginning of calendar year \(y\), will die before reaching the end of the calendar year. Note that both \(x\) and \(y\) are defined at the beginning of the one-year period.

\[I_x^y\] means the improvement rate in mortality for persons aged \(x\) nearest birthday at the start of calendar year \(y-1\) to those aged \(x\) at the start of calendar year \(y\). In this case \(x\) is constant through the one-year period, and \(y\) is defined at the end of the period.

\[q_x^y = q_x^{y-1} (1 - I_x^y)\]

2 DEVELOPMENT OF MORTALITY TABLES AND SIZE ADJUSTMENT FACTORS

2.1 Data—RPP Study

2.1.1 Data Gathering

The Institute commissioned MIB Solutions to gather data from Canadian pension plan contributors on lives covered by their pension plans. The call for data went out in November 2009, and data were collected during 2010. Nineteen contributors submitted data for calendar years 1999 to 2008, from both the public and private sectors, for active lives, for pensioners and
for beneficiaries after the death of pensioners. Not all contributors provided data for all years and one contributor subsequently withdrew from the study.

The data collection and validation processes are described in the MIB Solutions report, which can be found online here.

MIB Solutions provided Bob Howard, a member of the Institute and the subcommittee, with seriatim records derived from the data submitted. In particular, to protect confidentiality, member identification numbers were removed, company and plan names were replaced by codes, and dates of birth and death were replaced by age and year of death. Codes were added to indicate the status as active, pensioner, or beneficiary, whether excluded, and whether unresolved. A record is marked unresolved if there was exposure for that life in some years but not in later years and no death was reported.

To ensure that the data transmitted to and assembled by Bob Howard remained consistent with that provided by MIB Solutions, the MIB Solutions report includes a table of ungraduated mortality rates based on preliminary public sector pensioner data. A comparison of those rates to similarly calculated rates prepared by Mr. Howard confirmed for the subcommittee that he and MIB Solutions were using the data in an appropriate and consistent manner.

2.1.2 Data Selection and Modification

Not all data submitted by contributors were of uniformly high quality. Individual records were excluded if they had been flagged by MIB Solutions as excluded. If a record was marked as unresolved, all records for that life were excluded.

Not all contributors provided sign-off to MIB Solutions indicating their agreement that the data were sufficiently accurate. Subsequent to receiving the data from MIB Solutions, the subcommittee approached five contributors who had not signed off. One of these withdrew its data because a summary of its data was not consistent with its internal mortality study. The other four contributors provided sign-off, and two of those provided revised data before sign-off.

The RPP Study used data only if the relevant contributor signed off. In the end, the data from 13 contributors were used for the RPP Study.

It was necessary to exclude some contributor-years of data. All records for a contributor were rejected for a particular year if any of the following criteria were met:

- Unresolved records exceeded 10% of the number of deaths in the year;
- The A/E ratio based on annualized pension was an outlier by more than three standard deviations; or
- The number of deaths in the year was less than 20.

For one contributor, which submitted data for all 10 years, there were so many unresolved records for the first five years of data that the subcommittee initially rejected those years of data. After examining a sample of 20 unresolved records for pensioners, it was found that all had died and 19 of them had died in the last year that the pensioner had been included in the data (but marked as alive). Therefore, for this contributor only, all unresolved records were treated as deaths in the last year reported alive and all 10 years of data were included.

It was concluded that the active life data were not sufficiently reliable for the purpose of constructing a table. Salaries were available for such a small proportion of the data that the salary information was not usable. A non-zero salary on death records was rare. The A/E death ratios
by number of lives were very low at the younger ages and very high at the older ages, so much so that the accuracy of the active death records was in question. Furthermore, it was the subcommittee’s view that the mortality rates for active lives are typically less relevant in the context of pension valuations.

The subcommittee also concluded that the beneficiary data should not be used in table construction. It would be appropriate to include beneficiary data only if the study could also include experience for these lives prior to the death of the member, but such experience was not available.

In contrast to the RPP Study, the Institute’s Individual Annuitant Mortality Study tracks both lives from the outset of a joint and survivor annuity. That experience shows that mortality is lighter than for single lives while both are alive, but substantially higher after the first death. A test on that data showed that the present value of a joint and survivor annuity would be essentially the same whether calculated based on single life mortality throughout or on “joint both alive” mortality until the first death and on “joint survivor” thereafter. These observations gave the subcommittee confidence in relying on the member pensioner data only to give a satisfactory result. The subcommittee concluded that including the beneficiary data would bias mortality rates upward.

All pensioner records with a monthly income of less than $10 were excluded. A surprisingly large number of records included pensions with very low or zero income. It is not clear how there can be a pension with a zero monthly benefit; those records were considered to be unreliable. If the income is very small, there is less incentive for the contributor to seek information on the pensioner, and a death is more likely to go unreported.

The monthly income for any one record was capped at $10,000; any excess is ignored. There are a few records with very large pension amounts. Without capping the monthly income, these very large records could have too strong an influence on the experience measured by income, and their presence at the least increases the variability of the experience. The cap of $10,000 is anticipated to be high enough to capture virtually all of the amounts payable under registered pension plans.

There are codes to indicate the form of benefit (e.g., life only, joint, and survivor, etc.). It would have been desirable to study experience separately for each type. However, so many contributors reported the form as “unknown” that distinction by form of payment was abandoned.

It is also important to note, based on the location of contributors participating in the RPP Study, that pensioners included are primarily located in the provinces of British Columbia, Nova Scotia, and Ontario.

2.1.3 Data Summaries—Before Industry Weighting

Table 2 shows the data for pensioners as submitted by participating contributors and a summary for each deduction: for not signed off, excluded (as flagged by MIB), unresolved (records missing with no death reported), rejected (contributor-year of data meets one of the three criteria mentioned above related to questionable data), for small incomes (under $10 per month), and for excess incomes (over $10,000 per month). “Included” refers to the data used in the RPP Study. Data for the public and private sectors are shown separately.
In all tables, “count” means the number of life-years included, and “pension” is the sum of the annualized pensions over those same life-years. [Note: in the tables provided in this report, sums may not add exactly due to the rounding of intermediate amounts.]

<table>
<thead>
<tr>
<th></th>
<th>Exposed</th>
<th>Deaths</th>
<th>Exposed</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Pension</td>
<td>Count</td>
<td>Pension</td>
</tr>
<tr>
<td>Submitted</td>
<td>5,152,184</td>
<td>107,173,848,575</td>
<td>99,299</td>
<td>1,400,807,796</td>
</tr>
<tr>
<td>Not signed off</td>
<td>2,060,368</td>
<td>39,524,681,937</td>
<td>38,176</td>
<td>464,961,117</td>
</tr>
<tr>
<td>Excluded</td>
<td>9,213</td>
<td>82,473,466</td>
<td>200</td>
<td>699,909</td>
</tr>
<tr>
<td>Unresolved</td>
<td>4,061</td>
<td>86,896,439</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rejected</td>
<td>389,127</td>
<td>6,907,378,095</td>
<td>5,997</td>
<td>27,889,458</td>
</tr>
<tr>
<td>Small</td>
<td>4,858</td>
<td>91,312</td>
<td>142</td>
<td>1,510</td>
</tr>
<tr>
<td>Excess</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Included</td>
<td>2,684,556</td>
<td>60,572,327,326</td>
<td>54,784</td>
<td>907,255,803</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Exposed</th>
<th>Deaths</th>
<th>Exposed</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Pension</td>
<td>Count</td>
<td>Pension</td>
</tr>
<tr>
<td>Submitted</td>
<td>976,751</td>
<td>10,528,559,182</td>
<td>47,999</td>
<td>374,297,590</td>
</tr>
<tr>
<td>Not signed off</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Excluded</td>
<td>159</td>
<td>657,727</td>
<td>289</td>
<td>1,235,856</td>
</tr>
<tr>
<td>Unresolved</td>
<td>6</td>
<td>15</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rejected</td>
<td>13</td>
<td>220,112</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Small</td>
<td>13,674</td>
<td>907,979</td>
<td>872</td>
<td>58,821</td>
</tr>
<tr>
<td>Excess</td>
<td>0</td>
<td>7,238,268</td>
<td>0</td>
<td>127,145</td>
</tr>
<tr>
<td>Included</td>
<td>962,899</td>
<td>10,519,535,081</td>
<td>46,838</td>
<td>372,875,769</td>
</tr>
<tr>
<td>Total Included</td>
<td>3,647,455</td>
<td>71,091,862,407</td>
<td>101,622</td>
<td>1,280,131,572</td>
</tr>
</tbody>
</table>
Table 3 shows the data included in the RPP Study for each year of experience. The average year of experience, weighted by income exposed, is 2004.39.

<table>
<thead>
<tr>
<th>Year</th>
<th>Exposed</th>
<th>Count</th>
<th>Pension</th>
<th>Death</th>
<th>Count</th>
<th>Pension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>165,692</td>
<td>3,347,669,395</td>
<td>3,713</td>
<td>52,647,662</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>175,702</td>
<td>3,681,953,478</td>
<td>3,853</td>
<td>57,544,931</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>186,443</td>
<td>4,081,910,146</td>
<td>3,786</td>
<td>59,480,166</td>
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<td></td>
</tr>
<tr>
<td>2002</td>
<td>211,040</td>
<td>4,842,741,328</td>
<td>4,347</td>
<td>73,981,647</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>224,464</td>
<td>5,259,922,839</td>
<td>4,289</td>
<td>72,910,072</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>316,632</td>
<td>6,923,599,845</td>
<td>6,312</td>
<td>102,134,734</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>330,716</td>
<td>7,389,891,130</td>
<td>6,795</td>
<td>110,404,228</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>344,318</td>
<td>7,879,329,714</td>
<td>7,001</td>
<td>118,701,848</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>357,680</td>
<td>8,327,830,024</td>
<td>7,241</td>
<td>124,803,514</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>371,869</td>
<td>8,837,479,427</td>
<td>7,448</td>
<td>134,647,001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>2,684,556</td>
<td>60,572,327,326</td>
<td>54,784</td>
<td>907,255,803</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Exposed</th>
<th>Count</th>
<th>Pension</th>
<th>Death</th>
<th>Count</th>
<th>Pension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>68,296</td>
<td>677,448,921</td>
<td>3,359</td>
<td>24,354,502</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>70,691</td>
<td>715,574,113</td>
<td>3,235</td>
<td>24,678,150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>69,462</td>
<td>745,686,597</td>
<td>3,250</td>
<td>24,898,118</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>75,396</td>
<td>841,013,967</td>
<td>3,422</td>
<td>29,083,812</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>112,276</td>
<td>1,050,926,699</td>
<td>4,807</td>
<td>34,848,323</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>110,686</td>
<td>1,075,787,080</td>
<td>5,634</td>
<td>42,366,218</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>108,174</td>
<td>1,090,139,012</td>
<td>5,528</td>
<td>41,819,863</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>116,903</td>
<td>1,380,936,097</td>
<td>5,940</td>
<td>49,140,694</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>115,584</td>
<td>1,439,076,067</td>
<td>5,863</td>
<td>50,265,205</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>115,432</td>
<td>1,502,946,528</td>
<td>5,800</td>
<td>51,420,884</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>962,899</td>
<td>10,519,535,081</td>
<td>46,838</td>
<td>372,875,769</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3,647,455</td>
<td>71,091,862,407</td>
<td>101,622</td>
<td>1,280,131,572</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tables 4 and 5 show the data included in the RPP Study by gender. The A/E ratios, broken up by pension, show that UP-94 mortality rates projected with Scale AA to 2004 (UP94@2004) are significantly higher than experienced at most ages. Perhaps more significant is the fact that the slope of the experience is materially different from the slope of UP94@2004.

**Table 4. Experience by quinquennial age groups for Male pensioners**

<table>
<thead>
<tr>
<th>Ages</th>
<th>Count</th>
<th>Exposed</th>
<th>Deaths</th>
<th>A/E on UP94@2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 55</td>
<td>33,545</td>
<td>1,096,938,778</td>
<td>232</td>
<td>4,811,645</td>
</tr>
<tr>
<td>55-59</td>
<td>217,141</td>
<td>7,724,077,665</td>
<td>1,107</td>
<td>31,990,960</td>
</tr>
<tr>
<td>60-64</td>
<td>316,662</td>
<td>10,277,691,426</td>
<td>2,616</td>
<td>70,371,196</td>
</tr>
<tr>
<td>65-69</td>
<td>353,214</td>
<td>7,736,597,633</td>
<td>4,992</td>
<td>91,123,702</td>
</tr>
<tr>
<td>70-74</td>
<td>336,215</td>
<td>5,990,959,315</td>
<td>8,316</td>
<td>125,304,726</td>
</tr>
<tr>
<td>75-79</td>
<td>298,462</td>
<td>4,482,083,265</td>
<td>12,846</td>
<td>170,490,828</td>
</tr>
<tr>
<td>80-84</td>
<td>207,556</td>
<td>2,705,401,398</td>
<td>15,125</td>
<td>177,732,558</td>
</tr>
<tr>
<td>85-89</td>
<td>100,816</td>
<td>1,154,109,504</td>
<td>12,217</td>
<td>131,314,501</td>
</tr>
<tr>
<td>90-94</td>
<td>31,399</td>
<td>328,417,912</td>
<td>6,156</td>
<td>61,598,400</td>
</tr>
<tr>
<td>&gt; 99</td>
<td>560</td>
<td>5,077,034</td>
<td>171</td>
<td>1,745,787</td>
</tr>
<tr>
<td>All ages</td>
<td>1,900,924</td>
<td>41,552,250,320</td>
<td>65,300</td>
<td>880,832,774</td>
</tr>
</tbody>
</table>

**Table 5. Experience by quinquennial age groups for Female pensioners**

<table>
<thead>
<tr>
<th>Ages</th>
<th>Count</th>
<th>Exposed</th>
<th>Deaths</th>
<th>A/E on UP94@2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 55</td>
<td>45,840</td>
<td>1,282,701,558</td>
<td>306</td>
<td>6,299,508</td>
</tr>
<tr>
<td>55-59</td>
<td>258,017</td>
<td>6,983,598,770</td>
<td>851</td>
<td>21,234,889</td>
</tr>
<tr>
<td>60-64</td>
<td>361,126</td>
<td>8,248,377,036</td>
<td>1,627</td>
<td>33,357,410</td>
</tr>
<tr>
<td>65-69</td>
<td>341,748</td>
<td>5,012,837,259</td>
<td>2,663</td>
<td>38,962,281</td>
</tr>
<tr>
<td>70-74</td>
<td>256,620</td>
<td>3,163,239,997</td>
<td>3,529</td>
<td>39,667,365</td>
</tr>
<tr>
<td>75-79</td>
<td>199,789</td>
<td>2,104,171,457</td>
<td>4,902</td>
<td>46,490,183</td>
</tr>
<tr>
<td>80-84</td>
<td>147,405</td>
<td>1,382,499,840</td>
<td>6,758</td>
<td>58,741,173</td>
</tr>
<tr>
<td>85-89</td>
<td>87,720</td>
<td>841,730,524</td>
<td>7,376</td>
<td>67,307,611</td>
</tr>
<tr>
<td>90-94</td>
<td>37,558</td>
<td>397,899,487</td>
<td>5,653</td>
<td>57,509,139</td>
</tr>
<tr>
<td>95-99</td>
<td>5,314</td>
<td>50,896,389</td>
<td>1,521</td>
<td>14,348,471</td>
</tr>
<tr>
<td>&gt; 99</td>
<td>560</td>
<td>5,077,034</td>
<td>171</td>
<td>1,745,787</td>
</tr>
<tr>
<td>All ages</td>
<td>1,746,531</td>
<td>29,539,612,088</td>
<td>36,322</td>
<td>399,298,798</td>
</tr>
</tbody>
</table>

Data comparable to that shown in tables 4 and 5, with A/E ratios relative to relevant CPM mortality tables, are provided for the public sector, the private sector, and for each industry identified in the RPP Study in the workbook referenced in appendix 2.
2.1.4 Incurred But Not Reported (IBNR)

It is probable that the data submitted miss some deaths that have occurred but were not yet reported at the time the data were submitted, referred to as incurred but not reported (IBNR) deaths. Since the most recent data are certain to have more IBNR deaths than the data for earlier years, it is important to adjust for IBNR before trying to infer the extent of improvement in mortality. This adjustment, although important, is highly subjective. The subcommittee has no pension-related information on which IBNR factors can be determined. The subcommittee used the IBNR factors of the Institute’s Individual Annuitant Mortality Study as a starting point. However, it must be noted that the IBNR factors vary considerably by company, gender, duration, and form of benefit.

Since data were contributed in 2010 with 2008 as the last year of experience, it made sense to start with a factor consistent with the second duration. The subcommittee decided to adjust for IBNR by multiplying deaths in the period 2004–2008 by 1.002, 1.004, 1.008, 1.012, and 1.02, respectively; deaths for years 1999 to 2003 were taken as complete.

2.1.5 Industry Weightings

Mortality experience varies significantly by industry. However, the data submitted to the RPP Study is not distributed by industry in the same proportions found in the full population of Canadian pension plans. For example, education is over-represented while construction and finance are under-represented in the data. The subcommittee decided to adjust the data by industry so that it would be more representative of Canadian pension plans membership.

The subcommittee referred to Statistics Canada CANSIM series 280-0011 for a count of members in Canadian defined benefit pension plans by industry. The industry groups are based on the North American Industry Classification System (NAICS), but the industry classifications in the RPP Study are based on the Standard Industrial Classification (SIC). The subcommittee split the NAICS grouping of “Educational services, health care and social assistance” into “Education” and “Other” by using the counts of employees from CANSIM series 280-0063. The weighting for policy, fire and military, was set equal to that for public administration and government since that category could not be separately identified in the CANSIM data.

The subcommittee determined the proportion by industry for the membership in Canadian DB plans, and the proportion by industry and by count in the RPP Study data. The RPP Study data by industry was then multiplied by the ratio of the StatsCan proportion to RPP Study proportion. However, there were three alterations in the weights applied to the RPP Study data—a maximum weight of 3.0, a minimum weight of 0.2, and a weight of 1.0 for industry “unknown”. The ratio for some industries in the RPP Study data indicates a larger weight might be warranted. However, statistical fluctuations in smaller subsets of data might be magnified. Therefore, the weight was not allowed to exceed 3.0. Magnifying fluctuations may be a bigger issue for males than for females in the data because the difference in annuity values at age 65 with and without applying the maximum weight is -0.6% for males and 0.1% for females.

While the foregoing methodology is necessarily approximate and more precision would be preferable, the subcommittee believes that the result improves the validity of the study.

Table 6 shows the proportions by industry before adjustment, the proportion in the StatsCan data, and the weights used. The weights are applied to all the data for the industry. Thus if the weight is 2.0, the adjusted data will have double the count and income, and double the exposure and deaths for that industry. Private sector industries include those with SIC codes less than 8000 and
public sector industries are those with codes of 8000 and higher. The columns marked “Inc. Exposed” indicate the proportion of exposure, measured by income, for each industry that is used in mortality table construction.

<table>
<thead>
<tr>
<th>Industry</th>
<th>RPP count</th>
<th>StatsCan</th>
<th>Weights</th>
<th>Inc. Exposed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>0100 - Agriculture, Mining</td>
<td>1.3%</td>
<td>0.4%</td>
<td>1.3%</td>
<td>0.2%</td>
</tr>
<tr>
<td>1500 - Construction</td>
<td>1.9%</td>
<td>0.1%</td>
<td>16.4%</td>
<td>0.4%</td>
</tr>
<tr>
<td>2000-3000 - Manufacturing</td>
<td>8.6%</td>
<td>2.8%</td>
<td>11.6%</td>
<td>2.8%</td>
</tr>
<tr>
<td>4000 - Trans, Comm or Pub Util</td>
<td>16.3%</td>
<td>1.7%</td>
<td>8.8%</td>
<td>3.3%</td>
</tr>
<tr>
<td>5000 - Wholesale or Retail</td>
<td>1.6%</td>
<td>0.9%</td>
<td>5.5%</td>
<td>4.4%</td>
</tr>
<tr>
<td>6000 - Finance, Insurance, Info</td>
<td>1.0%</td>
<td>0.8%</td>
<td>6.0%</td>
<td>9.0%</td>
</tr>
<tr>
<td>8000 - Services incl Med&amp;Social</td>
<td>2.6%</td>
<td>14.6%</td>
<td>7.5%</td>
<td>18.0%</td>
</tr>
<tr>
<td>8200 - Educational Institutions</td>
<td>28.7%</td>
<td>42.6%</td>
<td>4.0%</td>
<td>11.6%</td>
</tr>
<tr>
<td>9000 - Public Admin or Govt</td>
<td>29.7%</td>
<td>32.9%</td>
<td>35.4%</td>
<td>49.5%</td>
</tr>
<tr>
<td>9220 - Police, Fire or Military</td>
<td>2.4%</td>
<td>0.0%</td>
<td>2.9%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Unknown</td>
<td>5.9%</td>
<td>3.0%</td>
<td>0.8%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

2.1.6 Data Summaries—After Industry Weighting

Tables 7 and 8 show the data included in the RPP Study by gender after adjustment for industry weighting. By comparing to tables 4 and 5, it can be seen that the weightings have increased A/E ratios at all ages except for females in the 90’s, but especially for males under age 70 and females under age 60. However, the weighted average year of experience has changed only slightly from 2004.39 to 2004.64.

<table>
<thead>
<tr>
<th>Male</th>
<th>Exposed</th>
<th>Deaths</th>
<th>A/E on UP94@2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages</td>
<td>Count</td>
<td>Pension</td>
<td>Count</td>
</tr>
<tr>
<td>&lt; 55</td>
<td>32,121</td>
<td>939,138,589</td>
<td>315</td>
</tr>
<tr>
<td>55-59</td>
<td>172,166</td>
<td>5,283,754,053</td>
<td>1,160</td>
</tr>
<tr>
<td>60-64</td>
<td>290,815</td>
<td>7,495,218,052</td>
<td>2,894</td>
</tr>
<tr>
<td>65-69</td>
<td>373,476</td>
<td>5,944,005,993</td>
<td>5,773</td>
</tr>
<tr>
<td>70-74</td>
<td>370,475</td>
<td>4,942,913,309</td>
<td>9,577</td>
</tr>
<tr>
<td>75-79</td>
<td>331,097</td>
<td>3,860,261,388</td>
<td>14,685</td>
</tr>
<tr>
<td>80-84</td>
<td>232,533</td>
<td>2,404,928,823</td>
<td>17,068</td>
</tr>
<tr>
<td>85-89</td>
<td>114,266</td>
<td>1,010,336,744</td>
<td>13,887</td>
</tr>
<tr>
<td>90-94</td>
<td>35,501</td>
<td>269,239,094</td>
<td>6,873</td>
</tr>
<tr>
<td>95-99</td>
<td>5,674</td>
<td>37,615,176</td>
<td>1,630</td>
</tr>
<tr>
<td>&gt; 99</td>
<td>577</td>
<td>3,394,791</td>
<td>174</td>
</tr>
<tr>
<td>All ages</td>
<td>1,958,701</td>
<td>32,190,806,009</td>
<td>74,036</td>
</tr>
</tbody>
</table>
The subcommittee split records into public sector or private sector as indicated in the data, noting the significant difference in mortality experience between the sectors. The public sector and private sector tables were prepared using the industry-weighted data. A link to the workbook containing the public and private sector experience data is provided in appendix 2.

### Average Monthly Pensions

Table 9 shows the average monthly pension for each industry, for each sector and for both sectors combined. The first two columns are the average size as indicated in the data submitted. The last two columns adjust each year’s amounts by AWE to 2014. Note that the average size for public sector is substantially higher than for private sector, and the average for males is higher than for females, especially in the private sector.
Bob Howard calculated the mortality tables presented in this report using a method that he developed in consultation with the subcommittee. The description of the methods, the justification for the choices of parameters, and the tables are provided in his report to the subcommittee, which is available online here.

In summary, the male and female rates in the 2014 Mortality Table, determined on an age-nearest basis, were constructed as follows:

- Mortality rates, weighted by amount of pension, experienced over ages 55 to 100 were determined based on the data provided by contributors, subject to the adjustments outlined in section 2.1.
- Reported deaths were adjusted to 2014 using the CPM Mortality Improvement Scale B.
- The experience demonstrated variations in mortality not only by gender, but also by pension income level. Mortality rates improve with high pension incomes. However, the distribution of exposure across pension income bands was not consistent across ages.
- Death amounts were therefore adjusted using the experience mortality rates on a standard distribution by amounts so that the actual varying distributions by size band for each age will have no effect on the resulting table.
- The modified data at each age were added across all sectors and size bands then graduated using the Whittaker-Henderson method.
- Mortality rates at ages below 54 were based on the ultimate, non-smoker individual Canadian life insurance mortality rates from the recently-published CIA 97–04 table, with rates from ages 54–60 obtained by fitting a 5th order polynomial to the rates already obtained for ages 51, 52, 53, 61, 62, and 63.

<table>
<thead>
<tr>
<th>Table 9. Average monthly pension</th>
<th>As submitted</th>
<th>Adjusted to 2014 by AWE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>0100 - Agriculture, Mining</td>
<td>481</td>
<td>291</td>
</tr>
<tr>
<td>1500 - Construction</td>
<td>1,003</td>
<td>300</td>
</tr>
<tr>
<td>2000-3000 - Manufacturing</td>
<td>788</td>
<td>302</td>
</tr>
<tr>
<td>4000 - Trans, Comm or Pub Util</td>
<td>1,590</td>
<td>720</td>
</tr>
<tr>
<td>5000 - Wholesale or Retail</td>
<td>591</td>
<td>298</td>
</tr>
<tr>
<td>6000 - Finance, Insurance, Info</td>
<td>682</td>
<td>475</td>
</tr>
<tr>
<td>Unknown</td>
<td>557</td>
<td>301</td>
</tr>
<tr>
<td>All private</td>
<td>918</td>
<td>412</td>
</tr>
<tr>
<td>8200 - Educational Institutions</td>
<td>3,052</td>
<td>2,278</td>
</tr>
<tr>
<td>8000 - Services incl Med&amp;Social</td>
<td>1,354</td>
<td>1,068</td>
</tr>
<tr>
<td>9000 - Public Admin or Govt</td>
<td>1,598</td>
<td>864</td>
</tr>
<tr>
<td>9220 - Police, Fire or Military</td>
<td>3,140</td>
<td>2,261</td>
</tr>
<tr>
<td>All public</td>
<td>1,779</td>
<td>1,119</td>
</tr>
<tr>
<td>Composite</td>
<td>1,370</td>
<td>1,016</td>
</tr>
</tbody>
</table>
Mortality rates at ages over 102 were obtained from the paper delivered by Bob Howard at the 2011 Living to 100 Symposium. Similarly to the foregoing, male rates from age 95 (98 for females) to age 102 were obtained by fitting a 4th order polynomial to ages 92, 93, 94, 103, and 104 (95, 96, 97, 103, and 104 for females).

### 2.3 Size Adjustment Factors—RPP Study

#### 2.3.1 Why They are Included

It is evident from both the C/QPP Study and the RPP Study that mortality rates vary significantly with size of pension (other factors being equal). Size adjustment factors were derived that reflect the difference in the RPP Study experience by income band, for males and females separately.

Many objections may be raised to size adjustment factors. It would be preferable to use socio-economic class; size of pension is at best a proxy. The size of pension for an individual may reflect frequent changes in employment rather than a lower socio-economic class. There could be double counting from industries with higher mortality also having smaller pensions. It is not clear how to reflect indexing and bridge benefits. Nonetheless the correlation between mortality and pension size is very strong, strong enough that the objections mentioned above do not likely predominate. The subcommittee believes that it was most responsible to include the size adjustment factors so that actuaries could use them if they believe doing so is warranted.

#### 2.3.2 When They May be Used

It is always preferable to use recent, credible experience from the pension plan being reviewed to adjust a standard table. However, if the pension plan does not have useful experience (e.g., the plan is too small) and there is no suitable reference by industry or a similar plan, it may be appropriate to adjust the table using size adjustment factors, particularly when the average size of pensions in the plan being valued differs significantly from that underlying the standard table.

Using size adjustment factors is always a matter of professional judgment.

When considering the possible application of the size adjustment factors, actuaries should be aware that:

- Pension amounts on which the mortality tables and size adjustment factors are based include bridge benefits and indexed pensions where applicable; and
- There is no indicator in the data as to whether included plans are closed to future accruals.

#### 2.3.3 How to Use Size Adjustment Factors

All calculations in this report employing size adjustment factors use the factors as stated to age 85, grading linearly to 1.0 for ages 100 and higher. The subcommittee believes that it is generally a satisfactory approximation to use the factors for all ages rather than using the more complicated grading at high ages.

The most precise method of using size adjustment factors would be to group pensioner data by pension size band at the valuation date and use a separate mortality table for each band. However, it will normally be a satisfactory approximation to determine a single size adjustment factor for each gender using the average size adjustment factor weighted by pension amount. Table 10 illustrates the calculations using the size adjustment factors as proposed. The example is based on fictional data. For simplicity, all pensioners are assumed to be males age 70. The discount rate is 4%, and the calculations are performed as at January 1, 2014.
The example assumes that pension records are first summarized into size bands with increments of $500 per month. The sixth column shows values from the size adjustment table. The annuity factor in the seventh column is the present value of a monthly annuity-due of $1 per annum for a male age 70 using CPM2014 mortality rates multiplied by the applicable adjustment factor. The last column is the product of 12, the monthly pension, and the annuity factor.

The subcommittee believes that an acceptable alternative is suggested by the row marked “Weighted”. The size adjustment factor is the weighted average of the four size adjustment factors shown in the first part of the table. That is, the fourth and sixth columns are multiplied together and the sum is divided by the sum of the fourth column. The resulting value of the pensions is close to that of the exact calculation. Further testing on more realistic datasets found the “weighted” method did not deviate from the “exact” by more than 0.15%. There may be some downward bias because in all tests “weighted” was lower, but not significantly so. The subcommittee considers the “weighted” method to be a satisfactory approximation.

The last row of table 10, marked “Look up”, shows a method that, although intuitive, will rarely be satisfactory. In this case the average pension, which is $1,733, is noted to fall in the size adjustment factor band 4. Therefore, the table is adjusted using the band 4 size adjustment factor. (Note that the annuity factor is the same as on the second row of the first part of the table, 11.764.) The “look up” method is not recommended.

### 2.4 Segments of Data—RPP Study

The main 2014 Mortality Table (CPM2014) is based on the combined RPP Study data and uses 2014 as a base year. Rates are provided for males and females for ages 18 to 115.

#### 2.4.1 Public and Private Sector Tables

The subcommittee also produced separate tables (CPM2014Publ and CPM2014Priv) based on the public sector data and the private sector data (after the adjustments described in section 2.1). The male rates were developed directly from the RPP Study data with adjustments for low and high ages.
There were insufficient data for private sector females to support the direct construction of a table. Therefore, sector-specific female tables were developed by multiplying the 2014 Mortality Table by appropriate factor for both public sector and private sector females.

A separate set of size adjustment factors, calculated similarly to those for the composite table, are provided for each of the sector-distinct tables.

2.4.2 Industry Experience Information

The experience observed by industry in the RPP Study dataset may be useful to pension actuaries. This information is summarized in appendix 2. In addition, the subcommittee is distributing an Excel workbook which contains tables of experience by quinquennial age groups for the composite, for the public and private sectors, and for each of the 11 industry groups included in RPP Study (a link is provided in appendix 2). Please note, however, that the experience is not equally credible in all cases, and experience for some age groups is much less credible than for some others. Accordingly, the tables contain standard deviations in A/E ratios to suggest the degree of caution needed in using the experience.

2.5 Comparison to UP94/Scale AA—RPP and C/QPP Studies

Charts 1 and 2, for males and females respectively, show the ratio of mortality rates under various tables as at 2014 relative to UP94 projected to 2014 with Scale AA (UP94@2014). The tables included are:

1. CPM2014, the 2014 Mortality Table for combined public sector and private sector data.
2. CPM-CAN2, a table from Louis Adam’s C/QPP Phase II Report, based on the combined CPP and QPP experience by number of deaths and pensioners exposed for those having pensions in the range of 35–94% of the maximum values. This table is projected to 2014 on the CPM Improvement Scale B.
3. CPM-CAN3, as above but for pensions in the range of 95–100% of the maximum.
4. CPMcount, a table constructed similarly to CPM2014 but based on experience by number of pensioners rather than on the amount of pensions. [Note: this table was developed for illustrative purposes only and is not recommended for use.]
Chart 1. Ratio of Male Tables to UP94, all as of 2014

CPM2014  CPM-CAN2  CPM-CAN3  CPMcount
Charts 1 and 2 indicate that the tables developed using RPP Study data, measured by amounts, are significantly lower than UP94@2014 and lower than the tables developed under the C/QPP Study.

It is noteworthy that the RPP table by count is quite similar to the Class 3 table developed under the C/QPP Study. Recall the latter was developed using data for pensioners for whom pension amounts were above 94% of the C/QPP maximum pensions. This observation reinforces the importance of developing mortality tables based on pension amounts. The use of the RPP Study results, by amount, is necessary to capture the effect of the range of income for RPP pensioners beyond maximum C/QPP benefit levels.

3 DEVELOPMENT OF MORTALITY IMPROVEMENT SCALES

3.1 Introduction

Assumptions in respect of future mortality improvement rates are subject to a high level of uncertainty. In addition, mortality improvement rates are affected by various socio-economic factors—e.g., income, level of education, and place of residence—and extensive data and analyses are required in order to develop scales that would reflect at least some of these factors. The RPP Study has insufficient experience, over too limited a time frame, for use in the development of mortality improvement scales. On the other hand the C/QPP Study provides substantive data on recent rates of improvement in the mortality of C/QPP pensioners. The subcommittee believes that the mortality improvement scales based on the results of the C/QPP
Phase III Report with some refinements will serve as a reasonable assumption of future mortality improvement rates of Canadian pensioners in registered pension plans.

The following charts, taken from the C/QPP Phase III Report, show experienced C/QPP mortality improvement rates for various periods ending in 2007 with Scale AA improvement rates added for reference. The data reflected in these charts are based on combined CPP and QPP data for pensions in the range of 35–100% of the maximum values. Scale AA, published by the Society of Actuaries with the UP94, is currently widely used for registered pension plan valuation purposes and is prescribed for use in the pension commuted value standards.
It can be seen that the C/QPP experienced improvement rates are substantially higher than Scale AA and higher for shorter, and thus more recent, periods than over longer periods.

Social security actuaries in various countries, including Canada, have developed ultimate improvement rate assumptions well below recently-experienced rates. There is no reliable methodology to forecast the ultimate level of mortality improvement rates or the time frame as to when such ultimate rates will be reached. The C/QPP Phase III Report used as its ultimate assumptions a blend of the ultimate assumption adopted by the CPP and QPP actuaries in their December 31, 2009, valuation reports. The subcommittee agreed with this approach and used that as the ultimate in the July 31, 2013, Draft Report.

However, the CPP and QPP have recently tabled their December 31, 2012, actuarial valuations. The 26th CPP Actuarial Report mortality improvement assumptions are similar to those in the 2009 actuarial valuation with some minor increases in ultimate mortality improvement rates at certain ages. The QPP has adopted a different method for mortality improvement assumptions compared to the prior valuation and compared to the CPP methodology. Since the QPP method produces life expectancies not significantly different from those produced by the CPP method, the ultimate mortality improvement rates used in the development of the CPM-B scale were determined by reference to the CPP assumptions only. A comparison of life expectancies developed in accordance with the CPP and QPP assumptions is provided here.

Furthermore, the CPM-B scale extends non-zero improvement rates to very high ages, consistent with the assumption made in the 26th CPP Actuarial Report.

3.2 Improvement Scales

The gender-specific improvement scales were constructed as follows:
• Short-term rates applicable to years 2000–2011 are set equal to the smoothed 10-year experience based on the C/QPP income class 4 (35% of maximum pension and above) from the C/QPP Study for ages 65 and higher.

• Short-term rates for years 2000–2011 for ages up to age 50 are set equal to the CPP assumption for 2010 as reported in the 26th CPP Actuarial Report. Note that mortality experience data are not available for C/QPP at these younger ages.

• Short-term rates for years 2000–2011 for ages 51–64 are a linear interpolation between the above rates for ages 50 and 65.

• Ultimate rates, applicable for years 2030 and beyond, for ages 0–114 are set equal to the CPP year 2030 actuarial assumptions for those ages, as disclosed in the 26th CPP Actuarial Report. Rates for ages 115 and higher are zero.

• Rates for years 2012 to 2029 are derived by linear interpolation between the short-term rates and the ultimate rates.

3.3 Transitional One-Dimensional Mortality Improvement Scale

The subcommittee believes strongly that a two-dimensional improvement scale fits the experience data better than any one-dimensional scale could and can better reflect reasonable expectations regarding the evolution of the improvement in mortality rates in future years. However, the subcommittee also recognizes that not all practitioners will have immediate access to software that can handle a two-dimensional improvement scale. Therefore, as a transitional measure, the subcommittee has developed a one-dimensional improvement scale, CPM-B1D2014, which reasonably approximates the effect of CPM-B for calculation dates that are between January 1, 2014, and December 31, 2015. Note that CPM-B1D2014 is intended for use only with mortality tables CPM2014, CPM2014publ, and CPM2014priv.

The development of CPM-B1D2014 is documented in the memo to the subcommittee from Bob Howard, which can be accessed online here.

4 FINANCIAL IMPLICATIONS

4.1 Overview

The UP-94 Mortality Table, adjusted for mortality improvement Scale AA, has been widely used for pension plan valuations and is prescribed for use in the pension commuted value standards of practice. The results of the RPP and C/QPP Studies indicate that the overall level of recent mortality experience is significantly lower than that anticipated by UP-94 with Scale AA and exhibits a different shape by age. The C/QPP Study also shows that mortality improvement rates experienced in recent years have been substantially higher than indicated by Scale AA.

The experience illustrated by both the C/QPP Study and RPP Study indicates that adoption of tables and scales reflecting Canadian mortality experience is warranted.

4.2 Numerical Illustrations

The adoption of the tables presented in this report will likely result in an increase in recognized costs for Canadian pension plans and their sponsors to the extent that the mortality tables and improvement scales used in recent valuations have not reflected recent experience.

Tables 11 through 16 below compare the present value of annuities based on various tables. Tables 11 through 13 show monthly annuities-due and tables 14 through 16 show monthly annuities deferred to age 65. The calculations are done at 4% interest as at January 1, 2014. Each
Table 11 indicates what base table and improvement scale were used in the calculation. Also included below is Table 17, which shows life expectancies.

Table 11 shows the impact of changing from UP-94 with Scale AA to the basis presented in this report. Note that the increase is generally larger because of changing from UP-94 to CPM2014 than changing from Scale AA to the CPM Improvement Scale B.

<table>
<thead>
<tr>
<th>Table</th>
<th>UP-94</th>
<th>CPM2014</th>
<th>CPM2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
<td>AA</td>
<td>AA</td>
<td>CPM-B</td>
</tr>
<tr>
<td></td>
<td>Annuity</td>
<td>Annuity</td>
<td>Incr</td>
</tr>
<tr>
<td>M55</td>
<td>16.68</td>
<td>17.23</td>
<td>3.3%</td>
</tr>
<tr>
<td>M65</td>
<td>13.06</td>
<td>13.98</td>
<td>7.0%</td>
</tr>
<tr>
<td>M75</td>
<td>9.09</td>
<td>9.87</td>
<td>8.5%</td>
</tr>
<tr>
<td>M85</td>
<td>5.38</td>
<td>5.65</td>
<td>5.0%</td>
</tr>
<tr>
<td>F55</td>
<td>17.41</td>
<td>18.04</td>
<td>3.6%</td>
</tr>
<tr>
<td>F65</td>
<td>14.10</td>
<td>14.94</td>
<td>6.0%</td>
</tr>
<tr>
<td>F75</td>
<td>10.28</td>
<td>11.01</td>
<td>7.1%</td>
</tr>
<tr>
<td>F85</td>
<td>6.25</td>
<td>6.63</td>
<td>6.2%</td>
</tr>
</tbody>
</table>

Table 12 shows the impact of the size adjustments. (The average size of the pensions in the RPP dataset is approximately $2,400 per month when adjusted to 2014.) Clearly the size adjustments are material, but more for males than females. Of course, in practice the actuary will adjust for recent, credible experience where available rather than simply for size. The size adjustment factors may be useful when no such experience is available.

Table 12. Monthly life annuities on CPM2014 with CPM-B at 4% in 2014 with size adjustment for the indicated monthly pension

<table>
<thead>
<tr>
<th>Pension</th>
<th>not adjusted</th>
<th>$1,200</th>
<th>$2,400</th>
<th>$3,600</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annuity</td>
<td>Annuity</td>
<td>Incr</td>
<td>Annuity</td>
</tr>
<tr>
<td>M55</td>
<td>17.36</td>
<td>16.92</td>
<td>-2.5%</td>
<td>17.16</td>
</tr>
<tr>
<td>M65</td>
<td>14.17</td>
<td>13.66</td>
<td>-3.6%</td>
<td>13.94</td>
</tr>
<tr>
<td>M75</td>
<td>10.03</td>
<td>9.49</td>
<td>-5.4%</td>
<td>9.78</td>
</tr>
<tr>
<td>M85</td>
<td>5.69</td>
<td>5.28</td>
<td>-7.1%</td>
<td>5.50</td>
</tr>
<tr>
<td>F55</td>
<td>18.23</td>
<td>18.12</td>
<td>-0.6%</td>
<td>18.27</td>
</tr>
<tr>
<td>F65</td>
<td>15.13</td>
<td>15.00</td>
<td>-0.9%</td>
<td>15.19</td>
</tr>
<tr>
<td>F75</td>
<td>11.16</td>
<td>11.01</td>
<td>-1.3%</td>
<td>11.22</td>
</tr>
<tr>
<td>F85</td>
<td>6.68</td>
<td>6.57</td>
<td>-1.7%</td>
<td>6.73</td>
</tr>
</tbody>
</table>

Because the size adjustment factors do not have a linear relationship with size, it is not enough to consider the average size of pension within a pension plan.

Table 13 compares the sector-distinct tables with the composite table. The calculations are done assuming the same size annuity to make the comparison more appropriate than by using the
tables without adjustment. Whether to use the composite table or a sector-distinct table may be a material choice.

<table>
<thead>
<tr>
<th>Table</th>
<th>CPM2014</th>
<th>CPM2014Publ</th>
<th>CPM2014Priv</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
<td>CPM-B</td>
<td>CPM-B</td>
<td>CPM-B</td>
</tr>
<tr>
<td></td>
<td>Annuity</td>
<td>Annuity</td>
<td>Annuity</td>
</tr>
<tr>
<td>M55</td>
<td>17.16</td>
<td>17.29</td>
<td>0.8%</td>
</tr>
<tr>
<td>M65</td>
<td>13.94</td>
<td>14.04</td>
<td>0.8%</td>
</tr>
<tr>
<td>M75</td>
<td>9.78</td>
<td>9.86</td>
<td>0.8%</td>
</tr>
<tr>
<td>M85</td>
<td>5.50</td>
<td>5.53</td>
<td>0.8%</td>
</tr>
<tr>
<td>F55</td>
<td>18.27</td>
<td>18.28</td>
<td>0.8%</td>
</tr>
<tr>
<td>F65</td>
<td>15.19</td>
<td>15.19</td>
<td>0.0%</td>
</tr>
<tr>
<td>F75</td>
<td>11.22</td>
<td>11.23</td>
<td>0.0%</td>
</tr>
<tr>
<td>F85</td>
<td>6.73</td>
<td>6.74</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

Tables 14 through 16 are analogous to tables 11 through 13 but for deferred annuities. The conclusions reached are essentially the same as mentioned for the tables above.

<table>
<thead>
<tr>
<th>Table</th>
<th>UP-94</th>
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<th>CPM2014</th>
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</thead>
<tbody>
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<td>Scale</td>
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</tr>
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<td></td>
<td>Annuity</td>
<td>Annuity</td>
<td>Annuity</td>
</tr>
<tr>
<td></td>
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<td>Incr</td>
<td>Incr</td>
</tr>
<tr>
<td>M25</td>
<td>2.82</td>
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</tr>
<tr>
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<td>4.07</td>
<td>4.25</td>
<td>4.4%</td>
</tr>
<tr>
<td>M45</td>
<td>5.88</td>
<td>6.19</td>
<td>5.2%</td>
</tr>
<tr>
<td>M55</td>
<td>8.57</td>
<td>9.13</td>
<td>6.6%</td>
</tr>
<tr>
<td>F25</td>
<td>2.93</td>
<td>3.09</td>
<td>5.6%</td>
</tr>
<tr>
<td>F35</td>
<td>4.28</td>
<td>4.53</td>
<td>5.8%</td>
</tr>
<tr>
<td>F45</td>
<td>6.27</td>
<td>6.66</td>
<td>6.2%</td>
</tr>
<tr>
<td>F55</td>
<td>9.25</td>
<td>9.86</td>
<td>6.6%</td>
</tr>
</tbody>
</table>
Table 15. Monthly life annuities on CPM2014 with CPM-B deferred to age 65 at 4% in 2014 with size adjustment for the indicated monthly pension

<table>
<thead>
<tr>
<th>Pension</th>
<th>not adjusted</th>
<th>$1,200</th>
<th>$2,400</th>
<th>$3,600</th>
</tr>
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<tbody>
<tr>
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<td>Annuity</td>
<td>Annuity</td>
<td>Incr</td>
<td>Annuity</td>
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<tr>
<td>M25</td>
<td>2.89</td>
<td>2.76</td>
<td>-4.4%</td>
<td>2.83</td>
</tr>
<tr>
<td>M35</td>
<td>4.24</td>
<td>4.05</td>
<td>-4.5%</td>
<td>4.15</td>
</tr>
<tr>
<td>M45</td>
<td>6.23</td>
<td>5.95</td>
<td>-4.5%</td>
<td>6.10</td>
</tr>
<tr>
<td>M55</td>
<td>9.26</td>
<td>8.86</td>
<td>-4.4%</td>
<td>9.07</td>
</tr>
<tr>
<td>F25</td>
<td>3.17</td>
<td>3.14</td>
<td>-0.9%</td>
<td>3.18</td>
</tr>
<tr>
<td>F35</td>
<td>4.64</td>
<td>4.59</td>
<td>-1.0%</td>
<td>4.66</td>
</tr>
<tr>
<td>F45</td>
<td>6.80</td>
<td>6.74</td>
<td>-1.0%</td>
<td>6.83</td>
</tr>
<tr>
<td>F55</td>
<td>10.04</td>
<td>9.94</td>
<td>-1.0%</td>
<td>10.09</td>
</tr>
</tbody>
</table>

Table 16. Monthly life annuities deferred to age 65 at 4% in 2014 with size adjustment factor for $2400 per month

<table>
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<th>CPM2014Publ</th>
<th>CPM2014Priv</th>
</tr>
</thead>
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<td>CPM-B</td>
<td>CPM-B</td>
</tr>
<tr>
<td></td>
<td>Annuity</td>
<td>Annuity</td>
<td>Annuity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incr</td>
<td>Incr</td>
</tr>
<tr>
<td>M25</td>
<td>2.83</td>
<td>2.86</td>
<td>2.79</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2%</td>
<td>-1.4%</td>
</tr>
<tr>
<td>M35</td>
<td>4.15</td>
<td>4.20</td>
<td>4.09</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2%</td>
<td>-1.4%</td>
</tr>
<tr>
<td>M45</td>
<td>6.10</td>
<td>6.18</td>
<td>6.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3%</td>
<td>-1.5%</td>
</tr>
<tr>
<td>M55</td>
<td>9.07</td>
<td>9.19</td>
<td>8.94</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3%</td>
<td>-1.5%</td>
</tr>
<tr>
<td>F25</td>
<td>3.18</td>
<td>3.18</td>
<td>3.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0%</td>
<td>-0.8%</td>
</tr>
<tr>
<td>F35</td>
<td>4.66</td>
<td>4.66</td>
<td>4.62</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0%</td>
<td>-0.9%</td>
</tr>
<tr>
<td>F45</td>
<td>6.83</td>
<td>6.84</td>
<td>6.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0%</td>
<td>-0.9%</td>
</tr>
<tr>
<td>F55</td>
<td>10.09</td>
<td>10.09</td>
<td>10.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.1%</td>
<td>-0.9%</td>
</tr>
</tbody>
</table>

Table 17 is similar to Table 11, but the calculation is complete life expectancy rather than a life annuity. The calculation is done on a generational basis using the improvement scale indicated. Life expectancies change in the same direction as life annuities, but the percentage increase is larger.
5  CHANGES FROM JULY 2013 DRAFT REPORT

The Draft Report for Comments, Canadian Pensioners’ Mortality was published on July 31, 2013. The Draft Report elicited extensive comments from approximately 30 diverse sources. The subcommittee thanks all those who provided comments.

The subcommittee carefully reviewed all the comments and revisited most aspects of the work. As a result, the Final Report, Canadian Pensioners’ Mortality incorporates a number of improvements and refinements compared to the Draft Report. The most significant changes and their rationale are discussed below. In addition, the final report includes commentary on the data and methods used to develop the final mortality tables and mortality improvement scale.

The subcommittee also received a number of comments that pertain directly to the assumptions under the pension commuted value standard. These have been forwarded to the Actuarial Standards Board.

Changes from the Draft Report address four major areas, as discussed below.

5.1  Representativeness of RPP Study Data

The subcommittee was satisfied that the RPP Study data used for the Draft Report was of good quality and sufficient volume to develop the mortality tables presented. However, available information regarding characteristics of the data (i.e., industry and collar type) was very limited, especially for the private sector.

The subcommittee took steps to obtain additional data. In particular:

- Two contributors, whose data had not been accepted for the Draft Report, provided revised data which met the acceptance criteria and are included for purposes of the final report;
- Additional industry information was obtained from one contributor whose data were already included at the Draft Report stage; and
- The data for one contributor were found in some cases to have included multiple records in respect of individual pensioners. The records pertaining to a single pensioner were combined into one.

<table>
<thead>
<tr>
<th>Table</th>
<th>UP-94</th>
<th>CPM2014</th>
<th>CPM2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
<td>AA</td>
<td>AA</td>
<td>CPM-B</td>
</tr>
<tr>
<td></td>
<td>Years</td>
<td>Years</td>
<td>Incr</td>
</tr>
<tr>
<td>M55</td>
<td>29.18</td>
<td>30.85</td>
<td>5.8%</td>
</tr>
<tr>
<td>M65</td>
<td>19.80</td>
<td>21.65</td>
<td>9.4%</td>
</tr>
<tr>
<td>M75</td>
<td>12.04</td>
<td>13.26</td>
<td>10.1%</td>
</tr>
<tr>
<td>M85</td>
<td>6.35</td>
<td>6.69</td>
<td>5.3%</td>
</tr>
<tr>
<td>F55</td>
<td>31.45</td>
<td>33.36</td>
<td>6.1%</td>
</tr>
<tr>
<td>F65</td>
<td>22.13</td>
<td>23.94</td>
<td>8.2%</td>
</tr>
<tr>
<td>F75</td>
<td>14.06</td>
<td>15.28</td>
<td>8.7%</td>
</tr>
<tr>
<td>F85</td>
<td>7.56</td>
<td>8.08</td>
<td>6.8%</td>
</tr>
</tbody>
</table>

Table 17. Complete life expectancies, with generational projection, in 2014
As a result, the tables in the final report are developed using a slightly larger data set with
allocation by industry for a high proportion of the data.

The subcommittee compared the distribution of lives exposed by industry in the revised data to
the distribution of Canadian pension plan members by industry from CANSIM data. Significant
differences were found between the two distributions. The most important differences were that
the RPP Study data are significantly under-weighted for construction and finance, and over-
weighted for education.

The final RPP Study mortality tables were developed from the study data modified to reflect
weightings by industry derived from CANSIM data regarding pension plan membership.

5.2 Mortality by Industry and Collar Type

A number of comments requested that the subcommittee provide information on mortality by
industry and/or by collar type rather than, or in addition to, the information provided in the Draft
Report by pension size.

In preparing the final report, information regarding industry was obtained for most of the study
data and mortality experience by industry, which could be referenced to adjust the composite or
public/private tables when plan specific experience is not available, is included.

The subcommittee agrees that it would be desirable to also have white collar and blue collar
mortality tables. However, only a very small proportion of the RPP Study retiree data had an
indication that they had been employed on an hourly or salaried basis prior to retirement. For the
rest of the data there is no sure way of making an allocation.

In order to distribute the RPP Study data to blue, white, and mixed collar categories, the
subcommittee split records indicated as hourly or salaried accordingly. For all other records, the
subcommittee split them into collar groupings on a subjective basis for each industry. The results
of this analysis did not provide satisfactory results and, accordingly, no distinct tables by collar
type are being provided in this report.

5.3 Size Adjustments

Many comments questioned the suitability of the size adjustment methodology and pointed out
limitations in their use. The subcommittee continues to acknowledge that this information needs
to be applied with discretion and judgment depending on the circumstances of a particular plan.
Nevertheless, the data show strong correlation between mortality and pension size, and therefore
updated size adjustment factors are included in the final report.

5.4 Mortality Improvement Scale

The CPM-A improvement scale provided in the Draft Report assumes ultimate improvement
rates consistent with the assumptions previously used by the C/QPP actuaries.

A number of comments pointed to the use of significantly higher ultimate improvement rates in
the UK, and to a lesser extent in the U.S., and suggested that such higher rates should be
considered for Canadian pension plan purposes. Comments to the contrary were also received. In
addition, it must be acknowledged that the ultimate rates used for CPM-A are substantially
below recent experience and on the low side of longer-term Canadian population experience.

On the other hand, the subcommittee observes:
• Canadian mortality is already lower than UK and U.S. mortality, which may result in less scope for future improvements in the long term;
• UK assumptions referenced would, in some cases, include margins for adverse deviations, for example, as used by insurance companies; and
• No compelling scientific methodology exists for the derivation of long-term future mortality improvement rates.

Therefore, the subcommittee has retained consistency with the C/QPP ultimate improvement assumptions. More specifically, the assumptions have been updated to coincide with the assumptions used in the recently published 26th CPP Actuarial Report, and non-zero improvement rates were extended to very high ages. These assumptions are also reasonably consistent with the assumptions used in the recently published QPP valuation report.

There was considerable diversity of opinion regarding the shape of the mortality improvement scale between the recently observed rates and the assumed ultimate rates. After due consideration, the subcommittee concluded that a linear interpolation served as a sufficient middle ground.

5.5 Response to Other Comments

Following are responses to a number of other comments received on the Draft Report.

5.5.1 Cohort Effect

Some commented that the assumptions should reflect a cohort effect. The subcommittee acknowledges that a cohort effect can be observed in historical Canadian population mortality improvement rates for males and that including a cohort could be considered. However, testing has shown that, assuming the base table is appropriate, putting a cohort effect into future improvement rates, based on the Canadian population experience, does not significantly change the present value of annuities (for example, less than 0.3% for a cohort effect with a difference of 1% in the improvement rate from the peak to the surrounding rates) and for most pension valuations the impact would be negligible.

5.5.2 Exclusion of Beneficiary and Active Life Data

While beneficiary data were collected for the RPP Study, they were not included in table construction. The quality of the data was not as good as those provided for pensioners and the beneficiary data could have dominated the experience for private sector females.

The subcommittee agrees that it would be desirable to provide credible information on active lives; however, the quality of active life data in the RPP Study was very poor. Over half of the records had no salary coded and a review of the data indicated material errors in the reporting of deaths.

5.5.3 Mortality Relative to Duration since Retirement

Some asked whether duration from retirement was a material element. It is difficult to answer this question from the RPP Study dataset because the vast majority of data are at the higher durations. However, the experience points to only a small effect for duration. The subcommittee calculated sample annuity values based on select and ultimate mortality rates, adjusting mortality rates by the actual to expected ratios observed at each duration. These annuity values at 4% were generally within 0.5% of those calculated on the proposed table.
5.5.4 *Insufficient Provincial Representation*

It is observed that some provinces are under-represented in the RPP Study data. The subcommittee hopes to encourage more participation in future studies to improve the ability to provide meaningful mortality experience information by province and/or region.

5.5.5 *Extend Mortality Rates to Ages Below 18*

The objective of the RPP and C/QPP studies was to build base mortality tables and mortality improvement scales that may be used for a broad range of Canadian pension plans. As such, it is not expected that rates prior to age 18 would be relevant.

5.5.6 *Possible Effect of Portability Selection*

One commenter suggests that Canadian pension legislation might contribute to lower pensioner mortality at younger ages as a result of portability—more plans providing portability at retirement and the availability of a lump sum for members in ill health. It is uncertain that the plans included in the RPP Study provide such portability provisions. Future studies may reveal emerging trends that may support this contention.

5.6 *Overall Impact of Changes*

There were many changes to the mortality tables and improvement scales presented in this report from those provided with the Draft Report. Table 18 summarizes the net effect of all the changes between the draft and final reports.

The effect of the change is measured by changes in the present value of a monthly life annuity at 4% in 2014. Both the mortality table and improvement scale have changed. The changes in the mortality tables are much more significant than the changes in the improvement scale. As a result of changing the improvement rates only, the present value of life annuities generally increase by about 0.1% to 0.2% for males and 0.2% to 0.3% for females.

<table>
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<tr>
<th></th>
<th>Composite</th>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
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<td>M55</td>
<td>-1.5%</td>
<td>-1.0%</td>
<td>-0.6%</td>
</tr>
<tr>
<td>M65</td>
<td>-1.3%</td>
<td>-0.9%</td>
<td>0.2%</td>
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<td>M75</td>
<td>-1.3%</td>
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<td>0.0%</td>
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<td>-0.4%</td>
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</tr>
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<td>F85</td>
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<td>4.3%</td>
</tr>
</tbody>
</table>

### Table 18. Increases in monthly life annuity values at 4% from draft report to final

6 **FUTURE RESEARCH**

The subcommittee has a continuing mandate to monitor Canadian pension plan experience and develop updated mortality tables and mortality improvement scales as deemed appropriate from time to time.
In the near term, the subcommittee plans to conduct an analysis of C/QPP mortality experience to examine, in particular, changes in experience subsequent to 2007 (the latest date of data reflected in developing the CPM-B improvement scale and the latest date of data included in the RPP Study). Subsequently, a further RPP study may be contemplated.

For any subsequent RPP study, the possibility of obtaining more data with additional information regarding collar type and other relevant details will need to be considered in the context of the effort required of contributors which affects the likelihood of obtaining a good volume of data.

It should also be noted that the Institute has commenced a group annuity mortality study, which is expected to have some relevance to the mortality experience of Canadian pensioners.
APPENDIX 1: SAMPLE RATES AND FACTORS

It will generally be more useful to obtain the rates and factors from the Excel workbooks provided at the relevant points within this report. However, rates for the main ages are shown in the following three tables.
<table>
<thead>
<tr>
<th>Age</th>
<th>CPM2014 Male</th>
<th>CPM2014 Female</th>
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<th>CPM2014publ Female</th>
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<th>CPM2014priv Female</th>
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APPENDIX 2: EXPERIENCE BY INDUSTRY

As part of the RPP Study, the subcommittee reviewed the mortality experience by industry. Generally, there are insufficient data to develop mortality tables by industry. However, the subcommittee’s observations may be useful to actuaries where specific plan experience or similar plan experience is not available. The subcommittee has prepared a workbook which contains A/E ratios by quinquennial age groups for each sector and industry. Note that the A/E ratios are not equally credible for all industries, nor by age groups within industry. Accordingly the subcommittee urges caution in the use of the information.

The following tables summarize the information in the workbook. See the workbook for more information and a more detailed explanation, available here.

The columns marked “Adjusted” use size adjustments to determine expected deaths, but the columns marked “Base” do not. If an actuary has data with average size very similar to that in the subcommittee’s data, then it may be sufficient to use “Base”, but the greater the difference in average size, the more important it will be to use size adjustments on the actuary’s data and refer to the ratios in the “Adjusted” column.

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<td>2,846</td>
<td>30,445,048</td>
<td>117.0%</td>
<td>106.0%</td>
</tr>
<tr>
<td>8200 - Educational Institutions</td>
<td>516,133</td>
<td>18,903,056,676</td>
<td>10,066</td>
<td>279,431,038</td>
<td>86.6%</td>
<td>94.9%</td>
</tr>
<tr>
<td>9000 - Public Admin or Govt</td>
<td>533,617</td>
<td>10,230,626,525</td>
<td>15,969</td>
<td>219,443,681</td>
<td>101.4%</td>
<td>94.5%</td>
</tr>
<tr>
<td>9220 - Police, Fire or Military</td>
<td>43,180</td>
<td>1,627,026,767</td>
<td>702</td>
<td>21,634,141</td>
<td>113.9%</td>
<td>119.0%</td>
</tr>
<tr>
<td>All, weighted</td>
<td>1,026,406</td>
<td>21,915,357,483</td>
<td>29,271</td>
<td>427,732,629</td>
<td>102.5%</td>
<td>97.9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Count</th>
<th>Amount</th>
<th>Deaths</th>
<th>Count</th>
<th>Amount</th>
<th>A/E on CPM2014publ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Base</td>
</tr>
<tr>
<td>8000 - Services incl Med&amp;Social</td>
<td>406,590</td>
<td>5,210,278,324</td>
<td>8,664</td>
<td>74,274,227</td>
<td>120.4%</td>
<td>116.0%</td>
</tr>
<tr>
<td>8200 - Educational Institutions</td>
<td>667,267</td>
<td>18,240,930,761</td>
<td>11,982</td>
<td>230,440,397</td>
<td>94.2%</td>
<td>97.3%</td>
</tr>
<tr>
<td>9000 - Public Admin or Govt</td>
<td>516,311</td>
<td>5,350,705,547</td>
<td>8,796</td>
<td>69,687,260</td>
<td>99.6%</td>
<td>95.6%</td>
</tr>
<tr>
<td>9220 - Police, Fire or Military</td>
<td>509</td>
<td>13,823,016</td>
<td>8</td>
<td>216,749</td>
<td>381.4%</td>
<td>391.0%</td>
</tr>
<tr>
<td>All, weighted</td>
<td>1,446,019</td>
<td>19,410,830,605</td>
<td>26,577</td>
<td>257,661,572</td>
<td>104.6%</td>
<td>102.5%</td>
</tr>
</tbody>
</table>
### Table A2-3. Experience for Private data - Male

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Count 100 - Agriculture, Mining</th>
<th>Count 500 - Construction</th>
<th>Count 2000-3000 - Manufacturing</th>
<th>Count 4000 - Trans, Comm or Pub Util</th>
<th>Count 5000 - Wholesale or Retail</th>
<th>Count 6000 - Finance, Insurance, Info</th>
<th>Count Unknown</th>
<th>Total, weighted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>22,688</td>
<td>88,126</td>
<td>157,410</td>
<td>293,437</td>
<td>30,413</td>
<td>18,457</td>
<td>111,006</td>
<td>932,294</td>
</tr>
<tr>
<td>Amount</td>
<td>130,821,259</td>
<td>1,060,598,466</td>
<td>1,489,211,521</td>
<td>5,597,359,994</td>
<td>215,528,430</td>
<td>150,961,855</td>
<td>741,905,439</td>
<td>10,275,448,527</td>
</tr>
<tr>
<td>Deaths</td>
<td>1,178</td>
<td>3,133</td>
<td>7,917</td>
<td>14,371</td>
<td>1,737</td>
<td>1,109</td>
<td>6,272</td>
<td>44,764</td>
</tr>
<tr>
<td>A/E on CPM2014priv</td>
<td>92.2%</td>
<td>112.5%</td>
<td>101.5%</td>
<td>106.5%</td>
<td>98.5%</td>
<td>92.0%</td>
<td>88.1%</td>
<td>102.6%</td>
</tr>
</tbody>
</table>

### Table A2-4. Experience for Private data - Female

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Count 100 - Agriculture, Mining</th>
<th>Count 500 - Construction</th>
<th>Count 2000-3000 - Manufacturing</th>
<th>Count 4000 - Trans, Comm or Pub Util</th>
<th>Count 5000 - Wholesale or Retail</th>
<th>Count 6000 - Finance, Insurance, Info</th>
<th>Count Unknown</th>
<th>Total, weighted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>6,700</td>
<td>1,928</td>
<td>44,652</td>
<td>27,153</td>
<td>30,413</td>
<td>18,457</td>
<td>111,006</td>
<td>247,139</td>
</tr>
<tr>
<td>Amount</td>
<td>23,392,803</td>
<td>6,929,749</td>
<td>161,750,661</td>
<td>234,624,831</td>
<td>215,528,430</td>
<td>150,961,855</td>
<td>741,905,439</td>
<td>1,222,201,127</td>
</tr>
<tr>
<td>Deaths</td>
<td>338</td>
<td>80</td>
<td>2,178</td>
<td>1,009</td>
<td>1,737</td>
<td>1,109</td>
<td>6,272</td>
<td>10,613</td>
</tr>
<tr>
<td>A/E on CPM2014priv</td>
<td>102.9%</td>
<td>117.5%</td>
<td>114.0%</td>
<td>106.7%</td>
<td>98.5%</td>
<td>92.0%</td>
<td>88.1%</td>
<td>102.4%</td>
</tr>
</tbody>
</table>
Board Staff Interrogatory #113

Ref: Exh A2-1-1 Attachment 1 page 117

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

a) Please provide the tables similar to note 10 in OPG Inc.’s audited financial statements that will show the funded status as at December 31, 2013 using the updated evidence requested above for discount rate and actual returns both as of December 31, 2013.

b) Please provide a similar updated table for the regulated business as at December 31, 2013 and describe how the allocations from OPG Inc. to the regulated business were prepared.

Response

a) The equivalent table as at December 31, 2013 is found in Note 11 to OPG’s 2013 audited consolidated financial statements, at page 42 of Ex. L-2,1-6 ED-003, Attachment 1. The table reflects all the applicable actual information and assumptions as at December 31, 2013, including discount rates and actual pension fund returns.

b) The requested table provides an annual continuity for each of fund assets and projected benefit obligation for the registered pension plans (“RPP”), supplementary pension plans (“SPP”) and other post employment benefit (“OPEB”) plans, with a net funded status (asset or liability), for accounting purposes, at the end of the year. OPG does not allocate most of the line items making up the continuity between its regulated and unregulated operations, as this information is not required for any purpose and would not be meaningful. This is because there is no separate RPP, SPP or OPEB plan for OPG’s regulated business and the OPG pension fund is managed on an aggregate basis for all of OPG’s operations. The financial statements for the prescribed facilities are required to reflect on the balance sheet an amount for the portion of OPG’s RPP, SPP, and OPEB liabilities (i.e., the funded status for accounting purposes) attributed to the regulated operations.

While OPG is of the view that this allocated figure is not meaningful for the reasons outlined above, it is included in order to prepare a full balance sheet in accordance with generally accepted accounting principles. Using the allocation methodology described in Note 10 to the 2012 audited financial statements for the prescribed facilities (Ex. A2-1-1, Attachment 2b, page 41), OPG is able to approximate that $2.0B of OPG’s total accounting RPP liability and $2.4B of OPG’s total accounting SPP and OPEB liabilities would be attributed to the prescribed facilities (excluding newly regulated hydroelectric assets) as at December 31, 2013.

Witness Panel: Finance, D&V Accounts, Nuclear Liabilities
Board Staff Interrogatory #114

Ref: Exh N1-1-1 Attachment 1, report page 6

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

OPG’s latest actuarial valuation as of January 1, 2011 for funding purposes of the RPP is the basis of contributions for 2013. The next actuarial valuation for funding purposes must have an effective date no later than January 1, 2014. In order to project contributions to the RPP for 2014 and 2015, an estimate of the going concern and solvency positions of the RPP is required.

a) Has OPG made any special solvency payments above the minimum required contribution since 2007?
b) Has OPG made any other payments other than solvency contributions since 2007 such as going concern special payments?
c) Please provide a table for the period 2007 to 2013, plus projections for 2014 and 2015, that shows 1) the annual accounting pension benefit costs before capitalization in fixed assets; 2) contributions to the pension plan other than solvency payments; and 3) any special solvency contributions shown separately.

Response

a) No, OPG has not made any special payments for solvency deficits since 2007.
b) Yes, OPG has made contributions for employer current service costs and special payments for going concern deficits since 2007.
c) The requested information with respect to the OPG registered pension plan is provided for the regulated business in the charts below for the period 2007 - 2015, with newly regulated hydroelectric information provided for the period that these assets are under regulation. Actual information is provided for 2013.
### Nuclear ($M)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pension Cost</strong></td>
<td>183.7</td>
<td>140.3</td>
<td>50.7</td>
<td>91.6</td>
<td>194.6</td>
<td>272.3</td>
<td>365.3</td>
<td>406.9</td>
<td>348.5</td>
</tr>
<tr>
<td><strong>Contributions Other Than Solvency Deficit Payments</strong></td>
<td>202.1</td>
<td>189.5</td>
<td>196.2</td>
<td>199.1</td>
<td>224.6</td>
<td>282.8</td>
<td>231.6</td>
<td>308.7</td>
<td>350.4</td>
</tr>
<tr>
<td><strong>Solvency Payments</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Previously Regulated Hydroelectric ($M)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pension Cost</strong></td>
<td>8.4</td>
<td>6.7</td>
<td>2.6</td>
<td>4.3</td>
<td>9.4</td>
<td>13.8</td>
<td>18.0</td>
<td>22.4</td>
<td>20.1</td>
</tr>
<tr>
<td><strong>Contributions Other Than Solvency Deficit Payments</strong></td>
<td>9.2</td>
<td>9.1</td>
<td>9.9</td>
<td>9.4</td>
<td>10.8</td>
<td>14.3</td>
<td>11.4</td>
<td>17.0</td>
<td>20.2</td>
</tr>
<tr>
<td><strong>Solvency Payments</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Newly Regulated Hydroelectric ($M)

<table>
<thead>
<tr>
<th></th>
<th>2014 Plan</th>
<th>2015 Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pension Cost</strong></td>
<td>42.0</td>
<td>36.7</td>
</tr>
<tr>
<td><strong>Contributions Other Than Solvency Deficit Payments</strong></td>
<td>31.9</td>
<td>36.9</td>
</tr>
<tr>
<td><strong>Solvency Payments</strong></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

---

1 Amounts do not include those related to the Nuclear Waste Management Organization.

2 Pension cost amounts as shown in Ex. L-6.8-1 Staff-112, Chart 1. Total of regulated pension contribution amounts is as shown in Ex. L-6.8-1 Staff-112, Chart 2.

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Witness Panel: Finance, D&V Accounts, Nuclear Liabilities
Board Staff Interrogatory #115

Ref: Exh F4-3-1

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Regarding capitalization of payroll and benefit costs:

a) What percent of pension and OPEB costs was capitalized in 2013 to capital assets?
b) What percent of pension and OPEB costs is capitalized in the 2014-2015 test period to capital assets?

Response

a) Approximately 4% of actual pension and OPEB costs were capitalized to capital assets of the regulated business in 2013.
b) Approximately 3% of pension and OPEB costs presented in Ex. N1-1-1 are forecast to be capitalized to the capital assets of the regulated business over the 2014 - 2015 test period.
Board Staff Interrogatory #116

Ref: Exh F4-3-1 page 31, Mercer Press Release January 2014

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

In the pre-filed evidence OPG disclosed that the return on the plan assets was 1.7% at the end of August 2013. As noted in the Mercer Press Release, other pension plans in Canada have reported much higher returns than OPG for the entire year 2013.

a) What was the return on plan assets for the entire year ended December 31, 2013?

b) If OPG’s return on plan assets was lower than other plans (as identified in the Mercer press release) have reported for 2013, please explain why OPG’s returns lagged behind the other pension plans. Please refer to analysis published by Mercer and other experts where possible.

c) What steps has OPG taken to improve the returns on the plan assets in the test period 2014-2015?

Response

a) The return on the plan assets for the calendar year ended December 31, 2013 was 9.2%.

b) The Mercer press release states that “A typical balanced pension portfolio returned 12.8 per cent in 2013.” However, the press release does not discuss actual returns of other Canadian pension plans; rather it describes a sample portfolio that is not identified with any specific pension plan. This hypothetical portfolio also appears to exclude alternative assets (real estate, infrastructure, etc.) and real return bonds which are important components of OPG’s pension fund; therefore it is not comparable to OPG’s pension plan return.

Pension plan returns are driven by the strategic asset allocation for each pension plan. Each pension plan will have a unique asset allocation to reflect its unique liability profile. OPG does not have the details of other pension plans’ liability profiles and investment strategies and cannot, therefore, comment on the relative returns of other Canadian pension plans.

OPG takes part in an annual third party analysis that evaluates the performance, risk and cost effectiveness of the pension fund relative to other Canadian pension funds. The 2013 analysis is currently underway; however, the results from 2012 indicated that OPG’s pension fund was in the top quartile relative to its Canadian peers and the Canadian universe between 2008 and 2012.
c) As noted in Part a) the return for one year period ending December 31, 2013, the OPG pension plan assets returned 9.2%. This exceeds its benchmark return of 8.5%. OPG is satisfied with the performance of the pension fund and continues to review and evaluate the investment strategy. There is a plan to add additional diversifying strategies to the portfolio with a focus on managing downside risk and the funded status of the pension plan.
Board Staff Interrogatory #117

Ref: Exh A1-4-1, Financial Post - July 2013

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

The OPG Board has established the Audit and Finance Committee, which among other responsibilities, provides oversight of the performance of the OPG Pension Fund.

a) Does this committee, or OPG management, set objectives for the plan’s performance? If yes, please file the objectives for 2013 and 2014.

b) Please explain what actions have been made recently to deal with the deficit in the fund. Please refer to the article in the Financial Post.

Response

a) The performance objectives for the plan are set by the Audit and Finance Committee of OPG’s Board of Directors. The Audit and Finance Committee is responsible for approving the strategic asset allocation for the pension plan. As part of the strategic asset allocation process, a performance benchmark is set. OPG management evaluates the performance of the pension fund relative to this performance benchmark. The performance benchmark, similar to other pension plans, is a composite of market indices for the underlying strategic asset allocation. As noted in Ex. L-06 8-2 AMPCO-059, the performance benchmark for 2013 was 8.5%. The performance benchmark for 2014 will not be available until early 2015 as it is based on actual index returns at the end of 2014.

b) The Financial Post article noted in the question references the accounting deficit for the registered pension plans as at December 31, 2012. With respect to pension plan funding, the Financial Services Commission of Ontario (“FSCO”) monitors the status of pension plans as determined in actuarial valuations for funding purposes, based on actuarial methods and assumptions as set out in the Pension Benefits Act (Ontario) (“PBA”). These actuarial valuations set out the basis for minimum required contributions to the pension fund in accordance with the PBA, including any required deficit funding over a period of time (as noted in Ex. F4-3-1, section 6.1).

OPG’s contributions to the pension fund since 2011 have included the required funding for the going concern deficit of $555M determined as at January 1, 2011, the date of the latest filed actuarial valuation for funding purposes. OPG’s next actuarial valuation for funding purposes must be completed as at January 1, 2014 and will reflect any required funding toward the deficit as of that date. The January 1, 2014 valuation is currently in progress and, as noted in Ex. F4-3-1, section 6.1, must be filed with the FSCO by September 30, 2014.
OPG is satisfied with the performance of the pension fund and continues to review and evaluate the investment strategy of the pension fund. There is a plan to add additional diversifying strategies to the portfolio with a focus on managing downside risk and the funded status of the pension plan.
Board Staff Interrogatory #118

Ref: Exh N1-1-1-Pages 4-9

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Prior to the comprehensive accounting valuation, OPG’s mortality assumptions were based on the industry standard actuarial 1994 Uninsured Pensioner (“UP94”) mortality table, as adjusted by a factor of 85%, and the standard future mortality improvement Scale AA. This 85% factor reflected improvements in longevity of Canadians in general.

Do OPG’s employees have a longer life expectancy than the Canadian population on average? Please explain with reference to the specific data related to OPG’s employees and retirees.

Response

The UP94 mortality table was published by the U.S. Society of Actuaries in 1995 and was based on U.S. mortality experience prior to 1994. It had been one of the most commonly used mortality tables for pension plan valuations in Canada, as there was no available broad experience study for Canadian pension plans. The adjustment factor of 85 per cent reflected OPG actual pensioners’ mortality experience as part of a previous valuation that showed that OPG pensioners were living longer than predicted by the UP94 table. However, neither OPG nor its independent actuary, Aon Hewitt, knows if OPG employees have a longer life expectancy than the Canadian population on average.

Aon Hewitt did compare OPG pensioners’ mortality experience to that published by the Canadian Institute of Actuaries (“CIA”) in its February 2014 “CIA Final Report: Canadian Pensioners’ Mortality” (discussed and provided as Attachment 1 in Ex. L-6.8-1 Staff-112). On Hewitt informed OPG that based on their review of the mortality tables in the report, OPG’s pensioners appear to have a longer life expectancy than private sector pensioners and a shorter life expectancy than public sector pensioners.
Board Staff Interrogatory #119

Ref: Exh N1-1-1-Pages 4-9

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Using the following assumptions, and adding others if required for the example, please show the pension benefit obligation under the 85% of UP94 methodology and under the new proposed methodology which uses the recently updated mortality tables.

- Male employee 45 years of age.
- Salary $100,000.
- Female spouse who does not work for OPG, who is 40 years of age.
- No children or other beneficiaries.

Response

OPG’s independent actuary, Aon Hewitt, calculated the requested projected pension benefit obligations. Aon Hewitt noted the following additional assumptions used:

- Discount rate – 4.90%
- Inflation – 2.0% per year
- Salary Schedule Escalation Rate – 2.50% per year, plus promotion, progression, merit
- Income Tax Act Defined Benefit Limit / Year’s Maximum Pensionable Earnings increase – 2.50% per year
- Retirement age – 60
- A female spouse is 3 years younger than a male spouse¹
- Member stays in the OPG pension plan until retirement

Using the above, Aon Hewitt determined projected pension benefit obligations at January 1, 2014, as follows:

- Using 85% of the 1994 Uninsured Pensioner Mortality Table with Generational Mortality and projected mortality improvements using Scale AA – $425,200.
- Using the OPG specific mortality table described at Ex. N1-1-1, Attachment 1, page 11, and projected mortality improvements Scale CPM-B published by the Canadian Institute of Actuaries in February 2014 and discussed in Ex. L-6.8-1 Staff-112 – $438,800.
- Using the OPG specific mortality table described at Ex. N1-1-1, Attachment 1, page 11, and previous projected mortality improvement assumptions developed using the CMI model and discussed in Ex. N1-1-1, Attachment 1, pp. 11 - 12 – $450,700.

¹ Actuarial valuations do not reflect individual ages of members’ spouses before retirement. A gender-specific average age difference between members and their spouses is assumed, subject to periodic review by the independent actuary.
Board Staff Interrogatory #120

Ref: Exh F5-4-1 Pages 31-36

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

As shown in the benchmarking study, OPG’s average pension value delivered is 16.10% of pay compared to 10.77% for the comparator group.

Does OPG plan to make changes to its compensation program to lower the pension and benefit costs to be closer to those of the comparator group?

Response

OPG has been studying reform options and on March 20 2014, announced changes to the management (non-represented) pension and its intention to adjust benefits plans. The changes will bring the pension and benefits closer to the comparator group.

The changes to management group are summarized as follows:

- Increasing employee pension contributions on January 1, 2016 and January 1, 2017
- Changing the criteria for an unreduced pension from the Rule of 84 to the Rule of 90, on a go forward basis effective January 1, 2016.

The management employee pension contribution increases are as follows:

- Increasing pension contribution rates on January 1, 2016 to 7.30% on earnings below YMPE and to 8.25% on earnings above YMPE;
- Increasing pension contribution rates on January 1, 2017 to 7.60% on earnings below YMPE and to 9.50% on earnings above YMPE.

OPG is committed to moving, over a period of years, to 50/50 contributions on current service costs for the entire company. OPG is currently studying reforms to its health and dental benefits plan and will be implementing changes to reduce the cost of the plan effective January 1, 2016.

Any changes to pension and benefits for unionized (represented) staff will be a matter for future rounds of collective bargaining.
Board Staff Interrogatory #121


Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

At page 166 of the Auditor General’s report, it states the following: “Since 2005, the employer-employee contribution ratio at OPG has been around 4:1 to 5:1, significantly higher than the 1:1 ratio at Ontario Public Service.”

a) Is OPG considering changing the contribution ratio to 1:1?

b) If not, please explain why the current contribution ratio is reasonable. What research had OPG done when it committed to the 4:1 to 5:1 employer-employee contribution ratio? Can OPG point to any comparable organizations that have a similar employer-employee contribution ratio?

c) If the employer-employee contribution ratio were reduced to 1:1 for the test years, what impact would that have on the revenue requirement?

Response

a) Yes.

b) The ratio quoted in the Auditor General’s report includes both payments for the current service cost and special payments related to plan deficits in the calculation.

It is common practice to measure contribution ratios based on current service costs. OPG has a contribution ratio based on current service cost of 3:1 which is comparable with Ontario Hydro successor companies and other electricity sector companies (Hydro One, Bruce Power, IESO).

c) Changes to pension contributions require changes to existing collective agreements and must take into account legal considerations. Theoretically, if the current service cost contributions were on a 1:1 ratio, the pension costs would be lower in each year by approximately $60M.
Board Staff Interrogatory #122

Ref: Exh N1-1-1-pages 4-10

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

a) Please confirm that OPG uses the accounting valuation methodology to determine post-employment benefits other than pension costs (known as PBOPs or OPEBs) and supplementary pension plan ("SPP") for the test period.

b) As noted in Exh N1-1-1 chart 2, please confirm that OPG currently recovers more money from ratepayers than it pays to retirees because the accounting costs included in payment amounts are higher than amounts actually paid to retirees.

c) As noted in Exh N1-1-1 chart 4, please confirm that OPG will continue to recover more from ratepayers than it pays to retirees during the test period.

Response

a) Confirmed.

b) OPG confirms that the forecast costs for OPEB (excluding the long-term disability benefit plan) and SPP for the regulated business reflected in OPG’s current payment amounts, which were established in EB-2010-0008, are lower than the regulated portion of the actual amounts that OPG has paid out under these plans in 2011, 2012 and 2013.¹

c) OPG confirms that its test period forecast of OPEB (excluding the long-term disability benefit plan) and SPP costs provided in Ex. N1-1-1 is higher than the corresponding 2014 and 2015 forecast payments under these plans.¹

¹ Long-term disability benefit plan amounts are excluded because the question refers to retirees.
Board Staff Interrogatory #123

Ref: Exh F4-3-1, FERC Policy: 61FERC61 330 PL63-1-000

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

a) Does OPG have a separate fund, or irrevocable trust (as noted in FERC policy 61FERC61,330), into which OPEB and SPP recoveries that exceed payments to retirees are deposited and managed to earn a return on behalf of ratepayers?

b) Please provide the legal rationale and/or explanation that support OPG’s statement from page 129 of its reply argument in EB-2010-0008. “In addition, OPG submits that it is doubtful whether the OEB has the jurisdiction to mandate OPG to set cash payments aside in a segregated fund for a specific use. Board staff’s argument is silent on this question as well as on how such a fund would be structured, managed and paid for.”

c) Has OPG undertaken a review of what would be required to set up and manage such a segregated fund or irrevocable trust similar to that in the FERC guidelines as provided?

d) If OPG has not undertaken this review, please explain why OPG believes that the Board should allow OPG to continue to use ratepayer money, recovered for OPEBs decades in advance of the cash requirement, for general corporate purposes.

e) Please provide OPG’s estimate of the costs that would be incurred to create an irrevocable trust for OPEBs and SPP and what the annual operating costs would be following the FERC guidelines as provided.

Response

a) No.

b) The OEB’s jurisdiction is derived from statute. The submission reflects OPG’s view that there is no provision in the Ontario Energy Board Act, 1998, which would permit the OEB to mandate OPG to set cash payments aside in a segregated fund for a specific use.

c) No.

d) In the EB-2010-0008 Decision with Reasons (page 91) the OEB approved the continued use of the accrual method of setting pension and other post employment benefit costs. On an accrual basis, OPEB cost is incurred and recognized when related employee service is
rendered, not when the actual benefit payment is made to retirees in the future. The circumstances with respect to OPG's OPEB costs and their recovery have not changed since EB-2010-0008. Therefore, OPG continues to believe that it is appropriate to continue with the accounting (accrual) method, as approved by the OEB.

e) OPG has no estimate of the costs to create or operate such a fund.
Board Staff Interrogatory #124

Ref: ExhN1-1-1-pages 4-11

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please provide a table that shows separately the OPEB and SPP accounting amounts before capitalization to capital projects, the amounts actually recovered from ratepayers, the amounts paid to retirees and the net excess amount of recoveries from 2007 through 2013. Please project these values for the test period 2014-2015.

Response

For 2008 - 2013, the chart below provides the regulated portion of OPG’s total actual other post retirement benefits (“OPRB”) and SPP accounting costs before capitalization to capital projects and such costs recoverable from ratepayers (including applicable variance account additions), actual benefit payments under these plans, and the requested difference. For 2014 and 2015, all amounts are as reflected in the Impact Statement (Ex. N1-1-1).

For 2007, the same actual information as above is provided. OPG does not know the specific amounts assumed by the Province in respect of the OPRB and SPP costs in the setting of the interim payment amounts in effect prior to April 1, 2008.

---

1 As the question is in relation to amounts paid to retirees, OPG provides information on OPEB excluding the long-term disability benefit plan, which is otherwise known as OPRB.
## Chart 1
### OPRB and SPP Amounts<sup>2</sup>

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actual/Projected Costs</strong></td>
<td>165.6</td>
<td>157.9</td>
<td>120.4</td>
<td>136.1</td>
<td>175.6</td>
<td>203.0</td>
<td>231.3</td>
<td>213.4</td>
<td>217.5</td>
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<tr>
<td><strong>Recoverable Costs</strong></td>
<td>N/A</td>
<td>119.2</td>
<td>162.5</td>
<td>161.0&lt;sup&gt;4&lt;/sup&gt;</td>
<td>173.2&lt;sup&gt;5&lt;/sup&gt;</td>
<td>203.0</td>
<td>231.3</td>
<td>213.4</td>
<td>217.5</td>
</tr>
<tr>
<td><strong>Actual/Projected Benefit Payments</strong></td>
<td>38.5</td>
<td>44.2</td>
<td>43.1</td>
<td>43.4</td>
<td>48.4</td>
<td>57.9</td>
<td>61.2</td>
<td>63.8</td>
<td>69.6</td>
</tr>
<tr>
<td><strong>Recoverable Costs Less Actual/Projected Benefit Payments</strong></td>
<td>N/A</td>
<td>75.0</td>
<td>119.4</td>
<td>117.6</td>
<td>124.8</td>
<td>145.1</td>
<td>170.1</td>
<td>149.6</td>
<td>147.9</td>
</tr>
</tbody>
</table>

<sup>2</sup> Amounts for 2007-2013 exclude those for the newly regulated hydroelectric assets; amounts for 2014 and 2015 include them. Amounts for all years do not include those related to the Nuclear Waste Management Organization.

<sup>3</sup> Amount for recoverable costs represents 9/12 of the annual amount, as the EB-2007-0905 payment amounts came into effect on April 1, 2008. Amounts for actual costs and benefit payments are for the full year.

<sup>4</sup> Represents 12/21 of the sum of 2008 and 2009 amounts, as the EB-2007-0905 payment amounts became effective April 1, 2008 and applied throughout 2010.

<sup>5</sup> Represents 2/21 of the sum of 2008 and 2009 amounts, plus 10/12 of the 2011 amount, as the EB-2010-0008 payment amounts were effective March 1, 2011.

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Witness Panel: Finance, D&amp;V Accounts, Nuclear Liabilities
**AMPCO Interrogatory #058**

**Ref:**
Exhibit F4, Tab 3, Schedule 1 Compensation

**Issue Number:** 6.8

**Issue:** 6.8  Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

**Interrogatory**

a) Page 1 Table 1 - Please update Table 1 and Appendix 2-K to include 2013 Actuals. Please comment on 2014 and 2015 Plan levels compared to 2013 Actuals.

b) Page 3 - OPG expects to reduce its 2001 headcount by 2000 employees through attrition by year end 2015.
   i) Please restate this information based on FTEs.

c) Page 4 – OPG indicates it had 10,844 employees at the end of 2012. Of this approximately 9,582 employees work directly in or allocated to OPG’s regulated activities. Appendix 2K (Exhibit 4, Tab 3, Schedule 1 Attachment #6) shows 10,005.5 total staff for OPG. Please reconcile.

d) Page 5 – Approximately 1,300 out of the 2,000 staff reduction are attributable to regulated operations.
   i) Please provide a breakdown of the 1,300 between nuclear, previously regulated hydroelectric and newly regulated hydroelectric.
   ii) Please provide a breakdown of the 1,300 between management, Society, and PWU.

e) Page 5 – Please provide a breakdown of total OPG regulated staff on the basis of regular staff, nonregular staff and temporary tradespersons.

f) Page 6 - Overtime – Please explain how OPG’s overtime policies differ between the PWU, Society and management staff as well as regular, non-regular and temporary tradespersons.

g) Page 6 – Please provide overtime costs for the years 2010 to 2013 and forecast for 2014 and 2015 and discuss trends.

h) Please discuss the trend in purchased services for the 2010 to 2015 period.

i) Page 7 – Research & Consultation – Please provide examples of the broader public sector employers that OPG reviews to understand the external labour relations landscape.

j) Page 8 – Negotiations - Please explain why a typical round of negotiations takes longer with PWU (two to four months) than the Society of Energy Professionals (one month).
k) Page 10 – Please provide a summary of the cost and productivity offsets to the wage increases OPG negotiated in the PWU agreement.

l) Page 12 - Please discuss if OPG negotiated any cost and productivity offsets to the wage increases in the Society of Energy Professional agreement and provide details.

m) Page 15 – Contracting Out PWU - One unique aspect of the contracting out provision with the PWU is the use of thresholds to establish amounts or types of work that can be contracted. A new threshold was negotiated in 2012 with the PWU to provide that distinct work programs or packages of 250 hours or less are within the threshold.
   i) Please provide the threshold prior to 2012.
   ii) Please discuss how the change in the threshold impacts contracting out over the period 2012 to 2015.

n) Page 15 – With respect to the PWU agreement, please provide the cost of the actual work contracted for the years 2010 to 2013 and the amount forecasted for 2014 and 2015.

o) Page 16 – Society Contracting Out - For any contracting in excess of $165M per year, OPG makes a payment equal to 1% of the amount in excess of $165 M to the Society. Please provide the amount of actual payments made for the years 2010 to 2013 and the amount forecasted for 2014 and 2015.

p) Page 16 – Please provide the amount of severance paid in 2010 to 2013 and forecast for 2014 and 2015 and the number of FTEs affected in each year.

q) Page 16 – PWU No Layoff Clause – Please discuss if a no-lay off clause was included in past PWU Collective Agreements.

r) Page 20 – Management Compensation - OPG comments on its salary increases compared to major salary surveys. Please confirm the source of the major salary surveys.

s) Page 20 – OPG voluntarily rolled back all incentive payments by 5% in 2009 and 10% in 2010. Please discuss if OPG has considered rolling back incentive payments beyond 2010.

**Response**

a) The information requested cannot reasonably be assembled and submitted during the interrogatory period. See Ex. L-1.0-1 Staff-002.

b) OPG does not track Business Transformation staff reductions based on full-time equivalent “FTE”, reductions are tracked using headcount. However, based on the 1,300 headcount reduction indicated in the footnote, a rough estimate of the FTE reduction would be about 980.
c) Headcount is incomparable to FTE. OPG defines headcount as the staffing level at the end of a year, whereas “FTEs” represent the number of hours worked converted to a full-time equivalent.

In addition, the 9,453 employees (headcount) who worked directly in or were allocated to the regulated business included staff from the Darlington Refurbishment and Nuclear New Build Projects, and excluded non-regular staff. Appendix 2K reflects FTEs, including those associated with the Darlington Refurbishment, Nuclear New Build projects and non-regular staff.

d) i) The breakdown of the approximately 1,300 regulated headcount reduction between nuclear, previously regulated hydroelectric and newly regulated hydroelectric is as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear</td>
<td>1,294</td>
</tr>
<tr>
<td>Previously Regulated Hydro</td>
<td>13</td>
</tr>
<tr>
<td>Newly Regulated Hydro</td>
<td>3</td>
</tr>
</tbody>
</table>

ii) The breakdown of the approximately 1,300 regulated headcount reduction by representation is as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>73</td>
</tr>
<tr>
<td>Society</td>
<td>453</td>
</tr>
<tr>
<td>PWU</td>
<td>785</td>
</tr>
</tbody>
</table>

e) A breakdown of total OPG regulated staff on the basis of regular staff and non-regular staff including temporary tradespersons is provided in the following chart.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Staff</td>
<td>9,693.6</td>
<td>9,575.9</td>
<td>9,370.6</td>
<td>9,405.2</td>
<td>9,142.4</td>
<td>8,920.2</td>
</tr>
<tr>
<td>Non-Regular Staff</td>
<td>787.2</td>
<td>698.5</td>
<td>635.6</td>
<td>485.9</td>
<td>423.8</td>
<td>475.4</td>
</tr>
<tr>
<td>Total</td>
<td>10,480.8</td>
<td>10,274.4</td>
<td>10,006.5</td>
<td>9,891.2</td>
<td>9,566.1</td>
<td>9,395.6</td>
</tr>
</tbody>
</table>

f) Management staff at OPG is not compensated for overtime. For PWU and Society staff overtime premiums are prescribed by the collective agreements. Overtime is paid when employees are required to work beyond their normally defined hours of work in a day or week. The hourly premiums for overtime range from one and half times an employee’s hourly rate of pay to two times an employee’s hourly rate depending on the time period when the overtime is required. There is no distinction on overtime payments between regular, non-regular, and temporary tradespersons.

g) The requested overtime costs are provided in the following chart.
Overtime is primarily driven by Nuclear planned and forced outages described in h), below.

h) The purchased services costs for the 2010 to 2015 period are as follows:

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear</td>
<td>300</td>
<td>221</td>
<td>250</td>
<td>274</td>
<td>355</td>
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</tr>
<tr>
<td>Hydro</td>
<td>43</td>
<td>39</td>
<td>38</td>
<td>39</td>
<td>44</td>
<td>45</td>
</tr>
<tr>
<td>Corporate</td>
<td>118</td>
<td>106</td>
<td>117</td>
<td>124</td>
<td>138</td>
<td>134</td>
</tr>
<tr>
<td>Total</td>
<td>460</td>
<td>366</td>
<td>405</td>
<td>437</td>
<td>538</td>
<td>508</td>
</tr>
</tbody>
</table>

Cost increases from 2010 actual to 2015 budget are due to the following:

- **Nuclear**
  - The purchase service reflects resources requirements to meet the work programs. OM&A projects vary and the trending of external purchase services varies as projects utilize external resources. Outage campaign utilize external resources and in 2010 there was a Pickering Vacuum Building Outage ("VBO"), an additional Darlington outage in 2013, and the Darlington VBO in 2015;
  - For Base OM&A external purchase trending, refer to Ex. L-6.3-15 PWU-018. interrogatory response;
  - Increase in external purchased service costs are also due to timing of attrition versus the full implementation of Business Transformation initiatives. Temporary resources are required until the business re-engineering and streamlining processes have reduced work requirements.

- **Hydro**
  - OM&A external purchased services is trending upward in the test period due to increased resource requirements for the commencement of a number of major projects as described in Ex. F1-3-1.

- **Corporate**
  - Costs increase primarily due to the transfer of Business Unit staff to Support Services groups, as part of Business Transformation and various business development initiatives in Corporate Centre, partially offset by reduction of IT costs driven by Information Management Transformation Program.
Increase in external purchased service costs are also due to timing of attrition versus the full implementation of Business Transformation initiatives. Temporary resources are required until the business re-engineering and streamlining processes have reduced work requirements.

i) Attachment 1 provides examples of broader public sector employers that OPG reviews to understand the external labour relations landscape.

j) A typical round of negotiations takes longer with the PWU than the Society due to the differences in how collective bargaining impasses are resolved. Under the collective agreement with the Society a collective bargaining impasse is resolved by binding arbitration. As such collective bargaining is structured through a process with time limits and deadlines that enables disputes to be moved forward to arbitration at the expiry of the collective agreement. With the PWU, collective bargaining impasses can only be resolved through resort to a strike or lockout, unless government intervenes to introduce its legislative prerogative to impose back to work legislation that would require the impasse to be resolved through binding arbitration. A strike or lockout can be engaged in at the expiry of the collective agreement. Given the significant consequences of a strike or lockout, a longer time period is established to allow each side to give serious consideration to the consequences of not reaching agreement.

k) Regarding the cost and productivity offsets to the wage increases OPG negotiated in the PWU agreement, please see Ex. L-6.8-1 Staff-101 Part c.

l) OPG’s last collective agreement with the Society was imposed by binding arbitration. See Ex. L-6.8-17 SEC-106.

m) i) Prior to 2012 the criteria for thresholds under the agreement with the PWU was qualitative as illustrated in the excerpt from the 2009-2012 collective agreement below. The changes negotiated in 2012 allowed packages of work of less than 250 hours to be contracted out below threshold.

1 12.2.6 Establishment of Thresholds
The establishment of the threshold is designed to remove from the process on a case by case basis certain issues relating to purchased services. The threshold will operate in such a way as to allow flexibility in local decision making. Any decisions regarding what is below the threshold will be non-precedent setting. If there is a dispute with the union on whether the proposed purchased service is permitted by the threshold and there is no consensus, and if it makes sense in the circumstances the dispute will be resolved before the purchased service occurs. Lack of agreement on obtaining an advance resolution will not preclude the work from being performed, neither will it preclude the matter from being resolved under the 12.2.7 process.

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1 Excerpt PWU collective agreement 2009-2012 (page 53)
The guidelines to determine whether a purchased service is below the threshold are as follows:

- subject matter lacking in substance; or
- any consequences are relatively insignificant; or
- where the nature or consequences of the work which represents a purchased service is remote from work currently performed by the PWU on a continuing basis. For purposes of clarity, this does not mean geographically remote; or
- emergencies; or
- any work performed under a manufacturer's warranty, except where the manufacturer authorized the Company to do the work.
- Work being done for OPG by Kinectrics and NHSS at the point each company is spun off from OPG and work of the same nature done by these companies in the future, so long as the Union continues to represent the employees of these companies.

ii. The change in threshold impacts contracting out over the 2012 - 2015 period insofar as it removes the amount of effort and justification associated with seeking the union’s agreement on contracting out smaller packages of work thus allowing contracting to occur more efficiently and with greater certainty.

n) The information is not available and there is no contractual requirement in the PWU agreement to track the costs broken down this way.

o) The agreement with the Society while negotiated in 2010 took effect in 2011. No payments have been required under the agreement for the 2011-2013 periods and are not forecasted to be engaged for the periods 2014 or 2015.

p) OPG did not offer any voluntary severance to employees working directly in or allocated to OPG's regulated activities between 2010 and 2013. No voluntary severance costs are forecast for the test period, as staff reduction targets are expected to be achieved through attrition.

q) A no lay-off clause was included in the last PWU agreement. Agreement was reached that any staff excess would be dealt with by voluntary severance offerings or through an existing agreement to facilitate the closure of OPG's thermal facilities. If a staff surplus cannot be accommodated under either of these agreements management and the union must attempt to agree on a resolution. If a resolution cannot be agreed upon the issue is referred to arbitration for a binding resolution.

r) The major salary surveys being referenced are: Conference Board of Canada, Morneau-Sebeco, Hay, Mercer, Hewitt and Watson Wyatt.

s) Incentive payment roll backs were voluntarily introduced prior to government legislation limiting compensation (Bill 16 and Bill 55). Government legislation constrains compensation and as a result, OPG has not considered rolling back incentive payments beyond 2010.
<table>
<thead>
<tr>
<th>Avg Annual Base Wage % Increase</th>
<th>Employer Name</th>
<th>Union Name</th>
<th># of EEs</th>
<th>Ratification Date</th>
<th>Effective Date</th>
<th>Expiry Date</th>
<th>Settlement Stage</th>
<th>Dur of Agr (Mth)</th>
<th>COLA clause</th>
<th>OCCUPATION</th>
<th>Hrly Rates at Expiry</th>
</tr>
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<td>2.9</td>
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<td>ENERGY PROF</td>
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<td>24-Jun-11</td>
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<td>31-Dec-14</td>
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<td>3.0</td>
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<td>3,847</td>
<td>03-Jun-11</td>
<td>01-Apr-11</td>
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<td>CLERICAL/ TECH GR 51</td>
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<td>318</td>
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<td>31-May-15</td>
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<td>ENERGY PROF</td>
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<td>01-Jan-11</td>
<td>31-Dec-13</td>
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<td>ENERSOURCE HYDRO MISSISSAUGA INC</td>
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<td>31-Dec-12</td>
<td>ARB</td>
<td>36</td>
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<td>55.10</td>
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<tr>
<td>3.0</td>
<td>ONTARIO POWER GENERATION INC (Nuclear/Non-Nuclear)</td>
<td>CUPE</td>
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<td>15-Apr-09</td>
<td>01-Apr-09</td>
<td>31-Mar-12</td>
<td>CONCILTN</td>
<td>36</td>
<td>Yes</td>
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<td>17.10</td>
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<tr>
<td>3.0</td>
<td>TORONTO HYDRO CORP (inside)</td>
<td>CUPE</td>
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<td>01-Feb-09</td>
<td>31-Jan-14</td>
<td>CONCILTN</td>
<td>60</td>
<td>Yes</td>
<td>PRINTER</td>
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</tbody>
</table>
## Current Collective Agreements in Ontario Utility Sector

**Sorted By RATIFICATION DATE (covering 200+ employees)**

<table>
<thead>
<tr>
<th>Employer Name</th>
<th>Union Name</th>
<th>Average Annual Base Wage</th>
<th>% Increase</th>
<th># of EEs</th>
<th>Ratification Date</th>
<th>Effective Date</th>
<th>Expiry Date</th>
<th>Settlement Stage</th>
<th>Dur of Agr (Mth)</th>
<th>COLA clause</th>
<th>OCCUPATION</th>
<th>Hrly Rates at Expiry</th>
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<tr>
<td>TORONTO HYDRO CORP (outside)</td>
<td>CUPE</td>
<td>3.0</td>
<td>05-Jan-09</td>
<td>01-Feb-09</td>
<td>01-Jan-14</td>
<td>31-Jan-14</td>
<td>CONCILTN</td>
<td>60</td>
<td>Yes</td>
<td>LABOURER</td>
<td>27.70</td>
<td>3.0* 3.0 3.0 3.0 3.0 3.0</td>
</tr>
<tr>
<td>HYDRO ONE INC (professional Supervisors)</td>
<td>ENERGY PROF</td>
<td>2.8</td>
<td>29-Jun-07</td>
<td>01-Jul-07</td>
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<td>DIRECT BARG</td>
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<td>MP2 - ASSITANT ENGINEER</td>
<td>53.70</td>
<td>3.0 3.0 3.0 2.5 2.5</td>
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*Note: * Retroactive increase effective December 22, 2008

Labour Relations Secretariat, February 22, 2012

source: Ontario Ministry of Labour
AMPCO Interrogatory #059

Ref: Exhibit F4, Tab 3, Schedule 1 Benefits

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

a) In the decade prior to 2011, please provide the date of actuarial valuations where the pension fund was in a deficit position and explain why.

b) Please provide the percentage contribution split for benefits between employee and employer for the last ten years.

c) Page 25 - OPG has a 24 month Health and Dental benefit claim window.
   i) Please confirm when the 24 month window was put in place.
   ii) Please discuss if OPG considered a window of 12 months for Health and Dental benefit claims. If not, why not.
   ii) Please discuss if OPG is aware of other public sector organizations with a 24 month claim window.

d) Page 25 - For a new employee, please discuss when employee benefits become effective.

e) Page 29 - Up to end of August 2013, the return on pension fund assets was 1.7 per cent. Please provide the return on pension fund assets at year end 2013 and explain any variances from 2012.

f) Page 31 - The evidence indicates Ex. A2-1-1, Attachment 2, which will be filed when available. Please provide an update on when this document will be available and filed.

Response

a) OPG's pension fund was in a deficit position in the two actuarial valuations for funding purposes in effect prior to 2011 but after OPG's prescribed assets became regulated. These valuations were as of January 1, 2005 and January 1, 2008. Information on valuations in effect prior to regulation is not provided. The deficit/surplus position is calculated by an independent actuary.

b) Regarding pension, as noted in Ex L-6.8-1 Staff-121 b), the current service cost employer/employee contribution ratio is approximately 3:1. Other benefits (i.e., health and dental) are by their very nature funded entirely by OPG.
c) The 24 month window was put in place for PWU and Management employees/pensioners effective January 1, 2013 and for Society employees/pensioners January 1, 2014.

ii) OPG did not consider a 12 month window as it considered 24 months to be reasonable.

ii) OPG is aware that Hydro One has a 24 month window.

d) For a new employee, Health and Dental benefits coverage become effective on the first day worked.

e) As noted in Ex. L-6.8-1 Staff-116 ad Ex. L-6.8-1 Staff-117, the pension fund returned 9.2% for calendar 2013, compared to its benchmark of 8.5%. There is no variance to explain in the case of year-over-year performance of pension fund assets, as annual returns are independent of one another. For reference, the pension fund returned 9.4% for calendar 2012.

f) The 2012 and 2011 Audited Annual Consolidated Financial Statements for the Prescribed Facilities have been filed. See Ex. A2-1-1, Attachment 2b.
AMPCO Interrogatory #060

Ref: Exhibit F4, Tab 3, Schedule 1 Compensation and Benefits

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Preamble: OPG indicates that the collective agreements with the PWU and Society contain pension and benefit clauses and pension and benefit levels for Management Group employees are determined by OPG’s Board of Directors. In a recent announcement from the Ontario Government on February 18, 2014 (see Attachment 1), the Ontario government is transitioning to a cost-sharing model whereby employees retiring on or after January 1, 2017 will pay 50% of their benefits premiums. In addition, the eligibility for retiree benefits is changing from 10 to 20 years for employees hired on or after January 1, 2017.

Please discuss OPG’s response to this announcement and how it will be considered in future collective agreement negotiations or sooner as part of management level benefits.

Response

Please refer to Ex L-6.8-1 Staff 120.
AMPCO Interrogatory #061

Ref: Exhibit F2, Tab 1, Schedule 1

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Preamble: OPG's three year staffing plan includes a 298.3 FTE reduction in regular staff during 2014 and 2015.

a) Please provide the split in FTEs between 2014 and 2015.

Response

The breakdown can be found in Exhibit F2, Tab 1, Schedule 1, Table 3. Of the 298.3 FTE reduction 175.2 FTEs are planned for 2014 and 123.1 FTEs are planned for 2015.
AMPCO Interrogatory #062

Ref: Exhibit N, Tab 1, Schedule 1, Pension and OPEB Costs

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Preamble: Page 5 - OPG indicates that in accordance with generally accepted actuarial practice, periodic comprehensive accounting valuations are performed typically at least every three years. OPG's last comprehensive accounting valuation was performed using data as at December 31, 2009 and AON and OPG determined that a new comprehensive valuation should be conducted to determine year-end 2013 obligations.

a) Please discuss if OPG believes it had discretion as to when this new valuation was undertaken and if it could have been reasonably delayed.

b) Please explain the change in the updated membership data.

Response

a) OPG does not believe it could have reasonably delayed the new comprehensive accounting valuation. The need for the valuation was determined by OPG’s independent actuary, Aon Hewitt (“Aon”), as discussed below.

Since OPG's last comprehensive accounting valuation was performed using data as of December 31, 2009, Aon expressed significant concerns regarding the risk of material inaccuracy that would be introduced in projecting data forward more than three years, in determining OPG's pension and OPRB obligations as at December 31, 2013. In addition to generally accepted actuarial practice that the maximum period between valuations should not exceed three years, Aon's reservations were amplified by the significant headcount reductions, and therefore changes to demographics and other data, experienced by OPG since the end of 2009.

Based on the above, as stated in their report on OPG’s 2014 and 2015 estimated pension and OPEB costs at Ex. N1-1-1, Attachment 1, page 3, Aon “determined that a new comprehensive accounting valuation should be conducted in 2013 using data as of December 31, 2012, including updated plan membership data, for the purposes of establishing OPG’s pension and OPRB obligations as at December 31, 2013 and, consequently, the 2014 and 2015 costs for these plans.”

As noted at Ex. N1-1-1, page 5, lines 12 - 13, “the new comprehensive accounting valuation ensures that OPG’s pension and OPEB obligations are not materially misstated.” A material
misstatement of the pension and OPRB obligations reported in OPG’s audited financial statements would not be in accordance with USGAAP. As discussed in Ex. N1-1-1, section 2.2 and as demonstrated in Chart 3 of that exhibit, the impacts of the new comprehensive accounting valuation are, in fact, material.

OPG’s auditor, Ernst & Young ("E&Y"), agreed that it was appropriate to conduct a new comprehensive valuation as determined by Aon. With respect to changes in mortality assumptions, Ex. N1-1-1, page 7, lines 19 - 20 also note that “E&Y agrees that the use of the available updated mortality is required under US GAAP.”

b) The updated membership data reflects the demographics of OPG’s pension and OPRB plan members as at December 31, 2012, including headcount reductions since December 31, 2009.
AMPCO Interrogatory #063

Ref: Auditor General’s (AG) Report – Review of OPG’s Human Resources December 2013

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

a) Page 154 – The AG Report indicates that OPG’s staffing levels have gone down by 8.5% (from about 12,100 in 2005 and to 11,100 in 2012), but the size of its executive and senior management group (directors, vice-presidents and above) has increased by 58% (from 152 in 2005 to 238 in 2012).

Please discuss how OPG is addressing the size of its executive and senior management group in this application.

b) Page 155 – Please discuss why the number of OPG employees earning more than $50,000 in overtime pay has doubled since 2003, from 260 to 520 in 2012.

Response

a) OPG has taken steps to address this. Any new or replacement position at the director level or higher must be approved by the President and CEO. Further, when any director, vice president or above position is vacated, OPG evaluates opportunities to not fill that position.

b) The majority of overtime is incurred in Nuclear and is attributed to planned and forced outages. In the last 10 years the rise in overtime earners can be attributed to:

- The return to service of Pickering Units 1 and 4 brought two additional nuclear units on line resulting in new outages for Pickering since 2003.
- The Inter Station Transfer Bus event at Pickering in 2007, that had Pickering A off line for 6 months, and the sustained outage P871 recovery in 2008 that resulted in Unit 7 being down for 6 months. Events such as these have required dedicated recovery crews that utilize overtime in order to bring the units back into service.
- Pickering Continued Operations has created additional outages for Pickering Units 5 - 8 over the 2010 - 2014 period.
- OPG bargained a new work schedule (the XYZ schedule) in the mid 2000’s which guaranteed higher fixed overtime for a commitment to work overtime during peak periods during outages. The XYZ schedule consists of 12 hours of worked time per day paid as 8 hours of straight time and 4 hours of overtime.
- The Nuclear Vacuum Building Outages happen every 12 years (DN in 2009 and PN in 2010). These outages take all units of a station off line at once, creating many planned outage days and an urgent need to work overtime to meet the schedule for bringing the station back on line.
Regular staff resources are utilized to the greatest extent possible in order to execute complex work assignments while maintaining the outage schedule. This inevitably requires overtime. OPG resources are used because they have the qualifications and experience to execute the work as efficiently as possible with the right quality.

Work conditions can also complicate the execution of work where high radioactive fields limit the time that workers can be exposed, requiring rotating shifts to enter fields for short durations at a time. In addition, even with the best planning, unforeseen equipment conditions can arise during an outage that can result in overtime. Planning and executing outages requires OPG to balance the use of the various resources types (regular, temp, contractor, overtime). Foregone production resulting in lost revenue at approximately $0.8M/day for Pickering and $1.2M/day for Darlington needs to be weighed against the cost of overtime.
CCC Interrogatory #020

Ref:

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

On December 10, 2013, the Auditor General of Ontario issued her 2013 Report. In Chapter 3 of that Report the Auditor General set out a series of key findings and recommendations. For each of the recommendations please file an updated, detailed response as to how OPG is addressing the concerns expressed by the Auditor General. Please indicate to what extent the initiatives OPG will be undertaking in response to the Auditor General’s Report may impact the 2014-2015 payment amounts.

Response

See Ex. L-1.0-3 CME-001.
**CCC Interrogatory #021**

**Ref:**

**Issue Number:** 6.8  
**Issue:** Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

**Interrogatory**

On December 10, 2013, the Government of Ontario announced it would be introducing legislation to reform pensions at OPG and other public entities. What is the status of that legislation? To what extent could it impact the 2014 and 2015 payment amounts?

**Response**

The legislation has not yet been introduced. Accordingly, OPG is not in a position to determine whether there are any impacts on the 2014 and 2015 payment amounts.
**CCC Interrogatory #022**

*Ref:* Ex. A1/T3/S1/p. 6

**Issue Number:** 6.8

**Issue:** Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

**Interrogatory**

OPG has indicated that through the BT initiative it has put in place a framework that will allow OPG to reduce its headcount through attrition by 200 employees by the end of the test period, resulting in a reduction to OM&A of $700 million between 2011 and 2015. Please provide a detailed calculation for the $700 million. How will it impact the 2014 and 2015 payment amounts?

**Response**

The interrogatory mistakenly refers to a headcount reduction of 200. The correct number is 2,000, and refers to headcount reductions for all of OPG.

The estimate of savings of $700M is based on assumed headcount departures through time and the resulting savings in labour costs, including salary and benefits. The savings in the year that an employee leaves are assumed to be one half of the full year savings. This reflects that, on average, employees leave uniformly over the year. In all years following the year of an employee’s departure, the full value of the savings is included for that employee each year. The calculation also includes certain costs of the unregulated business. The chart below provides the calculation of the savings. The chart is provided in confidence as it includes figures relating to OPG’s unregulated operations.
The regulated portion of the above savings shown for 2014 and 2015 was reflected in OPG 2013 - 2015 Business Plan and, therefore, is incorporated into the test period revenue requirement. In the absence of these savings, the test period revenue requirement would have been higher. The regulated portion of the 2014 and 2015 savings are approximately $150M and $190M and the corresponding headcount reductions are 250 and 225 respectively.

### CALCULATION OF SAVING FOR HEADCOUNT FROM ONGOING OPERATIONS

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<td>Net Total</td>
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</table>

**Note:**

1.) Headcount information is stated at year-end
CCC Interrogatory #023

Ref: Ex. A1/T3/S1/p. 6

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

The evidence states that OPG cannot unilaterally reduce the compensation of its represented employees nor make staffing reductions affecting its represented employees beyond those permitted by its collective agreements. Within the constraints of these agreements, OPG has adopted a “net zero” mandate in its recent collective bargaining negotiations with the PWU and the Society.

a) When were the most recent collective agreements entered into? How long are those current agreements in place?
b) Please explain what a “net zero” mandate is.
c) Has the Government of Ontario provided any directions regarding OPG’s collective agreements?

Response

a) The current collective agreement with the PWU covers the period from April 1, 2012 to March 31, 2015. The agreement was entered into on March 20, 2012.

   The current collective agreement with the Society covers the period from January 1, 2013 to December 31, 2015. This agreement was imposed through binding arbitration. The arbitrator’s order was issued April 8, 2013.

b) A “net zero” mandate is intended to achieve collective agreements with no net increase in compensation, meaning any increases have to be offset with corresponding savings.

c) Yes. The Government issued its expectations to OPG throughout 2012. Please refer to Ex. L-6.8-1 Staff-102, Attachments 5 and 6.
CCC Interrogatory #024

Ref: Ex. F4/T4/S1/p. 5

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please provide a complete detailed description of all of OPG’s policies regarding performance incentives. For each year in the last five-year period please provide a list of overall performance incentives paid out in each employment category. Please include the number of employees in each of those categories.

Response

OPG’s current performance incentives are the Annual Incentive Plan (“AIP”), applicable to all management group employees and a limited incentive applicable to Authorized Nuclear Society, PWU and Management employees. Historically, we have had the Society Award for Performance (“AFP”) and the PWU Goal Sharing program; however both of these programs were suspended, in 2011 and 2012 respectively.

Descriptions of the Annual Incentive Plan (“AIP”), Award for Performance (“AFP”), and Goal Sharing are proved as Attachments 1, 2 and 3, respectively.

The incentive for Authorized Nuclear Society, PWU and Management employees is based on station specific results in key performance areas which are managed and measured locally. Authorized Nuclear Management employees have an opportunity to earn up to 10% of base pay, dependent on results, and Authorized Nuclear Society and PWU employees have an opportunity to earn up to 8% of base pay dependent on results.

Further details surrounding the Authorized Nuclear Society results-based payment are contained in the Society Collective Agreement, specifically in Letter of Understanding (“LOU”) 174, which can be found in Ex. L-06.8-1 Staff-101 d).

Further details surrounding the Authorized Nuclear PWU results-based payment are contained in the PWU Collective Agreement, specifically in Midterm NUC-R-1016-2, section 3, which is provided as Attachment 4.

Attachment 5 provides a list of overall performance incentives paid out in each employment category, as well as the number of employees who received payments in each of those categories, for each year in the last five-year period.
Annual Incentive Plan

Effective January 1, 2010
Plan Overview

In 2010, Ontario Power Generation’s (OPG) Board of Directors (“Board”) approved revisions to the Annual Incentive Plan (“Plan”) for Management Group Employees. The Plan revisions help to reinforce OPG’s performance driven culture.

The intent of the Plan is to deliver a portion of total compensation paid to Management Group employees on a pay-at-risk basis. Under the Plan, eligible employees can earn annual cash rewards if key financial and operational objectives of the Corporation, Business Unit and individual are met during the Plan year.

The Corporate Scorecard outlines OPG’s performance priorities for the year to support the Corporation’s short and long term business strategies and value creation. Under the new Plan, there will be five major scorecards — one for Corporate (OPG level) results and one each for Nuclear, Hydro and Thermal, and the aggregate Corporate Functions, referred to as Fleet scorecards. Corporate Functions staff who are dedicated to supporting Nuclear, Hydro or Thermal will use their client’s Fleet scorecard.

Individuals will also each have a scorecard and performance scores will continue to be based on the manager’s assessment of the individual’s performance. Individual performance will take into consideration the achievement of results against predefined deliverables, aligned with the business and corporate objectives, and other factors deemed appropriate by the manager.

All scorecards, whether Corporate, Fleet or Individual, will consist of approximately five performance objectives. The performance objectives are to be as quantifiable and as easily measurable as possible, and should be aligned with higher level scorecards wherever possible. Corporate goals will drive Fleet goals, which will drive Individual goals.

While continuing to reward individual achievement, the Plan encourages team efforts which link results to Corporate, Business Unit and Individual goals, as applicable. An overall zero score on any scorecard causes all affected staff to receive zero award. If the Corporate score was zero no one would receive an award. If a Fleet score was zero, no one in the Fleet would receive an award and if an individual’s score was zero, that individual would not receive an award.

An overview of the Plan, with a table outlining incentive opportunities and weightings, and sample AIP calculations are provided for your information and reference. Further information is available on the Human Resources web site (http://corpap05p/OntarioPowerGeneration/Documents/Content/Human%20Resources/Compensation/)

Effective Date

This Plan is effective January 1st, 2010. The Plan covers the assessment of performance and determination of awards for a calendar year (i.e. January 1 to December 31).
### Amendment and Termination

The Corporation reserves the right to amend the Plan in whole, or in part, or to terminate the Plan at any time. On termination of the Plan, all rights under the Plan shall cease, except with respect to any incentive awards authorized by the Board for payment prior to the date of Plan termination.

### Annual Incentive Opportunity

Incentive opportunity varies by salary band and is expressed as a percentage of annual base salary. The amount of an individual's incentive award will depend on Corporate performance, Fleet performance and the manager's assessment of individual performance.

Corporate and Fleet performance will impact awards by establishing the size of the pots available for awards, but do not form part of an individual's award.

- The size of the Corporate AIP Pot fluctuates directly with the Corporate score and the Corporate Pot sets an upper limit on how much can be distributed as awards.
- Once set, the Corporate AIP Pot is distributed to Fleets where it is adjusted by the Fleet score. The Fleet Pots may be calibrated to ensure the Corporate Pot is not exceeded. The resulting Fleet Pots set an upper limit on the awards available to staff in that Fleet.

### Eligibility

Regular employees who are incumbents of positions in the Management Group during the calendar year are eligible to participate in the Plan. However, excluding retirement, death or disability, only those who are active employees of the Corporation on December 31 of the Plan year, are eligible to receive an incentive award.

Where an employee changes base positions during the year, his/her eligibility for AIP is pro-rated.

To determine the individual incentive, each goal on an individual scorecard is first rated on a four point scale: 1 = does not meet expectations; 2 = meets expectations; 3 = exceeds expectations; and 4 = significantly exceeds expectations. Scores for all goals on an individual's scorecard are averaged, incorporating weighting, to arrive at an overall score of between 1.0 and 4.0.

The manager uses these averaged results along with managerial judgment to place employees into one of five performance categories: 0 = does not meet expectations; 1 = meets most expectations; 2 = meets all expectations; 3 = exceeds expectations; and 4 = significantly exceeds expectations.

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**Figure 1 outlines the available opportunity for each band level based on performance category. This table assumes the Corporation and all Fleets achieve target performance.**

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<th>Performance Category</th>
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Scorecards, Performance Measures, Weightings and Award Distribution

Scorecards
The Plan has three key components: Corporate; Fleet (including Nuclear, Hydro, Thermal and Corporate Functions); and Individual performance.

1. Corporate – The Corporate scorecard includes measures that the President and Board agree are key OPG objectives for the plan year. The Board assesses the overall annual Corporate Performance to provide a Corporate score.

2. Fleet – Scorecards for each of the Fleets contain measures/targets to address the key business objectives for the Fleet and to support Corporate Objectives. Fleet measures and targets are reviewed and approved by the President and CEO. Fleet results will be reviewed, adjusted as needed and approved by the President and CEO. Fleet scores may be adjusted at the discretion of the President and/or the Board.

3. Individual – Individual goals for the plan year are to be set by the end of the previous year by employees and their manager in an individual performance contract. These goals are in part aligned with the initiatives and objectives established for the Fleet, but are also related to the leadership behaviors expected of management group employees. At year-end, results are assessed by the manager and a performance rating determined.

Before the individual performance ratings are communicated to employees and awards are finalized, ratings will be reviewed, first at the Fleet level and then at the Corporate level. This review will consider the reasonableness of the ratings in general and ensure consistency against the overall Fleet performance.

Determination of AIP Budget

The AIP budget is determined through the following process:

Step 1: Establish the Corporate AIP Pot
- Initial Corporate AIP budget is established by assuming the Corporate and Fleet results are at target and all individual results are at 2 (meets expectations).
- The Corporate score is used to adjust the AIP Budget up or down to reflect Corporate Performance and the result is the current year Corporate AIP Pot.
- The Corporate AIP Pot sets an upper limit on how much we can spend on AIP awards.

Step 2: Establish the Fleet AIP Pot
- The Corporate AIP Pot is pro-rated based on numbers of staff and salaries to provide each Fleet with their own Fleet AIP budget.
- The Fleet AIP budgets are adjusted up or down by the Fleet scores to reflect Fleet performance and arrive at the Fleet AIP Pots.
- The Fleet’s AIP Pot sets an upper limit on how much a Fleet can spend on their individual AIP awards.

Step 3: Adjust the Fleet AIP Pot (if needed)
If the sum of the Fleet AIP Pots exceeds the Corporate AIP Pot the Fleet Pots would be adjusted down proportionally to ensure the Corporate AIP Pot is not exceeded.

Step 4: Determine the Individual Awards
Once the Fleet AIP Pots are set, an individual’s performance category is used to determine their preliminary AIP
award using the table presented in Figure 1.

The Fleet must stay within its AIP Pot, so if the total of preliminary individual awards exceeds the Fleet’s Pot, all awards within that Fleet would be adjusted down proportionately to stay within the Pot and arrive at final awards.

**Sample Individual Calculation**

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</tr>
<tr>
<td>Eg 1: Total of Nuclear AIP Pot</td>
<td>$16.7M</td>
</tr>
<tr>
<td>Eg 1: Total of Nuclear Preliminary Individual Awards</td>
<td>$23.9M</td>
</tr>
<tr>
<td>Eg 2: Total of Nuclear AIP Pot</td>
<td>$24.9M</td>
</tr>
<tr>
<td>Eg 2: Total of Nuclear Preliminary Individual Awards</td>
<td>$23.9M</td>
</tr>
</tbody>
</table>

The following sample Individual calculation makes the following assumptions:

If a Band H employee, with an annual salary of $100,000, receives an individual performance category rating of 4 (significantly exceeds expectations), they would be eligible for an AIP award percentage of 22.5% (see Figure 1).

That would result in a preliminary award of $22,500, assuming Corporate and Fleet scores are at target and the total of individual awards within the Fleet can be accommodated within the Nuclear Fleet’s AIP Pot.

In Example 1, the Nuclear AIP Pot is $16.7M which is not enough to pay the 23.9M of preliminary awards. The AIP Pot is only 70% of the total of all the preliminary individual awards so Nuclear can only afford to pay 70% of each award. This 70% is the “Fleet Adjustment Factor” and is the ratio of the Fleet’s AIP Pot to the total of Fleet’s preliminary AIP awards. In this example, the final individual award amount is reduced to 70% of the preliminary $22,500 or $15,750.

| Preliminary Award = (Base Pay x Performance Category’s AIP Award Percentage) |
|--------------------------|--------------------------|
| $100,000 x 22.5% = $22,500 |

Final Award = Fleet Adjustment Factor x Preliminary Award

In example 2, the Nuclear AIP Pot is $24.9M which is larger than the sum of the preliminary Nuclear awards ($23.9M). In this case Nuclear has enough funds to pay their awards with no adjustment and the individual would receive the full $22,500.
Payment of Incentive Awards

- Awards will be paid following approval by the Board and generally paid early in the year following the Plan year.

- Applicable taxes will be withheld from the incentive award payment.

- For all Management Group employees, a portion of the annual incentive award is pensionable. The pension contributions are withheld at source.
  - For employees in Bands A-H who participate in the Supplementary Payment Schedule (original supplementary pension plan), your pensionable earnings include up to 5% of your annual base salary (based on the amount of your AIP award) in the year it is paid.
  - For employees in Bands A-H who participate in the Executive Supplementary Payment Schedule (plan introduced in 2000), your pensionable earnings used to determine your total pension benefit is the lesser of the AIP paid or the target AIP percentage of your annual base salary averaged over one’s best three consecutive years.

Administration

- The President and CEO is responsible for establishing the policies and procedures for operating and administering the Plan. The day-to-day administration of the Plan is delegated to the SVP of Human Resources. Further Plan and administration details are included in the Plan document.
Employee Briefing

Award For Performance (AFP) Plan for Society Represented Staff

The Performance Recognition Plan (PRP) for Society represented employees that was used last year has been revised. The changes, outlined below, have been made to respond to input from Society represented staff and managers, and to help grow our performance culture. We encourage you to become familiar with the changes and understand how you may be affected.

<table>
<thead>
<tr>
<th>What’s new</th>
<th>What stays the same</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Now called Award for Performance (AFP) plan</td>
<td>■ The current Performance Planning and Review process (PPR) and individual performance objectives remain unchanged</td>
</tr>
<tr>
<td>■ No longer limited to top 30% of employees</td>
<td>o Performance objectives are set, monitored and assessed the same way</td>
</tr>
<tr>
<td>■ Most employees are now expected to receive an award therefore, the individual awards will be smaller than in previous years</td>
<td>o Employee performance goals do not need to be changed</td>
</tr>
<tr>
<td>■ There is no longer a Goalsharing program for Society represented employees. The funding from this program is now part of the AFP and will be combined with funding from the former PRP.</td>
<td>■ Awards are based on an individuals relative performance compared to their peers</td>
</tr>
<tr>
<td>■ There is no distinction in awards between supervisors and non-supervisors</td>
<td>■ Awards are expected to be distributed in February/March</td>
</tr>
<tr>
<td></td>
<td>■ Goalsharing for PWU represented employees remains the same</td>
</tr>
</tbody>
</table>

How is the AFP Funded?
The overall AFP budget is equal to the former Performance Recognition Plan budget plus the portion of Goalsharing for Society represented employees. Each Business and Corporate Function (Nuclear, Fossil, Finance, etc.) receives a prorated share of this budget based on their number of eligible Full Time Employees (FTEs). Their budget is then adjusted for scorecard results (using the same scorecard as PWU Goalsharing and Management AIP) to arrive at a pot for distribution.

How is my Award Determined?
The amount of your award is influenced by two factors:

1. Your relative performance – Managers will assess the relative performance of their staff using PPR results as an input and assign employees to one of four award categories (A, B, C, D). The amount of the award is different for each of these categories:
   ■ A = Three times the basic award (“Basic” is generally expected to be similar to the former Goalsharing amount)
   ■ B = Two times the basic award;
   ■ C = The basic award (As above, the “Basic Award” is generally expected to be similar to the former Goalsharing amount);
   ■ D = No award

2. Your Organization’s distribution of performance - Because the funding pot for each organization is set, the amount of the Basic award will vary depending on how many staff your organization allocates to each award category.
   ■ The distribution may vary by organization and, although not set in stone, it is estimated that 30% of staff will receive an A award, 65% will receive a B award, and 5% will receive the basic C award. Employees whose performance is being managed due to unacceptable performance may not receive an award (Category D).

What happens next
The revised Plan is being introduced now and is in effect for the 2008 performance year. You do not need to take any action as a result of these changes. There will be no changes to the Performance Planning and Review (PPR) process and you do not need to adjust your performance goals. Awards are expected to be distributed in February/March 2009. This plan is independent of collective agreement provisions and is not grievable.

For more information
If you would like more information about the AFP, please contact your HR consultant or refer to the HR/Compensation website [Need to add a link here].
1. PRINCIPLES AND OBJECTIVES

General Principles

Goalsharing is an annual incentive plan which enables OPG employees to share in the gains realized when OPG meets or exceeds its business targets.

Goalsharing is operated under the philosophy of the partnership process. It is not part of the contractual relationship between OPG and its unions and is outside our collective agreements.

Plan Mission & Objectives

The Goalsharing mission is to ensure employees’ and OPG’s future to contribute to OPG’s business success with employees through the following objectives:

- To share OPG’s business success with employees.
- To enhance employee understanding of our business.
- To engage employees in OPG’s business and encourage employees to believe their contributions can make a difference.
- To foster a productive relationship and sense of partnership between OPG Management and the Power Workers’ Union.

Eligibility for Goalsharing

PWU-represented employees are eligible, except as follows:

- Participants terminated for cause.
- Participants that the union and management have jointly elected to exclude, e.g., those covered by other specialized incentive plans within the collective agreements.
- Participants voluntarily resigning from OPG.

The following employee categories are excluded from Goalsharing:

- Independent contractors or employees performing contracted work.
- Probationary/temporary employees who do not become regular employees during the Plan year.
- Management Group employees (i.e., non-represented staff).
- Building Trade Union’s (BTU) (including Appendix A, Chestnut Park and EPSCA).
2. HOW THE PLAN OPERATES

Goalsharing is based on a performance scorecard which is tied to key Fleet results in areas such as cost of electricity, commercial availability of generation assets, and generation output.

Each Fleet will have a performance scorecard representing performance at the Fleet level and is based on the Management Group Annual Incentive Plan Fleet scorecard. The scorecard will consist of one or more measures. Each measure will have a target. Each measure will be scored on a scale of 0 to 1.0 with 1.0 reflecting target performance.

An overall performance score for each Fleet will be calculated as a weighted sum of the individual performance scores.

Disbursement and Allocation of the Award

The Goalsharing awards are distributed as follows:
• 100% of the Goalsharing opportunity is allocated to each site based on the number of eligible full time employees (FTEs) in that Fleet, calculated on a full or part share basis. The actual payout at each Fleet is adjusted according to the Fleet’s performance score – i.e. if the site score is 50 out of 100, one half of the amount allocated is disbursed. The remainder which is not paid out returns to OPG.
• The Goalsharing awards are distributed following the end of the calendar year (typically in the first quarter of the next year).

Pro-ration of Individual Opportunity

Full Share Amount: Corresponds to 100% eligibility for participants. To receive a full share, participants must have worked the full plan period and maintained acceptable status over the year.

Pro-ration: An individual’s share, for purposes of Fleet funding allocation and individual disbursement, will be prorated under the following conditions:

• Permanent Transfer
  • In or out of PWU jurisdiction as a result of an appointment to a base position. (Prorate effective beginning on date of transfer).

• Temporary Transfer within the Goalsharing plan
  • Continuing Goalsharing participants who have transferred on a temporary or permanent basis to a different Fleet for over 13 continuous weeks will receive prorated payouts from each applicable Fleet that exceeds 13 weeks during the plan period. If the 13-week requirement is not met, the payout will continue from the previous or subsequent site that does exceed 13 weeks during the plan year.
• **Temporary assignment into/out of Goalsharing-eligible positions:**
  - Employees on relief/rotation to positions covered by another incentive plan will remain eligible under the incentive plan applicable to their base positions regardless of the length of the rotation/relief assignment.
  - Employees who are members of another incentive plan in their base position and who are on relief/rotation into positions covered by the Goalsharing plan will not be eligible for Goalsharing. They will remain eligible for the incentive plan applicable to their base position regardless of the length of the rotation/relief assignment.

• **Spin-off, Decontrol, Retirement, Death:**
  - To other decontrol/spin-off company.
  - Participants terminated pursuant to Article 11 (PWU) and other negotiated termination arrangements.
  - Retirement.
  - Death (payment made to beneficiary or estate as appropriate).

• **Absence:**
  - If you are absent from work and not performing your duties for a maximum 90 consecutive calendar days, for any reason including extended sick leave (not LTD) or maternity/parental leave, you will be eligible to receive Goalsharing for this period. However, starting on the 91st consecutive calendar day of a paid leave of absence, you will not be eligible to receive Goalsharing from that point until you return from the leave. Goalsharing will be pro-rated to exclude the period starting from your 91st day of absence until you return to normal duties.

• **Reduced hours:**
  - part-time/regular seasonal employees (prorate calculated as scheduled reduced hours/full-time hours).

• **Probation:**
  - Employees including those hired directly from employment as BTU/Appendix A/Chestnut Park Accord, on probation/temporary who become regular employees during the performance year will receive a prorated payout based on date of most recent hire. Probation/temporary service (within the plan year) prior to status change from temporary to regular will be included for calculation purposes.

On application and following review of the particular circumstances, the Corporate Goalsharing Design Team may make exceptions to the eligibility/pro-ration rules on a case-by-case basis.

Note: Prorated payouts are rounded to the nearest full day.
3. MANAGEMENT ACCOUNTABILITIES

OPG in its sole discretion is responsible for:

- Establishing the mandatory performance measures and target performance levels for the Fleet scorecards.
- Determining the year-end results and performance score, subject to audit where appropriate.
- Resolving matters where the Goalsharing Design Team is unable to reach agreement.

4. TRIPARTITE OVERSIGHT COMMITTEE

Members of the OPG Executive Committee, together with Executives from the PWU, will meet as required to lead and provide direction to the Goalsharing process. The role of this team is:

- To ensure that the Goalsharing process is fulfilling its objectives and contributing to OPG’s business success.
- To address issues with respect to the ongoing nature and funding of the Goalsharing program.
- To receive and address recommendations from the Goalsharing Design Team with respect to plan design.

5. GOALSHARING DESIGN TEAM

The Goalsharing Design Team is a tripartite team responsible for oversight and decision making in administering the annual program cycle. The role of the team includes:

- Monitoring and supporting the operation of the plan, and making recommendations to the Tripartite Oversight Team regarding plan design.
- Reviewing and deciding on approval of the year-end Fleet scorecard results.
- Reviewing and approving requests from Fleet teams to adjust Fleet targets and measures during the plan year.
- Reviewing and resolving individual requests with respect to the structure of Fleet teams, individual site membership, and pro-ration of individual amounts.

Membership of the Design Team will include representatives from the PWU, representatives from key Business Units, and resource and functional staff.

6. FLEET GOALSHARING TEAMS

The Site Goalsharing Committee is responsible for implementing and promoting the Goalsharing program at the Fleet. The Fleet team supports the local senior manager in setting and achieving targets and initiatives. The Fleet team operates according to the Partnership philosophy and agreement. Accountabilities for the Fleet Goalsharing Team include:
• Support the Senior Fleet Executive in developing local initiatives, and preparing the draft Fleet scorecard and forwarding it to the Goalsharing Design Team for approval.
• Communicate the approved scorecard to employees.
• Maintain employee knowledge and awareness over the plan year, including quarterly or monthly reporting of results.
• Ensure tracking systems for Fleet measures are in place and are functioning effectively.
• Support local initiatives and efforts to advance the Fleet goals.
• Submit draft year-end results to the Goalsharing Design Team for approval.
• Review the Fleet program’s operation on an ongoing basis, assess and remove barriers to success, and find ways to improve it.

Approval of Results

Each Fleet scorecard must be verified and approved by OPG management and reviewed with the PWU. Each payout is subject to audit review as appropriate.

Goalsharing Fleet Structure

Goalsharing Fleet assignment is determined based on organizational structure. For 2010, the following four Goalsharing Fleets have been established:

<table>
<thead>
<tr>
<th>Nuclear Fleet</th>
<th>Hydro Fleet</th>
<th>Thermal Fleet</th>
<th>Corporate Function Fleet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darlington New Nuclear Project</td>
<td>Niagara</td>
<td>Lambton</td>
<td>Business Services &amp; IT</td>
</tr>
<tr>
<td>Nuclear Refurbishment Projects &amp; Support</td>
<td>Northeast Plant Group</td>
<td>Lennox</td>
<td>Corporate Law</td>
</tr>
<tr>
<td>Pickering A</td>
<td>Northwest Plant Group</td>
<td>Nanticoke</td>
<td>Office of the Corporate Secretary</td>
</tr>
<tr>
<td>Pickering B</td>
<td>Ottawa/St. Lawrence Plant Group</td>
<td>Northwest Plant Group</td>
<td>Corporate Affairs</td>
</tr>
<tr>
<td>Darlington</td>
<td>Central Hydro Plant Group</td>
<td>Programming &amp; Support Services</td>
<td>Finance</td>
</tr>
<tr>
<td>Engineering</td>
<td>Dam Safety &amp; Emergency Preparedness</td>
<td>Generation Development</td>
<td>Human Resources</td>
</tr>
<tr>
<td>Nuclear Waste Management</td>
<td>Environment</td>
<td>Supply Chain</td>
<td>Corporate Business Development</td>
</tr>
<tr>
<td>Performance Improvement &amp; Nuclear Oversight</td>
<td>First Nations &amp; Metis Relations</td>
<td>Thermal Environment</td>
<td></td>
</tr>
<tr>
<td>Supply Chain</td>
<td>Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuclear Programs and Training</td>
<td>Business Services &amp; Water Resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supply Chain</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydroelectric Development</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7. OTHER PROVISIONS

- The distribution of the award will occur following the end of the performance period (i.e., following the end of the year) once results are approved.
- Goalsharing payouts are non-pensionable and are not part of base salary for any other purpose.
- Goalsharing payments are subject to statutory deductions and are considered to be “income” with respect to statutory obligations.
- If the plan causes serious dysfunction (e.g., AECB intervention, threats to operating license, etc.), or results in threats to safe operations, the plan may be revoked at any time either in part or as a whole by the Partnership Steering Committee.
- Measures and targets – may be adjusted by OPG during the year if there are significant changes to the business direction or priorities. Adjustment to Fleet scorecards may also be requested by the site team for review and approval by the Goalsharing Design Team.
- OPG in its sole discretion may adjust results and performance scores, to address unforeseen or extraordinary business events.
- The Goalsharing Plan is not part of the collective agreements between OPG and the Power Workers’ Union. The Plan may be cancelled by OPG at any time.
Mid-Term Agreement

Number: NUC-R-1016-2

Original Date: 01/30/2002
Revision Dates: 04/10/2006
Last Revised: 09/18/2006
Obsolete Date: 

It is jointly agreed that the following Mid-Term Agreement shall form part of the Collective Agreement between the parties:

Authorized Nuclear Operators

1. Effective January 1, 2002 amend Appendix 6 of the OPG/PWU Memorandum of Agreement dated September 4, 2001 to provide an economic increase of 2% of the 2001 base rate. For clarity this is an advancement of the increase which was due April 1, 2002. It is not an additional increase.

2. ANO’s/CRO’s may be assigned to PWU supervision, coordination as well as the additional duties as listed in table 1 and table 2 of Attachment #1 without additional compensation.

In consideration of the above, effective January 1, 2002, all ANOs/U0CROs will receive an additional increase in base hourly rate of 5% for the performance of the duties listed in table 1 of Attachment #1. Effective January 1, 2003, the ANOs/U0CROs will receive an increase in base hourly rate of 5% which is non compounded for the performance of the duties listed in table 2 of Attachment #1.

All other economic increases as per the OPG/PWU Memorandum of Agreement dated September 4, 2001 will apply.

3. All currently certified ANOs/U0CROs will have a new performance plan totaling up to 8% yearly base pay as per Attachment #5 and summarized as follows:

a) ANOs/U0CROs will receive a lump sum performance pay bonus up to 8% of yearly base pay that is based on meeting/exceeding targets and is not guaranteed.

b) The bonus will be paid as soon as practical in January each year starting in 2003.

c) The bonus will be calculated as a % of yearly base pay equal to the % value earned X 52.1786 X 40 hours per week X applicable hourly rate(s) for the year.

d) The targets will be measured from January 1st through December 31st of the performance year (starting with January 2002 to December 2002).

e) Decisions about the measurement and assignment of values to each performance area for individuals and for the group will be made by the local “ANO and U0CRO Issues Team” as established in #4 below. When agreement cannot be reached by the team the matter will be referred to the Director of Operations and Maintenance and the PWU sector rep who will endeavor to resolve the matter. Failing a joint resolution the final decision will be made by the Site VP.

f) In years where at a particular station a performance area can not be measured e.g. there is no WANO or OSART peer review, the potential bonus payment for that area “targets” and “exceeds
target” will be split, into equal fractional portions, between all other area “targets” and “exceeds target” values. This will include into each individual re-certification tests for that year.

g) The plan will not be subject to the grievance procedure.

4. Joint committees “ANO and UOCRO Issues Teams” will be structured to resolve outstanding issues. A Terms of Reference is attached as Attachment # 2.

5. It is recognized that the ANO/CRO positions contain supervisory duties.

It is agreed ANOs/CROs are not eligible for payments under Article 8.9.1, 8.9.2 and 8.9.3 of the OPG/PWU Memorandum of Agreement dated September 4, 2001. Part G item 13 will still apply for any applicable jobs that are not in Attachment 1, Table 1 or 2.

6. Revise Mid-Term R169-4 as attached in Attachment #3, Mid-Term R-116-5 as attached in Attachment #4 and delete Mid Term R-1008

7. The ANO/UOCRO Issues Teams will develop a “Staffing of Rotational Positions Policy”

8. Articles 12 (PSA), 13, 14, Mid terms PW 2, PW-12, PW-46-1 (including Appendix A) are suspended for work normally performed by certified ANOs and Certified U0CROs. The elimination of the PSA agreement as described will be limited to the following:

- Effective January 1, 2002, no existing Certified U0CROs or Certified ANOs or existing employees who become Certified U0CROs or Certified ANOs will lose employment as a result of the above suspensions of articles or Midterms described.

9. The PWU will ensure that ANO’s/U0CRO’s will work during the currency of a legal strike. Prior to the commencement of any legal strike, management and the PWU will jointly contact the ANO’s/U0CRO’s to advise them of the work schedule and the terms and conditions upon which the ANO’s/U0CRO’s will work during the currency of the strike. Once the legal strike commences, the PWU will then enter into a written agreement with OPG which will at least contain the terms and conditions set out below:

a) The units are shut down prior to the commencement of a strike.

b) The ANO/U0CRO’s duties shall include monitoring the units and authorizing work to maintain them safely in the guaranteed shut down state.

c) The ANO/U0CROs maintain their normal shift schedules and that G Crew ANOs and U0CROs will be assigned to shift crews as required.

d) It is understood the OPG and the PWU have a shared responsibility to ensure that the ANOs/CROs have safe entrance and egress from the nuclear facilities. The PWU will ensure ANOs/U0CROs are able to cross the picket line.

10. On successful completion of the ANOIT training program, trainees will be automatically placed in ANO positions. On successful completion of the CROIT training program, trainees will be automatically placed in U0CRO positions.
11. The company shall provide control room clothing for the ANO's/CRO's and they will be required to wear this clothing while on duty or while assigned to the simulator. The local ANO/CRO issues team will recommend the style and color options of control room clothing.

12. Any existing compensation grievances/arbitration's with regards to ANO/CRO's and grievance # OPG-NO-157 are deemed to be withdrawn. Such withdrawals are without prejudice to either parties positions regarding the merits of the cases.

13. Due to essential nature of the ANO/U0CRO positions there is a requirement for ANOs/U0CROs to work overtime to meet staffing requirements in support of station work programs. In administering overtime the company will seek to minimize disruptions to ANOs and U0CROs personal lives. Consequently the company will seek to distribute overtime on a voluntary basis among those who are willing to volunteer.

The “ANO/U0CRO Issues Teams” will work to ensure that reasonable overtime requests for Certified ANOs and Certified U0CROs are filled.

In the event that overtime cannot be filled on a voluntary basis, OPG will require individual ANO/CRO to work overtime up to 60 hours per week and the union agrees on behalf of the ANOs/CRO's that notwithstanding an employees regular hours of work, they may be required to work up to 60 hours per week in accordance with the Employment Standards Act subject to the following limitations:

This forced overtime:

- is to be limited for re-filling scheduled or prearranged control room crew ANO/U0CRO positions that have become vacant during an outage condition, during unit startup or during unit shutdown,
- is to be limited to 2 non-consecutive occurrences of forced overtime per ANO or U0CRO per calendar year, and
- is to be equitably distributed amongst the Certified ANOs and/or U0CROs (as applicable).

Nothing in this agreement alters any other provision of the Employment Standards Act.

14. All PNGSA certified ANOs will receive a one time $4,000.00 lump sum non-pensionable payment for the completion of PARTS training and the removal of the U4 GSS. An employee will receive the bonus if at the removal of the GSS they have not completed the training through no fault of their own.

15. Clarification "Of The Definition For Which Day Is Considered The Initial Certification Date For ANOs And U0 CROs"

Rationale:

The company's objective is to ensure that employees obtain their certification from the CNSC in a timely way after successfully completing their interview. The definition of which day is the initial certification date will be changed to ensure fair treatment of employees, and to minimize financial penalties which can be created by situations beyond the control of the Company.

Definition Initial Certification Date
The ANO or U0 CRO initial certification date will be the sooner of:
- In any month but December, the sooner of either:
  - the twenty-eighth day following the day the individual successfully completes the final certification interview or
  - the day the individual is actually certified.
- In December, the sooner of either:
  - the fourteenth day following the day the individual successfully completes the final certification interview or
  - the day the individual is actually certified.

The ANO of U0 CRO individual will not actually be paid until the CNSC certification letter arrives. However, if/when the letter arrives, he/she will be paid as a certified individual back to this date defined above.

Further, this date defined above will be considered to be the day that the individual became certified and will be used, as such, in the calculation of all certified related compensation and security for the ANO or U0 CRO; including ANO/CRO Service Years and Retention Years.

16. The changes to this mid-term effective the date of signature apply retroactively to January 1, 2006.

[Signatures]

[Signature]

Ontario Power Generation Inc. Nuclear

POWER WORKERS’ UNION

19 Sep 06

DATE
### Attachment 1

#### Table #1
ANO/U0CRO Job List (Jan.1/2002)

<table>
<thead>
<tr>
<th>#</th>
<th>Job Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Participation in staff selections</td>
</tr>
<tr>
<td>2</td>
<td>Any Band 1, 2 or 3 position</td>
</tr>
<tr>
<td>3</td>
<td>Operations Specialist</td>
</tr>
<tr>
<td>4</td>
<td>OPEX/Upgrade training/required reading Coordinator</td>
</tr>
<tr>
<td>5</td>
<td>Work Protection Code Coordinator</td>
</tr>
<tr>
<td>6</td>
<td>IPTE Coordinator</td>
</tr>
<tr>
<td>7</td>
<td>Maintenance Authority for Work Protection</td>
</tr>
<tr>
<td>8</td>
<td>Engineering, Maintenance or other procedures group advisor</td>
</tr>
<tr>
<td>9</td>
<td>ANOIT (CROIT) mentor</td>
</tr>
<tr>
<td>10</td>
<td>ANOIT (CROIT) selection team member or leader</td>
</tr>
<tr>
<td>11</td>
<td>Outage ANO</td>
</tr>
<tr>
<td>12</td>
<td>Work Control Area ANO</td>
</tr>
<tr>
<td>13</td>
<td>Assessing/IPG team member</td>
</tr>
<tr>
<td>14</td>
<td>Documentation/Procedures/Standards team member or leader</td>
</tr>
<tr>
<td>15</td>
<td>Self assessment/Corrective Action/Root Cause team member or leader</td>
</tr>
</tbody>
</table>

#### Table #2
ANO/U0CRO Additional Job List (Jan.1/2003)

<table>
<thead>
<tr>
<th>#</th>
<th>Job Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Training Duties (see note 1)</td>
</tr>
<tr>
<td>2</td>
<td>Work Week Leader</td>
</tr>
<tr>
<td>3</td>
<td>Preventative Maintenance Team leader</td>
</tr>
<tr>
<td>4</td>
<td>Operations Outage Coordinator</td>
</tr>
<tr>
<td>5</td>
<td>FIN Team Leader</td>
</tr>
<tr>
<td>6</td>
<td>Outage System Window coordinator</td>
</tr>
</tbody>
</table>

Note 1: Training duties include but are not limited to:
- Simulator/Classroom instructor-ATS
- Continuing Training Course Manager
- Initial Training Course Manager
- Testing Group Manager
- Re-qualification Testing Manager
- Initial Testing Exam transfer and Testing Standard Manager
- Training Officer
- Examination validation
- CST or DST certified incumbent-verifier
- CST peer assessor
Attachment 2

Overall Terms of Reference for the OPG “ANO and U0CRO Issues Team” and for the Station “ANO and U0CRO Issues Team”

It is jointly agreed upon that a Joint PWU/OPG Committee will be structured to address the following ANO/U0CRO/ANOIT/CROIT Non Monetary issues:

1. ANO/U0CRO Testing and Training
   - Provide input and make recommendations regarding the design and implementation of the existing and future initial and continuing training and testing programs.
   - Work with the CNSC on the same.

2. Emerging Issues:
   - Provide a forum to work on emerging non-monetary issues related to ANOs and U0CROs.

3. Rotational Positions:
   - Provide input and make recommendations regarding rotational positions (as per the Midterm “ANO and U0CRO Staffing of Rotational Positions Policy”), as follows:
     - position identification,
     - duties and
     - length of rotations

4. ANOIT/CROIT Issues:
   - Provide input and make recommendations into ANOIT / CROIT issues, as follows:
     - training,
     - mentoring,
     - selection and
     - entry/exit to/from the program

5. ANO/U0CRO/ANOIT/CROIT Complement/Staffing Issues
   - Provide input and make recommendations, for the determination of current overall goals for ANO/U0CRO numbers within the station, determine recommend where they will be deployed and determine the priority of the deployment. This will be a dynamic process that is reviewed annually at a minimum and more often as needed
   - Provide input and make recommendations for the determination of the number of ANOITs/CROITs to produce a “flow-through” training system to cater to the like of retirement, attrition, demographics, other opportunities, etc.
   - Provide input and make recommendations for the NO and SNO staffing plans to be able to support the ANO and U0CRO plans.

The OPG “ANO and U0CRO Issues Team” will consist of the following:

- PWU ANO Representative – OPG Provincial Representative
- PWU ANO Representative - Darlington Station ANO Representative
• PWU ANO Representative - Pickering A Station ANO Representative
• PWU ANO Representative - Pickering B Station ANO Representative
• PWU U0CRO Representative - Darlington Station U0CRO Representative
• PWU Operator Chief Stewards
• Director of Operations - Support
• Operations Support Manager - Darlington
• Operations Support Manager - Pickering A
• Operations Support Manager - Pickering B
• Human Resources Support

The Committee will address the above issues and make recommendations to the Site D.O.M.’s to resolve each concern to the CNO.

The Committee will continue to operate as a standing committee as per the above; meeting quarterly at a minimum and more often as needed.

The Committee will submit their initial recommendations to the CNO and the PWU Vice-President no later than March 1st, 2002 and will continue to operate as a standing committee as per the above; meeting quarterly at a minimum and more often as needed.

Each Station-specific “ANO and U0CRO Issues Team” will consist of the following:

• Two or more Station ANO Representatives
• UOCRO (DND only)
• PWU Operator Chief Steward
• Station Operations Support Manager
• Station Operations Manager
• Human Resources Support
• Other members as required (e.g., like the DNGS AMT; CRSS, SM, TSSD training manager, etc...)

The Committee will address the above issues and make recommendations to the Site D.O.M. to resolve each concern to the Director of Operations and Maintenance.

The Committee will continue to operate as a standing committee as per the above; meeting quarterly at a minimum and more often as needed.
Attachment 3

Mid-Term Agreement

Number: R-169-4

Original Date: 08/04/1993
Revision Dates: 19/10/2001
19/01/2002
Last Revised: 13/09/2006

Obsolete Date:

It is jointly agreed that the following Mid-Term Agreement shall form part of the Collective Agreement between the parties:

**Authorized Nuclear Operators /Certified Control Room Operators in Training**

**Increasing Capability Compensation Progression Policy**

Increasing Capability Compensation/Pay Progression Policy for ANOITs/CROITs:

1.0 The respective departmental Production Manager and Operator Chief Steward will jointly manage the application of this policy. The following resources are available to help in managing the policy as required by the Production Manager and the Operator Chief Steward: Local Training Department, Authorized Nuclear Operator/Control Room Operator Representatives, Line Management, PWU and the Authorized Staff ANO/UOCRO Issues Team members.

2.0 Authorized Nuclear Operators in Training (ANOITs) will be compensated as follows:

He/she will be paid the higher of their current rate of pay or the rate for the various steps of Table 1 on the ANOIT Pay Scale.

The milestones for pay progression on the ANOIT Pay Scale are as follows:

ANOIT Step 1: This is the rate paid from the start of the Generals Program and continues to be paid up until the day that the last General Exam is successfully completed.

ANOIT Step 2: This is the rate that is effective from the day that the last General Exam is successfully completed and continues to be paid until the day that the last CNSC Written Specific Exam is successfully completed.

ANOIT Step 3: This is the rate that is paid from the day that the last CNSC written Specific Exam was successfully completed and continues to be paid up through the Copilotting stage until the first day of official Certification; at which time he/she would be paid ANOIT Step 4 (which is Authorized Nuclear Operator rate of pay….R-116-5)

ANOIT Step 4: Authorized Nuclear Operator

3.0 Control Room Operators in Training (CROITs) will be compensated as follows:

He/she will be paid the higher of their current rate of pay or the rate for the various steps of Table 2 on the CROIT Pay Scale.
The milestones for pay progression on the CROIT Pay Scale are as follows:

CROIT Step 1: This is the rate paid from the start of the Generals Program and continues to be paid up until the day that the last General Exam is successfully completed.

CROIT Step 2: This is the rate that is effective from the day that the General Exam is successfully completed and continues to be paid until the day that the last Specific written Comprehensive Exam was successfully completed.

CROIT Step 3: This is the rate that is paid from the time the last Specific written Comprehensive Exam was successfully completed and continues to be paid up through the Co-Piloting stage until the first day of official Certification; at which time he/she would be paid CROIT Step 4 (which is Certified Unit 0 Control Room Operator rate of pay as per R-116-5)

CROIT Step 4: Control Room Operator

4.0 Any ANOITs or CROITs that exit from the program will immediately return to their current regular duties and regular rate of pay.

5.0 The rates of pay for the various steps on either the ANOIT or CROIT Pay Scales are as per tables 1 and 2.

6.0 Retroactivity is applicable back to successful completion of exams at each stage.
Trainee Wage Rates

TABLE 1: ANOITs

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ANOIT Step 1 - 90% of ANO rate</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>ANOIT Step 2 - 94% of ANO rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>($2000 Bonus)</strong></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>ANOIT Step 3 - 96% of ANO rate</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>ANOIT Step 4 - Authorized Nuclear Operator [ANO] rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>($5000 bonus)</strong></td>
<td></td>
</tr>
</tbody>
</table>

* A failure at any point in the training program, or an exit from training prior to the completion of Step 4 will result in the employee being returned to their non training classification and wage rate.

**Upon successful completion of the “Generals Examination” each candidate will be paid a bonus of $2000.00, followed by an additional bonus of $5000.00 upon Certification. This bonus is subject to the statutory deductions and is not included as a pensionable earning.

TABLE 2: CROITs

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CROIT Step 1- (90% of U0CRO rate)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>CROIT Step 2- (94% of U0CRO rate)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>($1000 Bonus)</strong></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>CROIT Step 3- 96% of U0CRO rate</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>CROIT Step 4- Unit 0 Control Room Operator [U0CRO] rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>($2500 Bonus)</strong></td>
<td></td>
</tr>
</tbody>
</table>

* A failure at any point in the training program, or an exit from training prior to the completion of Step 4 will result in the employee being returned to their non training classification and wage rate.

**Upon successful completion of the “Generals Examination” each candidate will be paid a bonus of $1000.00, followed by an additional bonus of $2500.00 upon Certification. This bonus is subject to the statutory deductions and is not included as a pensionable earning.
Attachment 4

Mid Term Agreement

Number: R-116-5

Original Date: 11/02/90
Revision Dates: 06/10/91
08/04/93
11/01/98
01/19/02
Last Revised: 09/13/06

Retention of Certification Policy/Compensation Preamble:

There is a requirement that Authorized Nuclear Operators (ANOs) and Unit Zero Control Room Operators (U0CROs) demonstrate, on a continuing basis, the skill and knowledge necessary to retain their certification. Although the primary emphasis will be on training and development, there is a need to audit performance including regular testing.

The Compensation portion of the 'Retention of Certification Policy' reflects the following jointly developed principles:

The scope and difficulty is unique to the certified staff and compensation separate from the base rate should be paid.

The increasing difficulty for an individual of 'Retention of Certification' and maintaining the initial certification knowledge as time progresses should also be recognized.

'Retention of Certification' consists of a discrete set of activities carried out on an ongoing and annual basis.

Performance Pay for 'Retention of Certification' Policy

1.0 The methods of satisfying the Continuing Training requirements for the 'Retention of Certification' will be jointly developed, using input from the ANOs and U0CROs using the "ANO and U0CRO Issues Teams."
2.0 The application of this policy will be jointly managed by the respective Manager and Operator Chief Steward. The following resources are available to help in managing the policy: Local Training Department, Line Management, PWU and the local and provincial "ANO and U0CRO Issues Teams".

The affected ANO(s) and/or U0CRO(s) must be meaningfully involved in this process.

3.0 ANOs/U0CROs will receive Performance Payment for certification maintenance, as follows:

(a) An annual lump sum bonus of the amount as per Table 1 attached will be paid to all ANOs

(b) An annual lump sum bonus of the amount as per Table 2 attached will be paid to all U0CROs.

(c) ANOs/U0CROs will, upon entry and exit from the program, be compensated [in relation to some fraction of a] above based on the # of months as a Certified Operator in that 'Retention Year'. (>= to 1 day certified in any month is required for a months "credit").

Note: See section 5.0 (c), (d) & (e) for exceptions to this rule.

(d) For (a), (b) and (c) above, the Retention Bonus will be paid yearly prior to the end of December of the year in which it is earned and will be subject to pension, insurance and the "Long Term Disability" program.

Compensation Security for 'Retention of Certification' Preamble:

4.0 There is also a requirement to recognize the strong evidence that an ANO/U0CRO is generally not able to continue in this job until retirement. Yet, for Ontario Power Generation, it is beneficial if ANOs/U0CROs forego other opportunities and attempt to maintain careers as ANOs/U0CROs. The knowledge that ANOs/U0CROs generally cannot maintain authorized/certified status to retirement, and will suffer financially as a result, is strongly contributing to their high attrition rate, especially in the junior ANO/U0CRO population.
The security portion of the 'Retention of Certification' Policy reflects the following jointly developed principles:

Senior ANO/U0CROs who are unable to retain certified status are still an extremely valuable asset that OPG Nuclear can effectively utilize in a wide number of areas requiring ANO/U0CRO knowledge, skills and experience.

Personal career decisions that remove a person from the ANO/U0CRO family should not be offered any wage or bonus security.

The perception that financial disincentives exist for long term ANOs/U0CROs, which are driving career decisions, should be removed. This is particularly important in view of the high initial investment and the return on the same.

5.0 The Company agrees to execute its discretion to maintain rates of pay in a reasonable manner in accordance with past practice.

If it is mutually agreeable that a person can no longer perform the duties of an ANO or U0CRO, due to a disability caused by accident or illness, or due to exculpable performance issues, and that personal career decisions are not involved, then one of the following will apply:

**** If and only if he/she is not within 3 years of un-discounted pension and has less than 10 ANO or U0CRO 'Service Years' the security treatment will be different dependent on the cause of their inability to perform the duties of an ANO or U0CRO.

(a) The security treatment will be as per (i) and (ii) below:

(i) He/she will be reclassified and reassigned and paid 1.15 X the Band III Step 8 rate. (and no additional 'Retention of Certification' bonus) until retirement or until he/she applies for and accepts another position. Refer to section 3.0 (c) for only the ANO/U0CRO 'Exit Year'. See (ii) below for the exception to this treatment.

(ii) If it was due to failure to satisfy the requirements of the Certified Continuing Training and Requalification Testing, or due to a disability caused by accident or illness, then he/she will be reclassified and reassigned and paid the applicable ANO or U0CRO rate (and no additional
'Retention of Certification' bonus) until retirement or until he/she applies for and accepted another position. Refer to Table 1 or 2 attached, as applicable. Refer to section 3.0 (c) for only the ANO/U0CRO 'Exit Year'.

**** If he/she is within 3 years of un-discounted pension or has greater than or equal to 10 ANO/U0CRO 'Service Years', the security treatment will be as per items (b) through (e) below regardless of the cause of their inability to perform the duties of an ANO or U0CRO.

(b) If he/she is not within 3 years of un-discounted pension and has greater than or equal to 10 but less than 15 ANO or U0CRO 'Service Years', then he/she will be reclassified and reassigned paid the applicable ANO or U0CRO rate (and no additional 'Retention of Certification' bonus) until retirement or until he/she applies for and accepts another position. Refer to Table 1 or 2 attached, as applicable. Refer to section 3.0 (c) for the ANO/U0CRO 'Exit Year'.

(c) If he/she is not within 3 years of un-discounted pension and has greater than or equal to 15 but less than 20 ANO or U0CRO 'Service Years', then he/she will be reclassified and reassigned and paid the applicable ANO or U0CRO rate and an additional 'Retention of Certification' bonus equal to 50% of the certification bonus earned to a maximum of 10% (for ANOs) or 9% (for U0CROs). This bonus will be paid each year until retirement or until he/she applies for and accepts another position.

Note: For the Job 'Exit Year' only, the ANO or U0CRO will receive a blended 'Retention' Bonus based on the number certified and the number of months remaining in the exit year. This is an exception to 3(c).

(d) If he/she is within 3 years of un-discounted pension and was in the 10th ANO/U0CRO 'Retention Year' or beyond OR if he/she has greater than or equal to 20 ANO/U0CRO 'Service Years', then he/she will be reclassified and reassigned and paid the applicable ANO or U0CRO rate and an additional 'Retention of Certification' bonus based on the number of years certified to a maximum of 20% (for ANOs) or 18% for (U0CROs). This bonus will be paid each year until retirement or until he/she applies for and accepts another position.

Note: For the Job 'Exit Year' only, the ANO or U0CRO will
receive a blended 'Retention' Bonus based on the number certified and the number of months remaining in the exit year. This is an exception to 3(c).

(e) If he/she is within 3 years of un-discounted pension and was in one of the 1st to the 9th ANO/U0CRO 'Retention Years', then he/she will be reclassified and reassigned and paid the applicable ANO or U0CRO rate and an additional 'Retention of Certification' bonus that will be fixed at the appropriate % per 'Calendar Year' based on their 'Retention Year' # at exit as per Table 1 or Table 2 until retirement, as applicable.

Note: Section 3.0 (c) will not apply in this case since security provisions of 5.0 (e) above already provide a full % bonus in the appropriate amount, as per Table 1 or 2 (as applicable) for the job 'Exit Year'.

6.0 Refer to Table 1 or Table 2, notes: 1, 2, 3 and 4 for definitions of: ANO/U0CRO 'Retention Years', ANO/U0CRO 'Service Years', an ANO/U0CROs 'Exit Year' and a Calendar Year.

7.0 An individual's ANO/U0CRO service time will not be detrimentally affected by situations such as: temporary assignments, rotational opportunities; transfers and overseas assignments that have been mutually agreed to.

8.0 For all of section 5.0 above, any applicable Bonus will be paid prior to the end of December of the year in which it is earned (as is the bonus for Current ANOs/U0CROs' previous 'Retention Year'). It will still be subject to pension, insurance and the 'Long Term Disability' program.

9.0 The PWU will grant automatic waivers of posting/selection to accommodate the above reclassifications and reassignments.
Table 1: Performance Pay for Retention of Certification - ANO

<table>
<thead>
<tr>
<th>Section A</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention Years</td>
<td>Compensation (incl Retention of Certification bonus)</td>
</tr>
<tr>
<td>1st year</td>
<td>Yearly Base Hours Rate + 6%</td>
</tr>
<tr>
<td>2nd year</td>
<td>Yearly Base Hours Rate + 7%</td>
</tr>
<tr>
<td>3rd year</td>
<td>Yearly Base Hours Rate + 8%</td>
</tr>
<tr>
<td>4th year</td>
<td>Yearly Base Hours Rate + 9%</td>
</tr>
<tr>
<td>5th year</td>
<td>Yearly Base Hours Rate + 10%</td>
</tr>
<tr>
<td>6th year</td>
<td>Yearly Base Hours Rate + 11%</td>
</tr>
<tr>
<td>7th year</td>
<td>Yearly Base Hours Rate + 12%</td>
</tr>
<tr>
<td>8th year</td>
<td>Yearly Base Hours Rate + 13%</td>
</tr>
<tr>
<td>9th year</td>
<td>Yearly Base Hours Rate + 14%</td>
</tr>
<tr>
<td>10th year</td>
<td>Yearly Base Hours Rate + 15%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section B</th>
</tr>
</thead>
</table>

Greater than 10 years, an additional 0.75% for each year certified to a maximum of 28%, or

10th year or higher and within 3 years of an undiscounted pension, an additional 2% subject to a cap of 28%

10th year or higher and within 2 years of an undiscounted pension, an additional 3% subject to a cap of 28%

10th year or higher and within 1 year of an undiscounted pension and for all years until retirement an additional 3% subject to a cap of 28%

*For those who reach an undiscounted pension, but do not have 10 years certified, should they choose to remain beyond their undiscounted pension date they will be compensated for the above 3 milestones once they attain 10 years certified and will continue to receive a 3% per year until retirement subject to a cap of 28%.
<table>
<thead>
<tr>
<th>Section A</th>
<th>Year</th>
<th>Description</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>Yearly Base Hours Rate</td>
<td>+ 5.4%</td>
<td></td>
</tr>
<tr>
<td>2nd year</td>
<td>Yearly Base Hours Rate</td>
<td>+ 6.3%</td>
<td></td>
</tr>
<tr>
<td>3rd year</td>
<td>Yearly Base Hours Rate</td>
<td>+ 7.2%</td>
<td></td>
</tr>
<tr>
<td>4th year</td>
<td>Yearly Base Hours Rate</td>
<td>+ 8.1%</td>
<td></td>
</tr>
<tr>
<td>5th year</td>
<td>Yearly Base Hours Rate</td>
<td>+ 9%</td>
<td></td>
</tr>
<tr>
<td>6th year</td>
<td>Yearly Base Hours Rate</td>
<td>+ 9.9%</td>
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<tr>
<td>7th year</td>
<td>Yearly Base Hours Rate</td>
<td>+ 10.8%</td>
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<tr>
<td>8th year</td>
<td>Yearly Base Hours Rate</td>
<td>+ 11.7%</td>
<td></td>
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<tr>
<td>9th year</td>
<td>Yearly Base Hours Rate</td>
<td>+ 12.6%</td>
<td></td>
</tr>
<tr>
<td>10th year</td>
<td>Yearly Base Hours Rate</td>
<td>+ 13.5%</td>
<td></td>
</tr>
</tbody>
</table>

**Section B**

Greater than 10 years, an additional 0.675% for each year certified to a maximum of 25.2%, or

10th year or higher and within 3 years of an undiscounted pension, an additional 1.8% subject to a cap of 25.2%

10th year or higher and within 2 years of an undiscounted pension, an additional 2.7% subject to a cap of 28%

10th year or higher and within 1 year of an undiscounted pension and for all years until retirement, an additional 2.7% subject to a cap of 25.2%

*For those who reach an undiscounted pension, but do not have 10 years certified, should they choose to remain beyond their undiscounted pension date they will be compensated for the above 3 milestones once they attain 10 years certified and will continue to receive a 2.7% per year until retirement subject to a cap of 25.2%.

The above lump sum yearly ‘Retention of Certification’ bonus in Table 1 and Table 2 will be paid yearly prior to the end of December of the year in which it is earned and will be subject to pension, insurance and the “Long Term Disability” program.

**Notes:**

1. ANOs/UOCRO ‘Retention Years’ are measured with respect to the ‘Calendar Year’ and begin on January the 1st of the year that an individual is certified and complete each year on December 31st, even should they be only 1 day certified in the 1st ‘Retention Year’. These ‘Retention Years’ are used to determine the dollar amount for one COMPLETE Year’s lump sum bonus as per Table 1 and 2 above and the dollar amount paid to an individual is determined as per R-116-5.

2. ANO/UOCRO ‘Service Years’ are measured with respect to an individual’s initial certification or certification (as applicable) date and begin on that date and complete each year on the day before the next ‘Anniversary’ date. These ‘Service Years’ are used to determine an individual’s Security treatment in Section 5.0 previous.
3. An ANO/U0CRO ‘Exit Year’ is the year that an ANO/U0CRO ceases to retain their CNOSC certification.

4. A ‘Calendar Year’ is any year that begins on January the 1st and ends on December the 31st of the same year.

5. Yearly lump sum bonus dollar amounts will be paid as a % of yearly base dollars paid, as follows:

   = Table 1 or 2: % of 40 hours/week X 52.1786 weeks/year X $/hour base pay

   e.g., 2nd year of Retention for an ANO, where hourly rate was $49.31 for the entire ‘Calendar Year’.

   Compensation for retention of certification bonus

   = $49.31/hour X 40 hours/week X 52.1786 weeks X 0.07

   = $7204.20

6. Those who are certified as of the signing date of this agreement shall have a one time option of electing to be covered by the tables in mid-term R-116-4 as currently written or R-116-5 as amended by this agreement.

7. The changes to this mid-term effective the date of signature apply retroactively to January 1, 2006.
# ANO/CRO Performance Areas/Targets

<table>
<thead>
<tr>
<th>#</th>
<th>Area</th>
<th>Target</th>
<th>Exceed Target</th>
<th>% Payout</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Peer Review Results:</td>
<td>1</td>
<td>0</td>
<td>Target = 1% Exceeds = 1% Max = 2%</td>
</tr>
<tr>
<td></td>
<td>Number of Operator repeat areas for improvement (AFI's) in WANO or OSART reviews, related to the performance of anyone in the Certified ANO or Certified CRO group.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> This only applies to Darlington and Pickering A in 2002. It will only apply to Pickering B in 2003</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Refer to 1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Generation Performance:</td>
<td>a) &gt;3 but &lt; or =5 equivalent unit full power days</td>
<td>a) &lt; or =3 equivalent unit full power days</td>
<td>a) Target=0.5 0**% Exceed=1.00%</td>
</tr>
<tr>
<td></td>
<td>a) Lost generation due to forced outages and de-ratings related to the performance of anyone in the Certified ANO or Certified CRO <strong>group</strong></td>
<td>b) 0</td>
<td>b) N/A</td>
<td>b) Target =0.50% Exceed=N/A</td>
</tr>
<tr>
<td></td>
<td>b) Lost generation due to forced outages and de-ratings related to the performance of any Certified ANO or Certified CRO <strong>individual</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Outage extensions related to the performance of anyone in the Certified ANO or Certified CRO <strong>group</strong></td>
<td>c) &lt; or =3 equivalent unit full power days</td>
<td>c) &lt; or = 1 equivalent unit full power days</td>
<td>c) Target=0.50% Exceed=1.00%</td>
</tr>
<tr>
<td></td>
<td>d) Outage extensions related to the performance of any Certified ANO or Certified CRO <strong>individual</strong></td>
<td>d) 0</td>
<td>d) N/A</td>
<td>d) Target =0.50%</td>
</tr>
<tr>
<td></td>
<td>Refer to 2.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Human Performance:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>Event Free Day Resets for which the ANO/CRO <strong>group</strong> caused or had an opportunity to prevent</td>
<td>a)</td>
<td>&lt; or = 5</td>
<td>a)</td>
</tr>
<tr>
<td></td>
<td>Event Free Day Resets for which an <strong>individual</strong> ANO/CRO caused or had an opportunity to prevent</td>
<td>b)</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Refer to 3.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Re-Certification Tests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The number of failures by an <strong>individual</strong> ANO/CRO on the first attempt.</td>
<td>0</td>
<td>N/A</td>
<td>Target = 1.0%</td>
</tr>
<tr>
<td></td>
<td>Refer to 4.0</td>
<td></td>
<td></td>
<td>Max = 1.0%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>8% Max</td>
</tr>
</tbody>
</table>
Performance Area Definitions

0. Generic Application Rules for all of 1.0 to 5.0 Below:

The ANO/CRO Issues Team at each station will make recommendations to the Director of Operations and Maintenance on whether each specific instance of a failure to meet or exceed any of the Areas/Targets is predominantly attributable to the ANO/ CRO group or individual or whether the instance of failure was due to circumstances beyond their personal control. If the instance of failure is due to something beyond the personal control (i.e. not caused by or reasonably preventable by) of the ANO/CROs, it will not be counted towards the Area/Target.

No one instance or event can be attributed as negative to more than one Performance Areas(i.e. of Areas #1,2,3 or 4). If the instance or event is applicable to more than one performance area, the ANO/CRO Joint Issues Team will decide which area it is to be measured against.

1. Peer Review Result

A measure of the ability to impact the results of peer reviews conducted by either WANO or OSART and apply to each station separately provided that station has such a review in that year.

These measures consider the reduction and elimination of repeat Areas For Improvement (AFIs). The baseline for each station includes the AFIs from that station’s (i.e. the ANO/CROs home station) most recent WANO/OSART review as well as the AFIs from the other OPG station’s most recent WANO/OSART. The AFI’s from the other stations would only be included provided that the home station has taken specific corrective actions to address the AFI’s from the other OPG station’s WANO/OSART reviews. This is intended to measure not only a station’s ability to improve but also its ability to learn from the other stations.

2. Generation Performance

The avoidance of unnecessary forced outages, forced deratings and unplanned outage extensions measure the ability to improve safe, reliable generation performance. This measure applies to each station separately.

ANO’s are expected to make “conservative” decisions. Such decisions will not be used to financially penalize the ANO’s.

A “derating” is defined as any unplanned loss of production greater than 5% FP on any unit.

The duration of such a forced outage will be calculated in conjunction with the CRO/CRO joint issues team. Decisions by management to extend a forced outage for reasons that are unrelated to the original cause of the outage would not be charged against this performance area (e.g. normally the duration of a simple poison outage is < 2 days).
3. Human Performance

A measure of human performance through the number of event free day resets caused by or preventable by the ANO/CRO group or individual ANO/CRO (e.g. OP&P non-compliance’s, WPC violations, Plant Status Control Events, etc.) This measure will apply to the ANO/CROs at each station separately. This measure is not intended to discourage self-reporting so it does not include those events which must be self-reported to become evident.

4. Re-Qualification Tests

A measure of an individual’s ability to complete, on the first attempt, the required tests associated with the annual re-certification process including a written test (if applicable that year), a simulator comprehensive test (CST) and a simulator diagnostic test (DST). The measure is intended to minimize the number of test failures and subsequent repeat testing.

In any given performance period the bonus will be proportionately allocated for the tests required that year. E.g. failure of one of three tests means the payable bonus is two thirds.

Any additional CSTs or DSTs required of an individual in order to support the testing of other ANO/CROs will not be included as part of this measure.
5. Rules for Pro-rating Performance Bonus on ANO / U0 CRO Entry & Exit Years

a) ANOs/U0CROs will, upon entry and exit from the performance bonus program, be compensated in relation to some fraction of total bonus earned based on the percentage earned and the # of months as a Certified Operator in that 'Retention Year'. Note, that only > or = to 1 day certified in any month is required for that months “credit”.

b) The amount of negative effect that any error the said pro-rated ANOs/U0CROs from a) above can have on any other ANOs/U0CROs performance bonus will also be prorated, as follows:

If an error is made that is deemed to be mainly attributable to the prorated ANO/U0CRO during any month where he/she is being paid performance pay, and if that error brings the cumulative total for that performance measure for that year above the unacceptable group target, then the % performance pay reduction amount to the other certified staff will be equal to:

(The % value quoted as lost for the group payout for the applicable performance measure in Midterm NUC R-1016-2, Attachment # 6 Tables)

multiplied by:

(# months the prorated ANO/U0CRO is being paid performance pay)

divided by:

( 12 months )
<table>
<thead>
<tr>
<th>Performance Year</th>
<th>Performance Incentive Plan</th>
<th>Employee Category</th>
<th>Total Incentive Payments</th>
<th>Total Number of Employees in receipt of Incentive Payments</th>
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<tr>
<td>2009</td>
<td>Annual Incentive Plan (&quot;AIP&quot;)</td>
<td>Management Group</td>
<td>$24M</td>
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<td>Society</td>
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<td>PWU</td>
<td>$7M</td>
<td>7321</td>
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<td>$0.33M</td>
<td>30</td>
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<td>$1.6M</td>
<td>170</td>
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<td><strong>$41.81M</strong></td>
<td><strong>13123</strong></td>
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<td>$30.26M</td>
<td>1448</td>
</tr>
<tr>
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<td>AFP</td>
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<td>7213</td>
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<td>$0.08M</td>
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<td>PWU</td>
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<td>179</td>
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</tr>
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<td><strong>2012 Total</strong></td>
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<td><strong>$30.72M</strong></td>
<td><strong>1533</strong></td>
</tr>
<tr>
<td>2013</td>
<td>AIP</td>
<td>Management Group</td>
<td>$19.14M</td>
<td>1186</td>
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<tr>
<td></td>
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<td>Management Group</td>
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<td>185</td>
</tr>
<tr>
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<td>Nuclear Station Specific Results Bonus</td>
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<td>$1.11M</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td><strong>2013 Total</strong></td>
<td></td>
<td><strong>$22.52</strong></td>
<td><strong>1507</strong></td>
</tr>
</tbody>
</table>

**Notes:**
- **Total Incentive Payments** reflect the value of awards earned in the **Performance Year**, however these amounts are accrued and paid out in the following year (i.e. The 2009 Incentive Payments were actually paid out in 2010);
- **AFP** was suspended effective 2011;
- **Goalsharing** was suspended effective 2012
 CCC Interrogatory #024.5

Ref: Ex. F4/T3/S1

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please provide copies all of OPG employee expense policies.

Response

A copy of OPG’s Business Travel and Expense Standard is provided as Attachment 1.
## Standard

### TITLE

**BUSINESS TRAVEL AND EXPENSES**

### AUTHORIZATION

| SINGLE POINT OF CONTACT: | J. Barradas  
| Director Transaction Processing |
| DOCUMENT OWNER: | D. Dodo  
| Vice-President, Shared Financial Services |

### DOCUMENT RELATIONSHIP

| Applicability: | OPG Wide |
| Receives Authority from: | OPG-POL-0033 OPG Business Model |

### PURPOSE

The Business Travel and Expenses (BT&E) standard describes the processes, principles, responsibilities, and forms to be utilized by employees (including those on secondment and engaged in new business ventures) in determining the following:

(a) Eligibility for BT&E.
(b) Approvals Required.
(c) Responsibilities of Employees, Line Management and Finance.

Adherence is mandatory, unless specific direction is documented in the collective agreement(s). Any deviation may result in reimbursement for expenses being denied. This standard does not prevail over legislation or collective agreements.

### DATES (YYYY-MM-DD)

| PDF Creation Date: | 2014-01-21 |
| Review Cycle: | 3 years |
| Compliance Date: | January 21, 2014 |

### EXCEPTIONS

Excluded are: Direction relative to expenses for contractors, Members of the Board of Directors, Relocation Expenses, Corporate Vehicles, Capital and Equipment Purchases, or Employee Recognition.
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# BUSINESS TRAVEL AND EXPENSES

## 3.0 DEFINITIONS AND ACRONYMS

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<th>Title</th>
<th>Page</th>
</tr>
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<td>3.1</td>
<td>Definitions</td>
<td>15</td>
</tr>
<tr>
<td>3.2</td>
<td>Abbreviations and Acronyms</td>
<td>15</td>
</tr>
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</table>

## 4.0 BASES, RECORDS AND REFERENCES

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<th>Title</th>
<th>Page</th>
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<td>4.2.2</td>
<td>Developmental References</td>
<td>17</td>
</tr>
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</table>

## 5.0 REVISION SUMMARY

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1.0 DIRECTION

1.1 Guiding Principles for Business Travel and Expenses

1.1.1 Expenses for travel and meals support Ontario Power Generation (OPG)’s objectives and behaviors.

1.1.2 Plans for travel, meals, and accommodation are necessary and economical with due regard for health and safety.

1.1.3 Employees shall be reimbursed for legitimate reasonable expenses incurred in the conduct of authorized business on behalf of OPG, including where they are required to be away from their Regular Work Headquarters. Expenses shall be work-related; be prudent and be appropriate.

1.1.4 Best practices are in place, including:

- Prior approval to incur expenses is obtained.
- Other options for meetings are always considered before travel is approved, including audio or video conferencing.
- Corporate American Express (AMEX) is used for authorized business travel and business related expenses.
- OPG’s travel vendor, Amex Travel is used for travel-related services whenever possible.

1.1.5 Employees shall exercise financial prudence and seek opportunities to reduce costs whenever reasonably possible.

1.1.6 Employees shall not profit financially from travel and expenses incurred.

1.1.7 Should there be a situation where there is an overpayment to a claimant, it is considered a debt owing to OPG and must be repaid.

1.1.8 Regular full-time and part-time; and temporary full-time and part-time employees should use the Business Expense System (i.e., Concur) in a timely manner. All eligible employees shall have a company charge card. Employee purchases shall be made with the company charge card AMEX and in accordance with OPG-INS-08700-0001, Business Travel and Expense Credit Card Instruction, except in cases where an AMEX has not been approved in time.

1.1.9 Business Travel and Expenses (BT&E) not explicitly addressed in this standard shall be fully documented by the employee and shall be approved by the Manager or Supervisor.

1.2 Receipts and Documentation

Good record-keeping practices must be maintained for verification and audit purposes.

Original itemized receipts shall be submitted with the expense report and include Supplier (normally pre-printed on the document; however, if not provided by the Vendor, the employee is to record the Supplier name on the receipt), transaction date, Description of the item/service purchased and Provincial Sales Tax, Quebec Sales Tax, Harmonized Sales Tax, Goods and Services Tax, and registration number of the Vendor or Supplier (for expenses incurred in Canada).
Expenses for a group can only be claimed by the most senior person present – expenses cannot be claimed by an individual that are incurred by his/her approver (e.g., a director cannot submit his/her Vice President’s claim for lunch even if they were at the same event).

1.2.1 Monthly AMEX statements shall be submitted with every expense report.

1.2.2 For all meal expenses, an itemized receipt is required. Accommodation receipts shall provide detail separating lodging, meals, phones and other charges.

1.2.3 Research and rationale shall be included in the comments section of the individual expense line of the report submission e.g. personal car mileage in excess of 200 km/day.

1.2.4 A credit card slip is sufficient for parking and taxis. Receipts are not required for regional transportation expenses (e.g. Toronto Transit Commission). Intercity travel (e.g. GO Transit) requires a receipt.

1.2.5 FIN-FORM-0017, Missing Receipt Form shall be completed for each missing or illegible receipt, and be attached to an Expense Report in order to support the expense claim. It is at the approving Manager's discretion if a missing receipt form is an acceptable replacement.

1.3 Payment Thresholds

1.3.1 Payment for major group events where the cost is greater than $10,000 shall be made through a purchase order, except in special circumstances with written pre-approval by Supply Chain. The payment threshold of $10,000 does not apply to payments for employee Training, Conferences, and Seminars (as contemplated in Section 1.9) that surpass $10,000. Therefore, all such expenses must be processed as business expenses.

1.3.2 All transactions equal to or greater than $20,000 require written pre-approval from Management, with a copy of the pre-approval to the Corporate Card Administrator.

1.4 Pre-Approvals

1.4.1 Employees shall obtain pre-approval from the appropriate authority as summarized in the following table prior to incurring any business and travel expenses. The documentation required varies depending on the expenses. Where prior written approval is required, the approved document (e.g., form, memorandum, email) should be submitted with the Expense Report. Prior verbal approval is assumed when the expense report is approved.

<table>
<thead>
<tr>
<th>Expense (Section in Standard)</th>
<th>Approver</th>
<th>Approval Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spousal Travel</td>
<td>President and Chief Executive Officer (CEO)</td>
<td>Email/memo</td>
</tr>
<tr>
<td>Use of personal vehicle (1.5.5.1 and 1.5.5.3)</td>
<td>Manager/Supervisor</td>
<td>If greater than 200 km/day, if rental vehicle is not a compact model or equivalent, or if personal vehicle is required for more than 5 days, Email/memo supported by research and rationale (Band A-E excluded)</td>
</tr>
</tbody>
</table>
### BUSINESS TRAVEL AND EXPENSES

<table>
<thead>
<tr>
<th>Expense (Section in Standard)</th>
<th>Approver</th>
<th>Approval Documentation</th>
</tr>
</thead>
</table>
| Travel by road on non-day-to-day business | Travel in Ontario: Manager or Supervisor  
Travel out of Ontario: ELT for all employees, CEO for ELT members | Email or OPG-FORM-0025 |
| Rail and Air within Canada and Continental U.S. including business class for rail (1.5.5.5 and 1.5.5.6) | Travel in Ontario: Manager or Supervisor  
Travel out of Ontario: Executive Leadership Team (ELT) for all employees, CEO for ELT members | Written documentation according to business unit leader requirements (e.g. OPG-FORM-0025, Travel, Training and Development Request and Approval Form) |
| Air Outside Canada and Continental U.S. including business class for air (1.5.5.6) | Minister of Energy | “Request for Approval for International Travel (outside of Canada and the Continental USA)” Form |
| Overnight accommodations in close proximity to the Regular Work Headquarters (1.6) | ELT Member | Email/Memo |
| Telecommunication devices for business purposes when outside of Canada (1.7.4 and 1.10) | Manager/Supervisor | Verbal or written pre-approval (e.g. OPG-FORM-0025) |
| Groceries (1.8.6) | Manager/Supervisor | Email/Memo including rationale |
| Training/Conference (1.9) | Refer to posted material for guidance | Refer to posted material for guidance |

### Expenses

- Expense claims for functions involving alcohol (1.11.1) - Minister of Energy - Letter from CEO
- Relocation (1.11.3) - Refer to Employee Relocation Services guidelines
- Home internet access - ELT Member - Email/Memo

### 1.5 Travel

This standard applies whenever travel is required. For the purposes of this standard, travel does not refer to a person’s regular commute to work – expenses related to a person’s regular commute are not reimbursable.

#### 1.5.1 When travel is part of the job

There are some jobs where frequent travel is a requirement – part of the regular job duties. On hiring, managers should ensure staff are aware of the standard and how it will affect their job. In these situations, approvers should meet with the employee to determine appropriate strategies (e.g. pre-approval for frequent or regular travel, when meals can be reimbursed, use of vehicles, etc.).

OPG departments with jobs that require regular travel need to ensure that the standard is utilized in a consistent manner so that managers and employees have a common understanding of how the standard is applied.
1.5.2 When travel occurs every now and then

In the majority of positions in OPG, travel usually occurs irregularly on an as-needed basis; for example, to attend training, meetings, conferences or consultations; representing OPG at an event; etc. In some cases, employees will be asked by their managers to travel, and in others, the request may come from the employee.

1.5.3 Approvals for Travel

Table 1 identifies the level of approvals for travel for everyone covered by this standard.

1.5.4 Before Travelling

There is a process to follow for all people wishing to be reimbursed for travel expenses.

- Obtain prior written authorization required for international travel. Employees should use the appropriate request form identified in Table 1.
- Obtain prior approval for travel, as per Table 1.
- Use the Corporate Amex card to pay for all travel expenses.

1.5.5 Making Travel Arrangements

Use OPG’s designated vendor of record service providers. Travel reservations should be made on-line through the Concur Travel Booking Module or for overseas travel, by phone through AMEX Corporate Travel Service. Where only a car rental is required, arrangements may be made directly with OPG’s preferred car rental agencies. Other allowable exceptions for using alternative means are emergencies and situations where it is impractical due to remote locations. Exceptions shall be documented in the Expense Report. Travel arrangements should limit groups of senior individuals or individuals in direct reporting lines travelling together.

1.5.6 Transportation – How to Get There

1.5.6.1 Personal Vehicle

Employees are not required to utilize their personal vehicles for company business. When road transportation is the most practical and economical way to travel, the order of preference is:

(a) OPG fleet vehicle when available.

(b) Personal vehicle when an OPG vehicle is not available, and a personal vehicle is more economical and practical than use of a rental vehicle.

(c) Rental vehicle.

If an employee’s personal vehicle is the most economic method of travel, and used while on OPG business, the vehicle must be insured at the vehicle owner’s expense for personal motor vehicle liability. OPG assumes no financial responsibility for privately owned vehicles other than paying the kilometric rate when used for OPG business. Mileage reimbursement rates are outlined below:
Table 2. Mileage Guidelines

<table>
<thead>
<tr>
<th>Annual Kilometres Driven</th>
<th>Management Group (Bands F and below)</th>
<th>Represented Employees</th>
<th>Band E and Above</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 4,000 km</td>
<td>0.40</td>
<td>Rates defined in respective collective agreements.</td>
<td>0.15</td>
</tr>
<tr>
<td>4,001 – 10,000 km</td>
<td>0.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10,001 – 20,000 km</td>
<td>0.29</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the event that an employee is required to drive in excess of 200 km/day, the employee should consider the order of selecting a vehicle. If, after considering factors, the personal vehicle is chosen and the distance travelled exceeds 200 km/day, the research and rationale shall be included in the comments section of the individual expense line of the report submission. If an employee is required to drive for more than five days within a single calendar month, even if not exceeding 200 km/day, lower cost options should be considered, such as vehicle rental (or audio or video conferencing).

Employees who drive 20,000km or more annually should be assigned an OPG fleet vehicle. See RE-PRO-001 and 002 Corporate Fleet governance.

1.5.6.2 Taxation of Payments for Use of Personal Vehicle

Specific driving trips, including those to a Temporary Work Headquarters, may have taxable benefit implications and additional taxation forms shall be completed when required. In certain circumstances, some driving trips may not be allowable for entry in the BT&E system. See Appendix A for guidelines.

1.5.6.3 Car Rental

When renting a vehicle, the size of the rental car shall be the most economical and practical required for the business task and number of occupants. A compact model or its equivalent is required. Exceptions shall be documented and pre-approved. Luxury and sports car rentals are prohibited.

Refuelling surcharges applied by the rental companies are reimbursable only when it is not practical to refuel prior to returning the rental vehicle. Justification for the reimbursement of refuelling surcharges should be documented in the business expense claim.

Similar to 1.5.3, specific driving trips, including those to a Temporary Work Headquarters, may have taxable benefit implications and may require additional taxation forms to be completed. In certain circumstances, the costs relating to some driving trips may not be eligible for reimbursement as a business travel expense. See Appendix A for guidelines.

All car rentals should be made on the AMEX card.
1.5.6.4 Liability Claims Process for Rented and Employee Owned Motor Vehicles

All accidents that result in bodily injury or property damage to third parties should be reported to OPG’s insurer in accordance with OPG-PROC-0102 Risk Management and Insurance.

1.5.6.5 Rail Transportation

International rail travel should be at the Canadian equivalent to coach class. Business class rail travel is acceptable with written pre-approval, in limited circumstances, such as:

(a) The need to work with a team.
(b) Choosing travel time that reduces expenditures on meals or accommodation.
(c) Health and safety considerations.

Documentation of the rationale is required and the written pre-approval should be included in the Expense Report.

1.5.6.6 Air Transportation

Economy (coach) class is the standard option for ticket purchase. Business class fares for international flights outside of North America shall have prior approval by the Minister of Energy. All airfare and travel expenses should be made on the Amex card. Employees who could not obtain an AMEX card, shall file their boarding passes with their expense reports.

1.6 Accommodations

Bookings for overnight accommodation should be a single accommodation in a standard room where possible. Suites, executive floors, or concierge levels shall not be reimbursed.

All employees are encouraged to use the Ontario government's hotel online directory (http://rehelv-acrd.tpsgc-pwgsc.gc.ca/rechercher-search-eng.aspx) to determine the most economical hotel rate.

In the event that an appropriate hotel cannot be identified from the government directory, the employee should use AMEX Corporate Travel Service to determine the most reasonable and economical rate.

Reimbursement for overnight accommodation within Regular Work Headquarters area shall not be authorized. Exceptional or emergency situations that require personnel to remain in
close proximity to their Regular Work Headquarters for periods in excess of normal working
hours, such as extended collective bargaining sessions, may be considered.

Private stays with friends or family in lieu of commercial accommodation is acceptable. A
maximum of $30.00 per night is allowed for accommodation, including any meals with friends
and family. A receipt or written explanation describing the purpose of the trip, identifying the
host, and duration of stay shall be included in the Expense Report. For extended stays at one
location, long-term accommodation should be arranged on the approval of an immediate
Supervisor.

1.7 Other Travel Related Expenses

1.7.1 Parking

Reasonable, prudent, and necessary parking fees paid while driving on OPG business shall
be reimbursed.

Employees are not eligible to expense parking at their Regular Work Headquarters.

1.7.2 Public Transportation

Local public transportation or hotel shuttles should be used. Taxicab expenses are justified
where group travel by taxicab is more economical than the total cost, had individuals travelled
separately, managing tight meeting schedules, inclement weather, handling work related
baggage or there are health and safety considerations.

1.7.3 Gratuities

Reasonable gratuities for room steward, hotel room services, and taxis should be reimbursed.

1.7.4 Telecommunication

With prior approval, employees may use their Blackberry or OPG cell phone for business
purposes when traveling. Employees shall speak with their approvers to determine what is
covered in their Blackberry or cell plan, and appropriate long distance data or roaming plans
should be purchased for the period of travel prior to traveling.

Wherever possible, employees are expected to use the least expensive means of
communication, such as:

- calling cards; and
- internet access.

Use audio or video conferencing whenever possible, as an alternative to travel.

If employees are away on OPG business, reimbursement should be made for:

- reasonable, necessary personal calls home for each night away where not already
  addressed by a collective agreement; and
- additional business expenses, such as:
  - business calls
  - emergency calls from air or rail phones
BUSINESS TRAVEL AND EXPENSES

- internet connections and computer access charges
- facsimile transmissions
- word processing and photocopying services
- rental and transportation of necessary office equipment

1.7.5 Laundry/Dry Cleaning Services

If traveling on business for five consecutive days or more, reimbursement is allowed within reasonable limits for expenses actually incurred on business and where not already addressed by a collective agreement such as:

- laundry
- dry cleaning

Itemized receipts are required.

Employees shall not be reimbursed for personal or recreational items (e.g., forgotten toothbrushes, pay-per-view, or items from the mini-bar).

1.8 Meals

1.8.1 Eligibility and Requirements

Reasonable and appropriate meal expenses shall be reimbursed when the claimant is required to work during or through normal meal periods where pre-approved by a supervisor or manager when the claimant is away from his or her Regular Work Location area on OPG business, and where permitted under the respective collective agreement(s), negotiated policies and practices, and arbitration decisions.

Alcohol cannot be claimed and shall not be reimbursed as part of a travel or meal expense.

When more than one meal is claimed in a day, the combined meal allowance maximum may be allocated across the meals (e.g. breakfast and lunch cannot exceed $20.00 in total for Unrepresented employees). The daily maximum cannot be used if only two meals are eaten.

Where two or more OPG employees are in attendance at any event resulting in a single expense claim, the most senior employee in attendance is required to pay for the expense.

1.8.2 Meal Allowances for Represented Employees (Canada)

As per the collective agreements, meals (including taxes and gratuities) for travel within Canada should be limited to $65.00 per day. Line Management may approve expenses in excess of this guideline amount, based on the specific circumstances, provided the expenses are reasonable. Documentation of the rationale for the excess shall be included with the Expense Report. For less than a full-day of meal claims (i.e. one or two meals), employees are to be guided by the following per meal rates: Breakfast $13.00, Lunch $19.00, and Dinner $33.00.

1.8.3 Meal Allowances for Unrepresented Employees (Canada)

For Management employees, for a full-day of meal claims (i.e., breakfast, lunch, and dinner), employees have the discretion to allocate the daily total three-meal rate of $40.00 among
meals, with a suggested cap of $20.00 on the amount for any single meal. Meal claims include taxes and gratuities. Gratuities should be reasonable.

For less than a full-day of meal claims (i.e., one or two meals), employees are to be guided by the following per meal rates: Breakfast $8.75, Lunch $11.25, and Dinner $20.00.

1.8.4 Meals Outside of Canada


1.8.5 Refreshments for Employee Recognition Programs

The Employee Recognition Program (OPG-PROG-0012) provides information on eligibility or ineligibility for refreshments at service and performance recognition events. Eligible expenses should be paid through the Business Expense System (i.e. Concur).

1.8.6 Groceries

Reimbursement of meals costs may include groceries if the employee is working away from their Regular Work Headquarters on OPG business.

1.9 Training, Conferences, and Seminars

The Business Travel and Expense System is used to process payments for both OPG-directed and employee-requested training. For guidance on approvals required, how much is reimbursed, and timing of reimbursement, refer to “Training Scenarios – Approvals, Form requirement, Reimbursement” available on the OPG Finance website.

1.10 Wireless Communications

All mobile device purchases and upgrades shall be made through the Supply Chain portal. The use of suppliers other than those approved through the Supply Chain process is prohibited, and expenses falling outside this process shall not be reimbursed by OPG. All mobile device expenses shall be charged to the Corporate Amex of the individual using the device.

When submitting monthly expenses, the Account Summary and Current Charges summary pages (which also identify the total tax amounts) shall be electronically attached to the Expense Report. The complete statement including usage detail should be retained by the employee for a period of three years and provided if requested. Pager expenses may be expensed or charged to the Visa Purchasing Card.

1.11 Other Business Expenses

1.11.1 Hospitality

Hospitality is the provision of food, beverages, accommodation, transportation, or other amenities at public expense to persons who are not engaged in work for OPG, the provincial government or its agencies. Hospitality should be extended in an economical, consistent, and
appropiate way when it will facilitate OPG business or is considered desirable as a matter of courtesy. Hospitality may be extended on behalf of OPG when:

(a) Engaging representatives of other electricity generation companies, the broader public sector, the electricity industry, public interest groups, or unions in discussions on official matters.

(b) Providing persons from national or international organizations with an understanding and appreciation of OPG.

Functions that are exceptions to the above shall have prior approval of the CEO. Functions involving alcohol shall be pre-approved by the Minister of Energy.

1.11.2 Miscellaneous Business Expenses

Employees may be required to purchase low dollar value items without a purchase order while engaged in company authorized travel or after the normal business hours. This practice is limited to emergency situations or instances where the delay/travel required utilizing a purchase order or Procurement Card would not make good business sense. Any purchases under this exception shall be consistent with the Purchasing Procedures, and should be no more than $300.00.

1.11.3 Employee Relocation Expenses

Only employees approved for relocation can submit relocation expenses. Refer to Employee Relocation Services guidelines posted on OPG's intranet. Eligible relocation expenses shall be submitted using the relocation policy within Concur.

2.0 ROLES AND ACCOUNTABILITIES

2.1 Employees

Employees are expected to be knowledgeable of, and adhere to, the provisions of this governance, and are required to obtain any pre-approval as outlined in Section 1.4, Pre-Approvals. Employees are required to submit all Expense Reports on a timely basis which is normally monthly.

Employees claiming mileage for use of their own vehicle as a business expense to commute to a Temporary Work Headquarter, Special Work Site or Remote Work Location are responsible for submitting the required tax exemption documentation with their expense reports electronically.

Claimants must:
- obtain all appropriate approvals before incurring expenses; if no prior approval was obtained, then a written explanation must be submitted with the claim;
- submit original, itemized receipts with all claims (credit card slips are not sufficient). If there is not an itemized receipt, a written explanation must be submitted to explain why the receipt is unavailable and a description itemizing and confirming the expenses must be provided;
- submit claims by the end of the month following the month in which the expense was incurred; a written explanation is required if not submitted within this timeframe;
- submit claims for expenses before leaving positions with OPG.
2.2 Managers

Responsible and accountable for approving claims for reimbursement in accordance with this standard and in accordance with the Code of Business Conduct. In carrying out this responsibility, Managers have the following roles and accountabilities:

- Exercising managerial discretion judiciously
- Ensuring staff are aware of the requirements of this Standard
- Seeking timely direction when there are questions of application
- Taking appropriate action in the case of non-compliance
- On hiring staff for jobs where frequent travel is a requirement and part of the regular job duties, ensuring staff are aware of this Standard, the AMEX Corporate Card instructions, and how they will affect their job.

For the purpose of this standard, managerial discretion is the administrative authority to make decisions and choices with some degree of flexibility, while maintaining compliance with this standard. There is no discretion to depart from the principles and the mandatory requirements of this standard. All decisions should be taken very carefully.

When exercising discretion, the rationale must be documented and filed with the claim. Approvers are accountable for their decisions, which must:
- be subject to good judgment and knowledge of the situation;
- be exercised in appropriate circumstances; and
- comply with the principles and mandatory requirements set out in this standard.

When a situation arises and discretion needs to be exercised, approvers should consider whether the request is:
- able to stand up to scrutiny by the auditors and members of the public
- properly explained and documented
- fair and equitable
- reasonable
- appropriate

It is the responsibility of both the approver and the claimant to work out appropriate arrangements which would meet the test of being fair and equitable.

Approvers must:
- provide approval only for expenses that were necessarily incurred in the performance of OPG’s business;
- provide approval only for claims that include all appropriate documentation (e.g. original itemized receipts);
- not approve their own expenses.

2.3 Controllership

Responsible and accountable for providing advice and direction on interpretation and application of this Standard.
2.4 Shared Financial Services – Transaction Processing

Responsible and accountable for reporting instances of non-compliance to Controllership and management, and ensuring that approval limits based on the Organizational Authority Register are applied to each Employee based on their position within the Human Resources System. The Corporate Card Help Desk is available at corporate.card@opg.com, 400-4005 or 1-888-264-3460 to provide system support and assistance on where to find guidance in the Standard.

3.0 DEFINITIONS AND ACRONYMS

3.1 Definitions

**Approver** refers to the person with the authority to make approvals under this standard.

**Claimant** refers to any person making a claim under the terms of this standard.

**Offsite Location** is a site where the employee does not report on a regular basis such as business location or another OPG office.

**Personal Use** any non-business related travel. See Appendix A for guidelines.

**Regular Work Headquarters** is the location to which the employee normally reports in order to receive his/her daily work assignment or to perform his/her regular duties.

**Regular Work Location** is the location to which the employee reports in order to receive his or her daily work assignments, supervise employees or to perform duties. An employee can have more than one Regular Work Location. The determining factor is the degree of regularity to which the employee reports to these location(s).

For example, if an employee’s job description requires him or her to report to Pickering three days a week and to Darlington two days a week every week, then both Pickering and Darlington are considered to be his or her regular work locations.

**Remote Work Location** is a location at which the employee could not be expected to maintain a principal residence due to the remoteness from an established community. As a general rule, a work site is considered remote if the nearest community with a population of 1,000 or more is at least 80 kilometers away by the most direct route normally travelled.

**Special Work Site** is a location where the duties performed are of a temporary nature, if the employee's permanent home (i.e., principal residence) is at another location:

- That was available for his occupancy and not rented, and;
- That was too far away from the work site for daily commuting to be reasonable.
- For the purposes of a "special work site", temporary employment is considered to be less than 2 years of continuous employment, but depends upon the facts of the situation and the expected duration at the beginning of the assignment.

**Temporary Lodging:** Temporary lodging includes a hotel, short-term apartment, executive apartment or similar accommodation.
BUSINESS TRAVEL AND EXPENSES

Temporary Work Headquarters is the location to which an employee is directed in order to carry out assigned duties away from the Regular Work Headquarters.

3.2 Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMEX</td>
<td>Corporate American Express</td>
</tr>
<tr>
<td>BT&amp;E</td>
<td>Business Travel &amp; Expense</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>CRA</td>
<td>Canada Revenue Agency</td>
</tr>
<tr>
<td>ELT</td>
<td>Executive Leadership Team</td>
</tr>
<tr>
<td>OPG</td>
<td>Ontario Power Generation</td>
</tr>
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</table>

4.0 BASES AND REFERENCES

4.1 Records

<table>
<thead>
<tr>
<th>Record Created</th>
<th>Associated Form Number</th>
<th>Filing Information/Retention</th>
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</thead>
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<tr>
<td>Receipts attached to Expense Reports</td>
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</tr>
<tr>
<td>Completed Missing Receipt Form for each missing/lost</td>
<td>FIN-FORM-0017</td>
<td>Attached electronically to expense reports and filed in the BT&amp;E</td>
</tr>
<tr>
<td>correcting receipt in order to support the expense</td>
<td></td>
<td>system for 7 years.</td>
</tr>
<tr>
<td>claim</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Account Summary and Current Charges</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>summary pages for mobile device expenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel and Training Approval Form</td>
<td>OPG-FORM-0025</td>
<td></td>
</tr>
<tr>
<td>Request to Travel Out of North America Form</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Declaration of Exemption</td>
<td>CRA Form TD4</td>
<td>Filed by Payroll in employee file for 7 years.</td>
</tr>
</tbody>
</table>

4.2 Bases

- Shareholder Directive
- Collective Agreement between OPG and the Power Worker’s Union.
- Collective Agreement between OPG and the Society of Energy Professionals

4.3 References

4.3.1 Performance References

CRA Form TD4, Declaration of Exemption
FIN-FORM-0017, Missing Receipt Form
OPG-FORM-0025, Travel, Training and Development Request and Approval Form
OPG-INS-08700-0001, Business Travel and Expense Credit Card Instruction
OPG-PROC-0102, Risk Management and Insurance
4.3.2 Developmental References

OPG-HR-CB-PROC-05-02-01, Extramural Training
OPG-POL-0013, Code of Business Conduct
OPG-STD-0017, Organizational Authority Register

5.0 REVISION SUMMARY

This is an intent revision.

- Incorporates and supersedes FIN-PROC-0020. Changes include addition of Section 1.5.3 Taxation of Payments for Personal Use of Vehicle, additions to 2.1, 3.1 Definitions, addition of tax related forms to Section 4.1, and addition of Appendix A.

- Purpose updated to include employees on secondment and engaged in new business ventures, and employee recognition.

- Use of the word such as “must,” “will,” and “are to” replaced with the words “shall,” “should,” and “may” as appropriate and consistent with OPG-STD-0001.

- Guiding principles added to Section 1.1.

- General wording changes to align more closely with the Ontario government’s Travel, Meal and Hospitality Expenses Directive in Sections 1.1.7, 1.2, 1.5 (Sections 1.5.1, 1.5.2, 1.5.3, and 1.5.4 added), 1.5.5.1, 1.5.5.3, 1.5.5.6, 1.6, 1.7.4, 1.7.5, 1.8.1, 2.1 and 2.2.

- Requirement for AMEX statements, and research and rationale added to Section 1.2 Receipts and Documentation.

- Relocation added to table of Section 1.4.1 and Section 1.11.3 Employee Relocation Expenses added.

- Rationale for using personal vehicle if distance travelled exceeds 200 km/day added to Section 1.5.2. Reference made to Corporate Fleet governance for employees who drive 20,000 km or more annually.

- Section 1.5.5 Liability Claims Process for Rented and Employee Owned Motor Vehicles added.

- Section 1.7.1 Parking and Tolls updated to remove reference to tolls.

- Section 1.8.1 Eligibility and Requirements updated to qualify when reimbursement for meals is permitted. The qualification regarding the daily maximum when only two meals are eaten has been moved from Section 1.8.3 to Section 1.8.1.

- Section 1.8.2 Meal Allowances for Represented Employees (Canada) updated to include qualification for individual meal amounts for represented staff.

- Name of website updated in Section 1.8.4 Meals Outside of Canada
• Section 1.8.5 Refreshments for Employee Recognition Programs added.

• Paragraph added to the beginning of Section 1.10 Wireless Communications.

• Role of Managers updated in Section 2.2

• Acronyms added to Section 3.2

• Retention updated in Table in Section 4.1.

• In Revision R003, Compliance Date updated and reference to FIN-FORM-0017 changed from FIN-FORM-TE-004.
## Appendix A

### Guidelines for Claiming Mileage and/or Car Rental*

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Mileage/Car rental expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel between an <strong>Offsite Location</strong> and an employee’s home or the <strong>Regular Work Location</strong>.</td>
<td>May be claimed in accordance with the collective agreement(s) through the BT&amp;E system.</td>
</tr>
<tr>
<td>Travel between a rental agency, or pool, and employee’s home to facilitate a specific, single business trip.</td>
<td>May be claimed in the BT&amp;E system.</td>
</tr>
<tr>
<td>Employee has more than one <strong>Regular Work Location</strong> - travel between two <strong>Regular Work Locations</strong>.</td>
<td>May be claimed in the BT&amp;E system.</td>
</tr>
<tr>
<td>Employee has more than one <strong>Regular Work Location</strong> - travel between home and either <strong>Regular Work Location</strong>.</td>
<td>Shall not be claimed in the BT&amp;E system.</td>
</tr>
<tr>
<td>All trips to or from an employee’s home to or from their <strong>Regular Work Locations</strong> including situations where the employee is called in to work at his/her <strong>Regular Work Locations</strong> after normal hours.</td>
<td>Shall not be claimed.</td>
</tr>
<tr>
<td>Mileage reimbursement taken in lieu of relocation assistance.</td>
<td>May be claimed in the BT&amp;E system.</td>
</tr>
<tr>
<td>Employee is on a rotation reporting to a supervisor at a location other than their base work location.</td>
<td>Car rental expense may be claimed in the BT&amp;E system.</td>
</tr>
<tr>
<td>For employees who carry out their duties at a <strong>Special Work Site</strong> or <strong>Remote Work Location</strong>, all of the following criteria shall be met in order to qualify for <strong>Special Work Site</strong> and <strong>Remote Work Location</strong> exemptions:</td>
<td></td>
</tr>
<tr>
<td>‼️ The payment relates to travel between the employee’s home (i.e., principal residence) and a <strong>Special Work Site</strong> or a <strong>Remote Work Location</strong>.</td>
<td></td>
</tr>
<tr>
<td>‼️ The payment relates to a period when the employee received non-taxable board and lodging benefits or a non-taxable allowance for board and lodging at the <strong>Special Work Site</strong> or <strong>Remote Work Location</strong>.</td>
<td></td>
</tr>
<tr>
<td>‼️ The employee is required to be away from his ordinary place of residence or to be at the <strong>Special Work Site</strong> or <strong>Remote Work Location</strong> for at least 36 hours.</td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong> <em>For travel between the employee’s home and Temporary Lodging</em></td>
<td></td>
</tr>
</tbody>
</table>

**Travel between Temporary Lodging and a Temporary Work Headquarter.**

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*If unsure of tax treatment, consult *Taxation*. 

---

*"If unsure of tax treatment, consult Taxation."*
LPMA Interrogatory #014

Ref: Exhibit F4 Tab 3, Schedule 1

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

a) Please update Attachment 6 to reflect actual data for 2013.
b) Please explain any significant differences between the forecast the actuals for 2013.

Response

a) and b) The information requested cannot reasonably be assembled and submitted during the interrogatory period. See Ex. L-06.9-1 Staff 002.
**SEC Interrogatory #103**

Ref: A2-1-1/Attach 1, p.129

**Issue Number:** 6.8  
**Issue:** Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

**Interrogatory**

Please provide the most recent actuarial valuations of the registered pension plans.

**Response**

Attachment 1 – “Report on the Actuarial Valuation for Funding Purposes as at January 1, 2011” provided in EB-2012-0002 Ex H2-1-3, Attachment 3 is the most recent actuarial valuation for the Ontario Power Generation Inc. registered pension plan.

Attachment 2 – “Report on the Actuarial Valuation of the NWMO Pension Plan as at January 1, 2013.” is the most recent valuation for the NWMO registered pension plan.
June 2011

Ontario Power Generation Inc. Pension Plan

Report on the Actuarial Valuation for Funding Purposes as at January 1, 2011

MERCER

Financial Services Commission of Ontario Registration Number: 1059120
Canada Revenue Agency Registration Number: 1059120

Ontario Power Generation Inc. Pension Plan

Note to reader regarding actuarial valuations:

This valuation report may not be relied upon for any purpose other than those explicitly noted in the Introduction, nor may it be relied upon by any party other than the parties noted in the Introduction. Mercer is not responsible for the consequences of any other use. A valuation report is a snapshot of a plan's estimated financial condition at a particular point in time; it does not predict a pension plan's future financial condition or its ability to pay benefits in the future. If maintained indefinitely, a plan's total cost will depend on a number of factors, including the amount of benefits the plan pays, the number of people paid benefits, the amount of plan expenses, and the amount earned on any assets invested to pay the benefits. These amounts and other variables are uncertain and unknowable at the valuation date.

To prepare the results in this report, actuarial assumptions are used to model a single scenario from a range of possibilities for each valuation basis. The results based on that single scenario are included in this report. However, the future is uncertain and the plan's actual experience will differ from those assumptions; these differences may be significant or material. Different assumptions or scenarios within the range of possibilities may also be reasonable, and results based on those assumptions would be different. Furthermore, actuarial assumptions may be changed from one valuation to the next because of changes in regulatory and professional requirements, developments in case law, plan experience, changes in expectations about the future and other factors.

The valuation results shown in this report also illustrate the sensitivity to one of the key actuarial assumptions, the discount rate. We note that the results presented herein rely on many assumptions, all of which are subject to uncertainty, with a broad range of possible outcomes and the results are sensitive to all the assumptions used in the valuation.

Should the plan be wound up, the going concern funded status and solvency financial position, if different from the wind-up financial position, become irrelevant. The hypothetical wind-up financial position estimates the financial position of the plan assuming it is wound-up on the valuation date. Emerging experience will affect the wind-up financial position of the plan assuming it is wound-up in the future. In fact, even if the plan were wound-up on the valuation date, the financial position would continue to fluctuate until the benefits are fully settled.

Because actual plan experience will differ from the assumptions used in this valuation, decisions about benefit changes, investment policy, funding amounts, benefit security and/or benefit-related issues should be made only after careful consideration of alternative future financial conditions and scenarios, and not solely on the basis of a valuation report or reports.
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7. Maximum Eligible Contributions .......................................... 14
8. Actuarial Opinion ................................................................. 16

Appendix A: Prescribed Disclosure
Appendix B: Plan Assets
Appendix C: Methods and Assumptions – Going Concern
Appendix D: Methods and Assumptions – Hypothetical Wind-up and Solvency
Appendix E: Membership Data
Appendix F: Summary of Plan Provisions
Appendix G: Employer Certification
## Summary of Results

<table>
<thead>
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<th>($000's)</th>
<th>01.01.2011</th>
<th>01.01.2008</th>
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</thead>
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<tr>
<td>Market-related value of assets</td>
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<td>Going-concern funding target</td>
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<tr>
<td>Funding excess (shortfall)</td>
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<td>($238,780)</td>
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<tr>
<td><strong>Hypothetical Wind-up Financial Position</strong></td>
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<td>Wind-up assets</td>
<td>$9,001,225</td>
<td>$8,855,792</td>
</tr>
<tr>
<td>Wind-up liability</td>
<td>$14,664,485</td>
<td>$11,702,024</td>
</tr>
<tr>
<td>Wind-up excess (shortfall)</td>
<td>($5,663,260)</td>
<td>($2,846,232)</td>
</tr>
<tr>
<td>Transfer Ratio</td>
<td>61.4%</td>
<td>75.7%</td>
</tr>
<tr>
<td><strong>Funding Requirements in the Year Following the Valuation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total current service cost</td>
<td>$294,417</td>
<td>$270,960</td>
</tr>
<tr>
<td>Estimated members' required contributions</td>
<td>($76,796)</td>
<td>($65,641)</td>
</tr>
<tr>
<td>Estimated employer's current service cost</td>
<td>$217,621</td>
<td>$205,319</td>
</tr>
<tr>
<td>Employer's current service cost as a percentage of members' pensionable earnings</td>
<td>18.1%</td>
<td>19.2%</td>
</tr>
<tr>
<td>Minimum special payments</td>
<td>$64,837</td>
<td>$27,726</td>
</tr>
<tr>
<td>Estimated minimum employer contribution</td>
<td>$282,458</td>
<td>$233,045</td>
</tr>
<tr>
<td>Estimated maximum eligible employer contribution</td>
<td>$5,880,881</td>
<td>$3,051,551</td>
</tr>
<tr>
<td>Next required valuation date</td>
<td>January 1, 2014</td>
<td>January 1, 2011</td>
</tr>
</tbody>
</table>

---

1 Provided for reference purposes only. Contributions must be remitted to the Plan in accordance with the Minimum Funding Requirements and Maximum Eligible Contributions sections of this report.
Introduction

To Ontario Power Generation Inc.

At the request of Ontario Power Generation Inc. (the “Company” or “OPG”), we have conducted an actuarial valuation of the Ontario Power Generation Inc. Pension Plan (the “Plan”), sponsored by the Company, as at January 1, 2011 (the “valuation date”). We are pleased to present the results of the valuation.

Purpose

The purpose of this valuation is to determine:

- the funded status of the Plan as at January 1, 2011 on going concern, hypothetical wind-up and solvency bases,

- the minimum required funding contributions from 2011, in accordance with the Pension Benefits Act (Ontario); and

- the maximum permissible funding contributions from 2011, in accordance with the Income Tax Act.

The information contained in this report was prepared for the internal use of the Company and for filing with the regulators, in connection with our actuarial valuation of the Plan. This report will be filed with the Financial Services Commission of Ontario and with the Canada Revenue Agency. This report is not intended or suitable for any other purpose.

In accordance with pension benefits legislation, the next actuarial valuation of the Plan will be required as at a date not later than January 1, 2014, or as at the date of an earlier amendment to the Plan.
Terms of Engagement

In accordance with our terms of engagement with the Company, our actuarial valuation of the Plan is based on the following material terms:

- It has been prepared in accordance with applicable pension legislation and actuarial standards of practice in Canada;
- As instructed by the Company, we have not reflected any margin for adverse deviations in the going-concern valuation; and
- We have reflected the Company decisions for determining the solvency funding requirements. Specifically, this included the decision to exclude indexing from the solvency liabilities, and to smooth the solvency valuation results. Additional details are provided in the Valuation Results – Solvency section of the report.

Events Since the Last Valuation at January 1, 2008

Pension Plan

Nuclear Waste Management Organization (NWMO) Transfer

Effective January 1, 2009, 63 members of the Plan were transferred from OPG to NWMO. In accordance with agreements between OPG and NWMO, assets and liabilities with respect to service accrued under the Plan by these members prior to January 1, 2009 will be transferred to a new registered defined benefit pension plan set up by NWMO, upon approval of the Actuarial Report on the Transfer of Assets and Liabilities to the NWMO Pension Plan as at January 1, 2009. For the purposes of this report, the liabilities in respect of the NWMO members have been excluded from the calculation of the plan liabilities and the market value of assets has been reduced by the estimated amount to be transferred to the NWMO Pension Plan.

Inspection, Maintenance & Commercial Services (IM&CS) Transfer

Effective August 3, 2010, 51 members of the Plan were transferred from OPG to Bruce Power LP ("Bruce Power"). In accordance with agreements between OPG and Bruce Power, assets and liabilities with respect to service accrued under the Plan by these members prior to August 3, 2010 will be transferred to the Bruce Power Pension Plan, upon approval of the Actuarial Report on the Transfer of Assets and Liabilities to the Bruce Power Pension Plan as at August 3, 2010. For the purposes of this report, the liabilities in respect of the IM&CS members have been excluded from the calculation of the plan liabilities and the market value of assets has been reduced by the estimated amount to be transferred to the Bruce Power Pension Plan. An asset transfer report is in the process of being prepared.
Other Amendments

This valuation reflects the provisions of the Plan as at January 1, 2011. In addition to the two asset transfers described above, the Plan has been amended since the date of the previous valuation as follows:

- to increase the required employee contribution rate for members represented by the PWU to 5.0% on base earnings up to the YMPE and 7.0% on base earnings above the YMPE;
- to increase the amount of bonus recognized in pensionable earnings for certain groups of employees; and
- for certain housekeeping issues which did not impact the valuation.

There have been no other changes to the plan provisions that have a material impact on the liabilities. The plan provisions are summarised in Appendix F.

Assumptions

We have used the same going concern valuation assumptions and methods as were used for the previous valuation, except for the following:

<table>
<thead>
<tr>
<th>Current valuation</th>
<th>Previous valuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discount rate:</td>
<td>6.30%</td>
</tr>
<tr>
<td></td>
<td>6.00%</td>
</tr>
<tr>
<td>Indexation of Deferred Pensions &amp; Pensions in Payment:</td>
<td>2.50%</td>
</tr>
<tr>
<td>ITA limit / YMPE increases:</td>
<td>3.50%</td>
</tr>
<tr>
<td>Increases in Pensionable Earnings</td>
<td>3.50%</td>
</tr>
<tr>
<td>Interest on employee contributions</td>
<td>5.30%</td>
</tr>
</tbody>
</table>

The hypothetical wind-up and solvency assumptions have been updated to reflect market conditions at the valuation date.

A summary of the going concern, hypothetical wind-up and solvency methods and assumptions are provided in Appendices C and D.

Regulatory Environment and Actuarial Standards

There have been a number of changes to the Pension Benefits Act (Ontario) (the "Act") and regulations which impact the funding of the Plan.

In August of 2010, the Government of Ontario announced its intentions to make changes to the funding requirements for pension plans registered in Ontario. In December of 2010, Bill 120 received Royal assent; however, the changes to the funding requirements which impact the funding of single-employer pension plans will be contained in regulations which have not yet been published.
A new Canadian actuarial Standard of Practice For Determining Pension Commuted Values ("CIA CV Standard") became effective on April 1, 2009. The new CIA CV Standard changed the assumptions to be used to value the solvency and wind-up liabilities for benefits assumed to be settled through a lump sum transfer. The financial impact of the new CIA CV standard has been reflected in this actuarial valuation. We note that effective February 1, 2011, the CIA CV Standard provides for an updated discount rate and mortality basis, which will be reflected in the next actuarial valuation.

A new Canadian actuarial Standard of Practice -- Practice Specific Standards of Practice for Pension Plans became effective December 31, 2010 (the "CIA Pension Standards"). The requirements of the CIA Pension Standards have been reflected in this report.

Subsequent Events

OPG and members represented by the Power Workers Union have entered into a collective bargaining agreement in 2009 that outlines the base salary increases for 2009, 2010 and 2011. OPG and members represented by the Society of Energy Professionals have entered into collective bargaining agreements that outline the base salary increases for 2010, 2011 and 2012. The impact of these negotiated base salary increases have been reflected in this valuation.

After checking with representatives of the Company, to the best of our knowledge there have been no other events subsequent to the valuation date which, in our opinion, would have a material impact on the results of the valuation.

Impact of Case Law

On July 29, 2004, the Supreme Court of Canada dismissed the appeal in Monsanto Canada Inc. versus Superintendent of Financial Services ("Monsanto"), thereby upholding the requirements to distribute surplus on partial plan wind-up under the Pension Benefits Act (Ontario). The decision has retroactive application.

We are not aware of any partial plan wind-up having been declared in respect of the Plan where the Monsanto decision may apply. In preparing this actuarial valuation, we have therefore assumed that all plan assets are available to cover the plan liabilities presented in this report. A subsequent declaration of a partial wind-up of the Plan where Monsanto may apply in respect of a past event, or disclosure of an existing past partial wind-up, could cause an additional claim on plan assets, the consequences of which would be addressed in a subsequent report. We note the discretionary nature of the power of the regulatory authorities to declare partial wind-ups and the lack of clarity with respect to the retroactive scope of that power. We are making no representation as to whether the regulatory authorities might declare a partial wind-up in respect of any events in the Plan's history.
Valuation Results – Going Concern

Financial Status

A going concern valuation compares the relationship between the value of plan assets and the present value of expected future benefit cash flows in respect of accrued service, assuming the Plan will be maintained indefinitely.

The results of the current valuation, compared with those from the previous valuation, are summarized as follows:

<table>
<thead>
<tr>
<th>($000's)</th>
<th>01.01.2011</th>
<th>01.01.2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market value of assets</td>
<td>$9,074,525</td>
<td>$8,914,292</td>
</tr>
<tr>
<td>Asset smoothing adjustment</td>
<td>$563,764</td>
<td>$1,367</td>
</tr>
<tr>
<td>Market-related value of assets</td>
<td>$9,638,289</td>
<td>$8,915,659</td>
</tr>
</tbody>
</table>

Going concern funding target

- active and disabled members            | $5,527,884   | $4,772,245   |
- pensioners and survivors              | $4,552,033   | $4,262,627   |
- deferred pensioners                   | $113,319     | $119,447     |
- voluntary contributions with interest  | $78          | $120         |

Total funding target                      | $10,193,314  | $9,154,439   |

Funding excess (shortfall)                | ($555,025)   | ($238,780)   |

The going concern funding target as at January 1, 2011 is based on best estimate assumptions and does not include a provision for adverse deviations.

---

2 The method used to roll forward the liabilities from January 1, 2010 to January 1, 2011, as described in Appendix C, should provide a reasonable approximation of the total liabilities at January 1, 2011; however, the allocation between liability groups at January 1, 2011 may be different from that shown above.
Reconciliation of Financial Status (in 000's)

<table>
<thead>
<tr>
<th>Description</th>
<th>2011</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding excess (shortfall) as at previous valuation</td>
<td>($238,780)</td>
<td></td>
</tr>
<tr>
<td>Interest on funding excess (funding shortfall) at 6.00% per year</td>
<td>($45,611)</td>
<td></td>
</tr>
<tr>
<td>Employer's special payments, with interest</td>
<td>$195,175</td>
<td></td>
</tr>
<tr>
<td>Expected funding excess (funding shortfall)</td>
<td>($99,216)</td>
<td></td>
</tr>
<tr>
<td>Net experience gains (losses)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Net investment return</td>
<td>($1,188,488)</td>
<td></td>
</tr>
<tr>
<td>▪ Impact of smoothing method</td>
<td>$573,411</td>
<td></td>
</tr>
<tr>
<td>▪ Increases in pensionable earnings</td>
<td>$9,685</td>
<td></td>
</tr>
<tr>
<td>▪ Increase in YMPE &amp; maximum pension</td>
<td>$5,998</td>
<td></td>
</tr>
<tr>
<td>▪ Indexation</td>
<td>$88,092</td>
<td></td>
</tr>
<tr>
<td>▪ Mortality</td>
<td>($1,900)</td>
<td></td>
</tr>
<tr>
<td>▪ Retirement</td>
<td>($32,740)</td>
<td></td>
</tr>
<tr>
<td>▪ Termination</td>
<td>($8,943)</td>
<td></td>
</tr>
<tr>
<td>▪ Disability</td>
<td>($15,267)</td>
<td></td>
</tr>
<tr>
<td>▪ Transfers In/Reinstated Deferreds</td>
<td>($990)</td>
<td></td>
</tr>
<tr>
<td>Total experience gains (losses)</td>
<td>($571,142)</td>
<td></td>
</tr>
<tr>
<td>Impact of NWMO divestiture</td>
<td>$1,453</td>
<td></td>
</tr>
<tr>
<td>Impact of IMCS divestiture</td>
<td>$396</td>
<td></td>
</tr>
<tr>
<td>Impact of change in assumptions</td>
<td>$106,194</td>
<td></td>
</tr>
<tr>
<td>Net impact of other elements of gains and losses</td>
<td>($2,710)</td>
<td></td>
</tr>
<tr>
<td>Funding excess (shortfall) as at current valuation</td>
<td>($555,025)</td>
<td></td>
</tr>
</tbody>
</table>

Current Service Cost

The current service cost is an estimate of the present value of the additional expected future benefit cash flows in respect of pensionable service that will accrue after the valuation date, assuming the Plan will be maintained indefinitely.

The current service cost during the year following the valuation date compared with the corresponding value determined in the previous valuation, is as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>2011</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total current service cost</td>
<td>$294,417</td>
<td>$270,960</td>
</tr>
<tr>
<td>Estimated members' required contributions</td>
<td>($76,796)</td>
<td>($65,541)</td>
</tr>
<tr>
<td>Estimated employer's current service cost</td>
<td>$217,621</td>
<td>$205,319</td>
</tr>
<tr>
<td>Estimated members' pensionable earnings (excluding disabled members)</td>
<td>$1,203,279</td>
<td>$1,070,777</td>
</tr>
<tr>
<td>Employer's current service cost expressed as a percentage of members' pensionable earnings</td>
<td>18.1%</td>
<td>19.2%</td>
</tr>
</tbody>
</table>
The key factors that have caused a change in the employer's current service cost since the previous valuation are summarized in the following table:

| Employer's current service cost as at previous valuation | 19.2% |
| Demographic changes | (0.4%) |
| Plan amendments | (0.3%) |
| Changes in assumptions | (0.4%) |
| Employer's current service cost as at current valuation | 18.1% |

**Discount Rate Sensitivity**

The following table summarises the effect on the going concern funding target and current service cost shown in this report of using a discount rate which is 1.00% lower than that used in the valuation:

<table>
<thead>
<tr>
<th>Scenario ($000's)</th>
<th>Valuation Basis</th>
<th>Reduce Discount Rate by 1%</th>
<th>Dollar Change</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Going concern funding target</td>
<td>$10,193,314</td>
<td>$11,919,194</td>
<td>+ $1,725,880</td>
<td>+ 17%</td>
</tr>
</tbody>
</table>

**Current Service Cost**

- Total current service cost: $294,417 | $374,450 | + $80,033 | + 27%
- Estimated members' required contributions: ($76,796) | ($76,796) | n/a | n/a
- Estimated employer's current service cost: $217,621 | $297,654 | + $80,033 | + 37%
Valuation Results – Hypothetical Wind-up

Financial Position

When conducting a hypothetical wind-up valuation, we determine the relationship between the respective values of the Plan's assets and its liabilities assuming the Plan is wound up and settled on the valuation date, assuming benefits are settled in accordance with the Act and under circumstances producing the maximum wind-up liabilities on the valuation date.

The hypothetical wind-up financial position as of the valuation date, compared with that at the previous valuation, is as follows:

<table>
<thead>
<tr>
<th>($000's)</th>
<th>01.01.2011</th>
<th>01.01.2008</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market value of assets</td>
<td>$9,074,525</td>
<td>$8,914,292</td>
</tr>
<tr>
<td>Termination expense provision</td>
<td>($73,300)</td>
<td>($58,500)</td>
</tr>
<tr>
<td>Wind-up assets</td>
<td>$9,001,225</td>
<td>$8,855,792</td>
</tr>
<tr>
<td><strong>Present value of accrued benefits for:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>active and disabled members</td>
<td>$8,582,248</td>
<td>$6,622,113</td>
</tr>
<tr>
<td>pensioners and survivors</td>
<td>$5,918,309</td>
<td>$4,924,041</td>
</tr>
<tr>
<td>deferred pensioners</td>
<td>$163,850</td>
<td>$155,750</td>
</tr>
<tr>
<td>voluntary contributions with interest</td>
<td>$78</td>
<td>$120</td>
</tr>
<tr>
<td>Total wind-up liability</td>
<td>$14,664,485</td>
<td>$11,702,024</td>
</tr>
<tr>
<td>Wind-up excess (shortfall)</td>
<td>($5,663,260)</td>
<td>($2,846,232)</td>
</tr>
</tbody>
</table>

3 The method used to roll forward the liabilities from January 1, 2010 to January 1, 2011, as described in Appendix D, should provide a reasonable approximation of the total liabilities at January 1, 2011; however, the allocation between liability groups at January 1, 2011 may be different from that shown above.
Wind-up Incremental Cost to January 1, 2014

The wind-up incremental cost is an estimate of the present value of the projected change in the hypothetical wind-up liabilities from the valuation date until the next scheduled valuation date, adjusted for the benefit payments expected to be made in that period.

The hypothetical wind-up incremental cost determined in this valuation is as follows:

<table>
<thead>
<tr>
<th>($000's)</th>
<th>01.01.2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of years covered by report</td>
<td>3 years</td>
</tr>
<tr>
<td>Total hypothetical wind-up liabilities at the valuation date (A)</td>
<td>$14,664,485</td>
</tr>
<tr>
<td>Present value, at January 1, 2011, of projected hypothetical wind-up liability at the next required valuation (including expected new entrants) plus benefit payments until the next required valuation (B)</td>
<td>$16,110,000</td>
</tr>
<tr>
<td>Hypothetical wind-up incremental cost over the three-year period until the next required valuation (B - A)</td>
<td>$1,445,515</td>
</tr>
</tbody>
</table>

We note that the incremental cost is not an appropriate measure of the contributions that would be required to maintain the financial position of the Plan on a hypothetical wind-up basis from the valuation date and the next required valuation date if actual experience is exactly in accordance with the going-concern valuation assumptions. This is because it does not reflect the fact that the expected return on plan assets (based on the going-concern assumptions) is greater than the discount rate used to determine the hypothetical wind-up liabilities.

Discount Rate Sensitivity

The following table summarises the effect on the hypothetical wind-up liabilities shown in this report of using a discount rate which is 1.00% lower than that used in the valuation:

<table>
<thead>
<tr>
<th>Scenario ($000's)</th>
<th>Valuation Basis</th>
<th>Reduce Discount Rate by 1%</th>
<th>Dollar Change</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total hypothetical wind-up liability</td>
<td>$14,664,485</td>
<td>$17,417,208</td>
<td>+ $2,752,723</td>
<td>+ 19%</td>
</tr>
</tbody>
</table>
Valuation Results – Solvency

Overview

The Act also requires the financial position of the Plan to be determined on a solvency basis. The financial position on a solvency basis is determined in a similar manner to the Hypothetical Wind-up Basis, except for the following:

<table>
<thead>
<tr>
<th>Exceptions</th>
<th>Reflected in valuation based on the terms of engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>The circumstance under which the Plan is assumed to be wound-up could differ for the solvency and hypothetical wind-up valuations.</td>
<td>The same circumstances were assumed for the solvency valuation as were assumed for the hypothetical wind-up.</td>
</tr>
<tr>
<td>Certain benefits can be excluded from the solvency financial position. These include:</td>
<td>As permitted under the Pension Benefits Act (Ontario) and elected by OPG, the cost of future pre and post retirement indexing is excluded from the solvency liabilities shown in this report.</td>
</tr>
<tr>
<td>(a) any escalated adjustment (e.g. indexing),</td>
<td></td>
</tr>
<tr>
<td>(b) certain plant closure benefits,</td>
<td></td>
</tr>
<tr>
<td>(c) certain permanent layoff benefits,</td>
<td></td>
</tr>
<tr>
<td>(d) special allowances other than funded special allowances,</td>
<td></td>
</tr>
<tr>
<td>(e) consent benefits other than funded consent benefits,</td>
<td></td>
</tr>
<tr>
<td>(f) prospective benefit increases,</td>
<td></td>
</tr>
<tr>
<td>(g) potential early retirement window benefit values, and</td>
<td></td>
</tr>
<tr>
<td>(h) pension benefits and ancillary benefits payable under a qualifying annuity contract.</td>
<td></td>
</tr>
<tr>
<td>The financial position on the solvency basis needs to be adjusted for any Prior Year Credit Balance.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>The solvency financial position can be determined by smoothing assets and the solvency discount rate over a period of up to 5 years.</td>
<td>Solvency assets and liabilities were smoothed over 5 years.</td>
</tr>
</tbody>
</table>

Mercer (Canada) Limited
# Financial Position

The financial position on a solvency basis, compared with the corresponding figures from the previous valuation, is as follows:

<table>
<thead>
<tr>
<th></th>
<th>01.01.2011</th>
<th>01.01.2008</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market value of assets</td>
<td>$9,074,525</td>
<td>$8,914,292</td>
</tr>
<tr>
<td>Termination expense provision</td>
<td>($73,300)</td>
<td>($58,500)</td>
</tr>
<tr>
<td>Net assets</td>
<td>$9,001,225</td>
<td>$8,855,792</td>
</tr>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total hypothetical wind-up liabilities</td>
<td>$14,664,485</td>
<td>$11,702,024</td>
</tr>
<tr>
<td>Difference in circumstances of assumed wind-up</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Value of excluded benefits</td>
<td>($5,203,066)</td>
<td>($3,517,915)</td>
</tr>
<tr>
<td>Liabilities on a solvency basis</td>
<td>$9,461,419</td>
<td>$8,184,109</td>
</tr>
<tr>
<td>Surplus (shortfall) on a market value basis</td>
<td>($460,194)</td>
<td>$671,683</td>
</tr>
<tr>
<td>Liability smoothing adjustment</td>
<td>$181,760</td>
<td>$0</td>
</tr>
<tr>
<td>Asset smoothing adjustment</td>
<td>$281,727</td>
<td>$0</td>
</tr>
<tr>
<td>Surplus (shortfall) on a solvency basis</td>
<td>$3,293</td>
<td>$671,683</td>
</tr>
<tr>
<td>Transfer ratio</td>
<td>0.614</td>
<td>0.757</td>
</tr>
</tbody>
</table>
Minimum Funding Requirements

The Act prescribes the minimum contributions that OPG must make to the Plan. The minimum contributions in respect of a defined benefit component of a pension plan are comprised of going concern current service cost and special payments to fund any going concern or solvency shortfalls.

On the basis of the assumptions and methods described in this report, the rule for determining the minimum required employer contributions, as well as an estimate of the employer contributions, from the valuation date until the next required valuation are as follows:

<table>
<thead>
<tr>
<th>Period beginning</th>
<th>Employer's contribution rule</th>
<th>Minimum annual special payments</th>
<th>Estimated employer's contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current service cost&lt;sup&gt;4&lt;/sup&gt;</td>
<td></td>
<td>Annual current service cost</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total minimum annual contributions</td>
</tr>
<tr>
<td>January 1, 2011</td>
<td>18.1%</td>
<td>$64,837</td>
<td>$217,621</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$282,458</td>
</tr>
<tr>
<td>January 1, 2012</td>
<td>18.1%</td>
<td>$64,837</td>
<td>$224,864</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$289,701</td>
</tr>
<tr>
<td>January 1, 2013</td>
<td>18.1%</td>
<td>$64,837</td>
<td>$232,734</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$297,571</td>
</tr>
</tbody>
</table>

The estimated contribution amounts shown above are based on members' projected pensionable earnings. Therefore the actual employer's current service cost will be different from the above estimates and, as such, the contribution requirements should be monitored closely to ensure contributions are made in accordance with the Act.

The development of the minimum special payments is summarized in Appendix A.

<sup>4</sup> Expressed as a percentage of members' pensionable earnings.
Other Considerations

Differences between valuation bases

There is no provision in the minimum funding requirements to fund the difference between the hypothetical wind-up and solvency shortfalls, if any.

In addition, although minimum funding requirements do include a requirement to fund the going concern current service cost, there is no requirement to fund the expected growth in the hypothetical wind-up or solvency liability after the valuation date, which could be greater than the going concern current service cost.

Timing of contributions

Funding contributions are due on a monthly basis. Contributions for current service cost must be made within 30 days following the month to which they apply. Special payment contributions must be made in the month to which they apply.

Retroactive contributions

The Company must contribute the excess, if any, of the minimum contribution recommended in this report over contributions actually made in respect of the period following the valuation date. This contribution, along with an allowance for interest, is due no later than 60 days following the date this report is filed.

Payment of benefits

The Act imposes certain restrictions on the payment of lump sums from the Plan when the transfer ratio revealed in an actuarial valuation is less than one. If the transfer ratio shown in this report is less than one, the plan administrator should ensure that the monthly special payments are sufficient to meet the requirements of the Act to allow for the full payment of benefits, and otherwise should take the prescribed actions.

Additional restrictions are imposed when:

- The transfer ratio revealed in the most recently filed actuarial valuation is less than one and the administrator knows or ‘ought to know’ that the transfer ratio of the Plan has declined by 10% or more since the date the last valuation was filed.

- The transfer ratio revealed in the most recently filed actuarial valuation is greater than or equal to one and the administrator knows or ‘ought to know’ that the transfer ratio of the Plan has declined to less than 0.9 since the date the last valuation was filed.

As such, the administrator should monitor the transfer ratio of the Plan and, if necessary, take the prescribed actions.
The *Income Tax Act* (the "ITA") limits the amount of employer contributions that can be remitted to the defined benefit component of a registered pension plan. However, notwithstanding the limit imposed by the ITA, in general, the minimum required contributions under the Act can be remitted.

In accordance with Section 147.2 of the ITA and *Income Tax Regulation 8516*, for a plan which is underfunded on either a going concern or on a hypothetical wind-up basis the maximum permitted contributions are equal to the employer's current service cost, including the explicit expense allowance if applicable, plus the greater of the going concern funding shortfall and hypothetical wind-up shortfall.

For a plan which is fully funded on both going concern and hypothetical wind-up bases, the employer can remit a contribution equal to the employer's current service cost, including the explicit expense allowance if applicable, as long as the surplus in the plan does not exceed a prescribed threshold. Specifically, in accordance with Section 147.2 of the ITA, for a plan which is fully funded on both going concern and hypothetical wind-up bases, the plan may not retain its registered status if the employer makes a contribution while the going concern funding excess exceeds 25% of the going concern funding target.

**Schedule of Maximum Contributions**

Based on the results of this valuation, OPG is permitted to fully fund the greater of the going concern and hypothetical wind-up shortfalls (i.e. $5,663,260,000) as well as make current service cost contributions. The portion of this contribution representing the payment of the wind-up deficiency can be increased with interest at 4.35% per year from the valuation date to the date the payment is made, and must be reduced by the amount of any deficit funding made from the valuation date to the date the payment is made.
If the Company had contributed the greater of the going concern and hypothetical wind-up shortfall of $5,663,260,000 as of the valuation date, the rule for determining the estimated maximum eligible annual contributions, as well as an estimate of the maximum eligible contributions until the next valuation are as follows:

<table>
<thead>
<tr>
<th>($000's)</th>
<th>Employer's contribution rule</th>
<th>Estimated employer's contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period beginning</td>
<td>Current service cost&lt;sup&gt;6&lt;/sup&gt;</td>
<td>Deficit Funding</td>
</tr>
<tr>
<td>January 1, 2011</td>
<td>18.1%</td>
<td>n/a</td>
</tr>
<tr>
<td>January 1, 2012</td>
<td>18.1%</td>
<td>n/a</td>
</tr>
<tr>
<td>January 1, 2013</td>
<td>18.1%</td>
<td>n/a</td>
</tr>
</tbody>
</table>

The employer's current service cost in the above table was estimated based on projected members' pensionable earnings. The actual employer's current service cost will be different from these estimates and, as such, the contribution requirements should be monitored closely to ensure compliance with the ITA.

<sup>6</sup> Expressed as a percentage of members' pensionable earnings.
Actuarial Opinion

In our opinion, for the purposes of the valuations,

- the membership data on which the valuation is based are sufficient and reliable,
- the assumptions are appropriate, and
- the methods employed in the valuation are appropriate.

This report has been prepared, and our opinions given, in accordance with accepted actuarial practice in Canada. It has also been prepared in accordance with the funding and solvency standards set by the Pension Benefits Act (Ontario).

Malcolm P. Hamilton  
Fellow of the Society of Actuaries  
Fellow of the Canadian Institute of Actuaries  
22 June 2011

Hrvoje Lakota  
Fellow of the Society of Actuaries  
Fellow of the Canadian Institute of Actuaries  
22 June 2011
Prescribed Disclosure

The Act defines a number of terms as follows:

<table>
<thead>
<tr>
<th>Defined Term</th>
<th>Description</th>
<th>Result ($000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer Ratio</td>
<td>The ratio of solvency assets to the sum of the solvency liabilities and liabilities for benefits, other than benefits payable under qualifying annuity contracts, that were excluded in calculating the solvency liabilities.</td>
<td>0.614</td>
</tr>
<tr>
<td>Solvency Assets</td>
<td>Market value of assets including accrued or receivable income and excluding the value of any qualifying annuity contracts.</td>
<td>$9,001,225</td>
</tr>
</tbody>
</table>

---

\[6\] For purposes of determining the financial position, the market value of plan assets was adjusted by a provision for estimated termination expenses payable from the Plan's assets that may reasonably be expected to be incurred in terminating the Plan and to be charged to the Plan.
### Defined Term Description

<table>
<thead>
<tr>
<th>Defined Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvency Asset</td>
<td>The sum of:</td>
</tr>
<tr>
<td>Adjustment</td>
<td>(a) the difference between smoothed value of assets and the market value of assets;</td>
</tr>
<tr>
<td></td>
<td>(b) the present value of any going concern special payments (including those identified in this report) within 5 years following the valuation date;</td>
</tr>
<tr>
<td></td>
<td>(c) the present value of any previously scheduled solvency special payments (excluding those identified in this report)</td>
</tr>
<tr>
<td></td>
<td>$281,727</td>
</tr>
<tr>
<td></td>
<td>$290,389</td>
</tr>
<tr>
<td></td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td>$572,116</td>
</tr>
<tr>
<td>Solvency Liabilities</td>
<td>Liabilities determined as if the Plan had been wound up on the valuation date, including liabilities for plant closure benefits or permanent layoff benefits that would be immediately payable if the employer's business were discontinued on the valuation date of the report, but, if elected by the plan sponsor, excluding liabilities for,</td>
</tr>
<tr>
<td></td>
<td>(a) any escalated adjustment,</td>
</tr>
<tr>
<td></td>
<td>(b) excluded plant closure benefits,</td>
</tr>
<tr>
<td></td>
<td>(c) excluded permanent layoff benefits,</td>
</tr>
<tr>
<td></td>
<td>(d) special allowances other than funded special allowances,</td>
</tr>
<tr>
<td></td>
<td>(e) consent benefits other than funded consent benefits,</td>
</tr>
<tr>
<td></td>
<td>(f) prospective benefit increases,</td>
</tr>
<tr>
<td></td>
<td>(g) potential early retirement window benefit values, and</td>
</tr>
<tr>
<td></td>
<td>(h) pension benefits and ancillary benefits payable under a qualifying annuity contract.</td>
</tr>
<tr>
<td></td>
<td>$9,461,419</td>
</tr>
<tr>
<td>Solvency Liability</td>
<td>The amount by which solvency liabilities are adjusted as a result of using a solvency valuation interest rate that is the average of market interest rates calculated over the period of time used in the determination of the smoothed value of assets.</td>
</tr>
<tr>
<td>Adjustment</td>
<td>($181,760)</td>
</tr>
<tr>
<td>Solvency Deficiency</td>
<td>The amount, if any, by which the sum of:</td>
</tr>
<tr>
<td></td>
<td>(a) the solvency liabilities</td>
</tr>
<tr>
<td></td>
<td>(b) the solvency liability adjustment</td>
</tr>
<tr>
<td></td>
<td>(c) the prior year credit balance</td>
</tr>
<tr>
<td></td>
<td>$9,461,419</td>
</tr>
<tr>
<td></td>
<td>($181,760)</td>
</tr>
<tr>
<td></td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td>$9,279,659</td>
</tr>
<tr>
<td></td>
<td>Exceeds the sum of</td>
</tr>
<tr>
<td></td>
<td>(d) the solvency assets</td>
</tr>
<tr>
<td></td>
<td>(e) the solvency asset adjustment</td>
</tr>
<tr>
<td></td>
<td>$9,001,225</td>
</tr>
<tr>
<td></td>
<td>$572,116</td>
</tr>
<tr>
<td></td>
<td>$9,573,341</td>
</tr>
<tr>
<td></td>
<td>$0</td>
</tr>
</tbody>
</table>

7 Excludes the liabilities for future pre and post retirement indexing. If these liabilities were included, the solvency liabilities at January 1, 2011 would have been increased to $14,664,485,000.
Timing of Next Required Valuation

In accordance with the Act the next valuation of the Plan would be required at an effective date within one year of the current valuation date if:

- The ratio of solvency assets to solvency liabilities is less than 80%;
- The ratio of solvency assets to solvency liabilities is less than 90% and solvency liabilities exceed solvency assets by $5 million or more; or,
- The employer elected to exclude plant closure or permanent lay-off benefits under Section 5(18) of the regulations, and has not rescinded that election.

Otherwise, the next valuation of the Plan would be required at an effective date no later than three years after the current valuation date.

At January 1, 2011, the ratio of Solvency Assets to Solvency Liabilities is 0.951 (i.e. $9,001,225,000 ÷ $9,461,419,000) and, as such the next valuation of the Plan will be required as of January 1, 2014 or at the date of an earlier amendment to the Plan.

Special Payments

Based on the results of this valuation, the Plan is not fully funded. In accordance with the Act, any going concern deficits must be amortized over a period not exceeding 15 years and any solvency deficits must be amortized over a period not exceeding 5 years.

The present value of going concern special payments scheduled in the previous valuation is lower than the going concern shortfall resulting in a going concern unfunded liability of $363,564,000. As a result, a new going concern special payment schedule had to be established.

As such, special payments must be made as follows:

<table>
<thead>
<tr>
<th>Type of payment</th>
<th>Start date</th>
<th>End date</th>
<th>Monthly Special Payment</th>
<th>Going Concern Basis (^8)</th>
<th>Solvency Basis (^9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Going concern</td>
<td>01.01.2005</td>
<td>12.31.2019</td>
<td>$2,310,500</td>
<td>$191,461,000</td>
<td>$124,178,000</td>
</tr>
<tr>
<td>New going concern</td>
<td>01.01.2011</td>
<td>12.31.2025</td>
<td>$3,092,580</td>
<td>$363,564,000</td>
<td>$166,211,000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>$5,403,080</td>
<td>$555,025,000</td>
<td>$290,389,000</td>
</tr>
</tbody>
</table>

\(^8\) Calculation only considers going concern special payments and is based on a going concern discount rate.

\(^9\) Calculation considers both solvency and going concern special payments (five years only) and is based on the average solvency discount rate.
Pension Benefit Guarantee Fund (PBGF) Assessment

The PBGF assessment base and liabilities are derived as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvency assets</td>
<td>$9,074,525,000</td>
</tr>
<tr>
<td>PBGF liabilities</td>
<td>$9,461,419,000</td>
</tr>
<tr>
<td>Solvency liabilities</td>
<td>$9,461,419,000</td>
</tr>
<tr>
<td>Ontario asset ratio</td>
<td>100%</td>
</tr>
<tr>
<td>Ontario portion of the fund</td>
<td>$9,074,525,000</td>
</tr>
<tr>
<td>PBGF assessment base</td>
<td>$386,894,000</td>
</tr>
<tr>
<td>Amount of additional liability for plant closure and/or permanent layoff benefits which is not funded and subject to the 2% assessment pursuant to s.37(4)(a)(ii)</td>
<td>$0</td>
</tr>
</tbody>
</table>

The PBGF assessment is calculated as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1 for each Ontario member</td>
<td>$22,504</td>
</tr>
<tr>
<td>0.5% of PBGF assessment base up to 10% of PBGF liabilities</td>
<td>$1,934,470</td>
</tr>
<tr>
<td>1.0% of PBGF assessment base between 10% and 20% of PBGF liabilities</td>
<td>$0</td>
</tr>
<tr>
<td>1.5% of PBGF assessment base over 20% of PBGF liabilities</td>
<td>$0</td>
</tr>
<tr>
<td>Sum of (h), (i), (j) and (k)</td>
<td>$1,956,974</td>
</tr>
<tr>
<td>$100 for each Ontario member</td>
<td>$2,250,400</td>
</tr>
<tr>
<td>Lesser of (l) and (m)</td>
<td>$1,956,974</td>
</tr>
<tr>
<td>2.0% of additional liabilities ((g) x 2%)</td>
<td>$0</td>
</tr>
<tr>
<td>Total Guarantee Fund Assessment ((n) + (o), limited to $4,000,000)</td>
<td>$1,956,974</td>
</tr>
<tr>
<td>8% RST ((p) x 8%)</td>
<td>$156,558</td>
</tr>
<tr>
<td>Total Guarantee Fund Assessment with tax ((p)+(q))</td>
<td>$2,113,532</td>
</tr>
</tbody>
</table>

10 Before provision for termination expenses.
Plan Assets
The pension fund is held by CIBC Mellon Trust Company.

In preparing this report, we have relied upon the auditors' reports prepared by Ernst & Young, for the period from January 1, 2008 to December 31, 2010.
Reconciliation of Market Value of Plan Assets

The pension fund transactions since the last valuation are summarized in the following table:

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1</td>
<td>$8,916,228</td>
<td>$7,256,193</td>
<td>$8,187,474</td>
</tr>
<tr>
<td>PLUS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Members' contributions</td>
<td>$68,210</td>
<td>$71,779</td>
<td>$74,520</td>
</tr>
<tr>
<td>Purchase of service/transfer in</td>
<td>$5,151</td>
<td>$11,122</td>
<td>$7,406</td>
</tr>
<tr>
<td>Company's contributions</td>
<td>$253,000</td>
<td>$269,064</td>
<td>$270,000</td>
</tr>
<tr>
<td>Investment income including net capital gains (losses)</td>
<td>($1,531,431)</td>
<td>$1,084,083</td>
<td>$1,005,652</td>
</tr>
<tr>
<td></td>
<td>($1,205,070)</td>
<td>$1,436,046</td>
<td>$1,357,578</td>
</tr>
<tr>
<td>LESS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pensions paid</td>
<td>$324,505</td>
<td>$345,679</td>
<td>$360,276</td>
</tr>
<tr>
<td>Lump-sums refunds and transfers to other plans</td>
<td>$99,867</td>
<td>$99,766</td>
<td>$61,552</td>
</tr>
<tr>
<td>Administration and investment fees</td>
<td>$30,593</td>
<td>$32,105</td>
<td>$34,610</td>
</tr>
<tr>
<td>Pending asset transfers</td>
<td>$0</td>
<td>$27,217</td>
<td>$14,089</td>
</tr>
<tr>
<td></td>
<td>$454,965</td>
<td>$504,767</td>
<td>$470,527</td>
</tr>
<tr>
<td>December 31</td>
<td>$7,256,193</td>
<td>$8,187,474</td>
<td>$9,074,525</td>
</tr>
</tbody>
</table>

We have tested the pensions paid, the lump-sums paid and the contributions for consistency with the membership data for the plan members who have received benefits or made contributions. The results of these tests were satisfactory.

Investment Policy

The plan administrator adopted a statement of investment policy and procedures. This policy is intended to provide guidelines for the manager(s) as to the level of risk which is commensurate with the Plan's investment objectives. A significant component of this investment policy is the asset mix.

The constraints on the asset mix and the actual asset mix at the valuation date, as provided to us by OPG, are provided below for information purposes:

---

11 This amount includes $5,084,000 contributed by OPG to the Plan in accordance with the NWMO pension transfer agreement.

12 These amounts are included on an accrual basis rather than when the money actually leaves the Fund.
### Investment Policy

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Target</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed Income (Physical)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>0.0%</td>
<td>1.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Canadian Structured &amp; Corporate Fixed Income</td>
<td>13.0%</td>
<td>20.0%</td>
<td>28.0%</td>
</tr>
<tr>
<td>Real Return Bonds</td>
<td>10.0%</td>
<td>15.0%</td>
<td>25.0%</td>
</tr>
<tr>
<td><strong>Equities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canadian equities</td>
<td>14.0%</td>
<td>18.0%</td>
<td>22.0%</td>
</tr>
<tr>
<td>US equities</td>
<td>8.0%</td>
<td>12.0%</td>
<td>18.0%</td>
</tr>
<tr>
<td>Non US foreign equities</td>
<td>16.0%</td>
<td>24.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td><strong>Alternative Assets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global infrastructure</td>
<td>0.0%</td>
<td>6.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Canadian Real Estate</td>
<td>0.0%</td>
<td>4.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Hedge Funds</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td><strong>100.0%</strong></td>
<td><strong>100.0%</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Fixed Income (Synthetic)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Income Overlay</td>
<td>5.0%</td>
<td>20.0%</td>
<td>30.0%</td>
</tr>
</tbody>
</table>

---

13 The previous asset mix policy included a target allocation of 2.0% of plan assets to hedge funds which was redeemed December 31, 2010, however this redemption will not become effective until March 31, 2011.

14 The Fixed Income Overlay is a derivative based strategy that is intended to increase the duration of the Plan assets. As a result of this strategy, the sum of the target allocation exceeds 100%.
Investment Performance

The performance of Fund assets, net of expenses, from January 1, 2008 to December 31, 2010 as per our calculations (which assume that the next cash flow occurred in the middle of each year) is shown below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Annualised Rate of Return on Market-Related Value of Assets (net of expenses)</th>
<th>Annualised Rate of Return on Market Value of Assets (net of expenses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>1.5%</td>
<td>(17.6%)</td>
</tr>
<tr>
<td>2009</td>
<td>3.2%</td>
<td>14.6%</td>
</tr>
<tr>
<td>2010</td>
<td>6.7%</td>
<td>11.9%</td>
</tr>
<tr>
<td>Average</td>
<td>3.8%</td>
<td>1.9%</td>
</tr>
</tbody>
</table>

The average return on the market-related value of assets, net of expenses, since the last valuation at January 1, 2008 was 3.8% per year. This rate is less than the assumed investment return of 6.0% by 2.2% per year.
Methods and Assumptions – Going Concern

Determining the January 1, 2011 Liabilities

The effective date of the membership data used for this valuation is January 1, 2010 (one year prior to the valuation date). In determining the actuarial liabilities as at January 1, 2011, we first calculated the actuarial liabilities as at January 1, 2010, and then projected the liabilities to January 1, 2011. The one year projection reflected any known experience during 2010 with respect to benefit payments, contributions, transfers, base salary growth, and indexation provided as at January 1, 2011. We have also compared the actual termination and retirement experience with what was expected based on our decrement rates, and made the following adjustments to the decrement rates during 2010:

- the assumed termination decrement for 2010 was adjusted by multiplying the termination rates by a factor of 1.8;
- the assumed retirement decrement for 2010 was adjusted by multiplying the retirement rates by a factor of 0.9; and
- assumed pensionable earnings increases for 2010 were adjusted to reflect the known base increases by representation, as indicated in the Pensionable Earnings section below.

For purposes of this valuation, we believe that this projection process produces results that are within acceptable tolerances from the results that would have been determined using actual membership data (at January 1, 2011).
Valuation of Assets

For this valuation, we have used an adjusted market-value method to determine the market-related value of assets. The market-related value of assets is determined as follows:

**Fixed Income**

The fixed income assets are valued at market value.

**Canadian, U.S. and Non-U.S. Foreign Equities**

To value Canadian, U.S. and non-U.S. foreign equities, we have adjusted the values to smooth market fluctuations over 5 years. This has been accomplished by calculating, for each equity asset class and for each of the past 5 years, the gain/(loss) measured based on the actual index return versus an expected return of 6.0% plus the increase in Consumer Price Index (CPI) over the year. For the actual index return, we rely on the total return indices for the S&P/TSX Composite, the S&P 500, and the MSCI EAFE (expressed in Canadian dollars).

The following table shows the total equity gain (or loss) in each of the last 5 years as well as the amount unrecognized as at December 31, 2010.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Equity Gain/(Loss)</th>
<th>Gain/(Loss) not recognized at December 31, 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(%)</td>
</tr>
<tr>
<td>2006</td>
<td>$596,229</td>
<td>0%</td>
</tr>
<tr>
<td>2007</td>
<td>($563,838)</td>
<td>20%</td>
</tr>
<tr>
<td>2008</td>
<td>($2,053,363)</td>
<td>40%</td>
</tr>
<tr>
<td>2009</td>
<td>$508,800</td>
<td>60%</td>
</tr>
<tr>
<td>2010</td>
<td>$81,336</td>
<td>80%</td>
</tr>
</tbody>
</table>

($563,764) $563,764 (b)

Market-related value of assets (a) + (b) $9,638,289
The historical returns (in Canadian dollars) for the indices used in these calculations as well as the annual increase in CPI for each year are as follows:

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canadian equities</td>
<td>17.3%</td>
<td>9.83%</td>
<td>(33.00%)</td>
<td>35.05%</td>
<td>17.61%</td>
</tr>
<tr>
<td>US equities</td>
<td>15.5%</td>
<td>(10.53%)</td>
<td>(21.20%)</td>
<td>7.39%</td>
<td>9.06%</td>
</tr>
<tr>
<td>Non-US equities</td>
<td>26.6%</td>
<td>(5.32%)</td>
<td>(28.76%)</td>
<td>12.49%</td>
<td>2.56%</td>
</tr>
<tr>
<td>CPI $^15$</td>
<td>1.4%</td>
<td>2.5%</td>
<td>2.0%</td>
<td>1.0%</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

**Going Concern Funding Target**

Over time, the real cost to the employer of a pension plan is the excess of benefits and expenses over member contributions and investment earnings. The actuarial cost method allocates this cost to annual time periods.

For purposes of the going concern valuation, we have continued to use the projected unit credit actuarial cost method. Under this method, we determine the present value of benefit cash flows expected to be paid in respect of service accrued prior to the valuation date, based on projected final average earnings. This is referred to as the funding target. For each individual plan member, accumulated contributions with interest are established as a minimum actuarial liability.

The funding excess or funding shortfall, as the case may be, is the difference between the market or market-related value of assets and the funding target. A funding excess on a market value basis indicates that the current market value of assets and expected investment earnings are expected to be sufficient to meet the cash flows in respect of benefits accrued to the valuation date as well as expected expenses – assuming the Plan is maintained indefinitely. A funding shortfall on a market value basis indicates the opposite – that, absent additional contributions, the current market value of the assets is not expected to meet the Plan’s cash flow requirements in respect of accrued benefits.

As required under the Act, a funding shortfall must be amortized over no more than 15 years through special payments. A funding excess may, from an actuarial standpoint, be applied immediately to reduce required employer current service contributions unless precluded by the terms of the Plan or by legislation.

The actuarial cost method used for the purposes of this valuation produces a reasonable matching of contributions with accruing benefits. Because benefits are recognized as they accrue, the actuarial cost method provides an effective funding target for a plan that is maintained indefinitely.

$^15$ CPI is for the 12 months ending November 30, in the year.
**Current Service Cost**

The current service cost is the present value of projected benefits to be paid under the Plan with respect to service expected to accrue during the year following the valuation date.

The employer's current service cost is the total current service cost reduced by the members' required contributions.

The employer's current service cost has been expressed as a percentage of the members' pensionable earnings to provide an automatic adjustment in the event of fluctuations in membership and/or pensionable earnings.

Under the projected unit credit actuarial cost method, the current service cost for an individual member will increase each year as the member approaches retirement. However, the current service cost of the entire group, expressed as a percentage of the members' pensionable earnings, can be expected to remain stable as long as the average age of the group remains constant.

**Actuarial Assumptions – Going Concern Basis**

The present value of future benefit payment cash flows is based on economic and demographic assumptions. At each valuation we determine whether, in our opinion, the actuarial assumptions are still appropriate for the purposes of the valuation, and we revise them, if necessary. Emerging experience will result in gains or losses that will be revealed and considered in future actuarial valuations.
The table below shows the various assumptions used in the current valuation in comparison with those used in the previous valuation.

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Current valuation</th>
<th>Previous valuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discount rate:</td>
<td>6.30%</td>
<td>6.00%</td>
</tr>
<tr>
<td>Inflation:</td>
<td>2.50%</td>
<td>2.25%</td>
</tr>
<tr>
<td>Expenses</td>
<td>Implicit provision reflected in the discount rate</td>
<td>Implicit provision reflected in the discount rate</td>
</tr>
<tr>
<td>ITA limit / YMPE increases:</td>
<td>3.50%</td>
<td>3.25%</td>
</tr>
<tr>
<td>Pensionable earnings increases:</td>
<td>3.50% plus PPM</td>
<td>3.25% plus PPM</td>
</tr>
<tr>
<td>Movement within the salary structure (PPM)</td>
<td>Age and service related table</td>
<td>Age and service related table</td>
</tr>
<tr>
<td>Indexation of deferred pensions and pensions in payment</td>
<td>2.50%</td>
<td>2.25%</td>
</tr>
<tr>
<td>Interest on employee contributions:</td>
<td>5.30%</td>
<td>5.00%</td>
</tr>
<tr>
<td>Retirement rates:</td>
<td>Age related table</td>
<td>Age related table</td>
</tr>
<tr>
<td>Termination rates:</td>
<td>Age related table</td>
<td>Age related table</td>
</tr>
<tr>
<td>Mortality rates:</td>
<td>85% of the rates of the 1994 Uninsured Pensioner Mortality Table</td>
<td>85% of the rates of the 1994 Uninsured Pensioner Mortality Table</td>
</tr>
<tr>
<td>Mortality improvements:</td>
<td>Fully generational using Scale AA</td>
<td>Fully generational using Scale AA</td>
</tr>
<tr>
<td>Disability rates:</td>
<td>Age related table</td>
<td>Age related table</td>
</tr>
<tr>
<td>Eligible spouse at retirement:</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Spousal age difference:</td>
<td>Male 4 years older</td>
<td>Male 4 years older</td>
</tr>
<tr>
<td>Commencement of deferred pensions</td>
<td>For members eligible for unreduced pension or who have 25 yrs of continuous service, assume to retire at earliest possible date. For all other members, assume age 65.</td>
<td>For members eligible for unreduced pension or who have 25 yrs of continuous service, assume to retire at earliest possible date. For all other members, assume age 65.</td>
</tr>
<tr>
<td>Retirement date for disabled members</td>
<td>Age 65</td>
<td>Age 65</td>
</tr>
<tr>
<td>Service accrual after 35 years</td>
<td>Assume members contribute past 35 years of pensionable service, unless members already have 35 years and have elected not to contribute.</td>
<td>Assume members contribute past 35 years of pensionable service, unless members already have 35 years and have elected not to contribute.</td>
</tr>
</tbody>
</table>

The assumptions are best-estimates and do not include a margin for adverse deviations.

---

18 With adjustments in 2010, 2011, and 2012 as outlined below.
**Age Related Tables**

Sample rates from the age related tables are summarized in the following table:

<table>
<thead>
<tr>
<th>Age</th>
<th>Termination</th>
<th>Disability</th>
<th>Retirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
<td>Rate per 1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Employee</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Members</td>
</tr>
<tr>
<td>20</td>
<td>2.9%</td>
<td>4.4%</td>
<td>1.00</td>
</tr>
<tr>
<td>25</td>
<td>2.2%</td>
<td>3.3%</td>
<td>1.00</td>
</tr>
<tr>
<td>30</td>
<td>1.6%</td>
<td>2.4%</td>
<td>1.05</td>
</tr>
<tr>
<td>35</td>
<td>1.1%</td>
<td>1.7%</td>
<td>1.10</td>
</tr>
<tr>
<td>40</td>
<td>0.8%</td>
<td>1.2%</td>
<td>1.15</td>
</tr>
<tr>
<td>45</td>
<td>0.7%</td>
<td>1.1%</td>
<td>1.20</td>
</tr>
<tr>
<td>50</td>
<td>0.7%</td>
<td>1.1%</td>
<td>2.95</td>
</tr>
<tr>
<td>55</td>
<td>0.0%</td>
<td>0.0%</td>
<td>10.00</td>
</tr>
<tr>
<td>56</td>
<td>0.0%</td>
<td>0.0%</td>
<td>12.00</td>
</tr>
<tr>
<td>57</td>
<td>0.0%</td>
<td>0.0%</td>
<td>13.00</td>
</tr>
<tr>
<td>58</td>
<td>0.0%</td>
<td>0.0%</td>
<td>14.75</td>
</tr>
<tr>
<td>59</td>
<td>0.0%</td>
<td>0.0%</td>
<td>16.37</td>
</tr>
<tr>
<td>60</td>
<td>0.0%</td>
<td>0.0%</td>
<td>18.78</td>
</tr>
<tr>
<td>61</td>
<td>0.0%</td>
<td>0.0%</td>
<td>21.14</td>
</tr>
<tr>
<td>62</td>
<td>0.0%</td>
<td>0.0%</td>
<td>24.70</td>
</tr>
<tr>
<td>63</td>
<td>0.0%</td>
<td>0.0%</td>
<td>28.40</td>
</tr>
<tr>
<td>64</td>
<td>0.0%</td>
<td>0.0%</td>
<td>30.62</td>
</tr>
<tr>
<td>65</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Pensionable Earnings**

The benefits ultimately paid will depend on each member's final average earnings. To calculate the pension benefits payable upon retirement, death or termination of employment, we have taken 2009 earnings and assumed that such pensionable earnings will increase at the assumed rates shown in the table below, plus increases due to movement within the salary structure:

<table>
<thead>
<tr>
<th></th>
<th>Management</th>
<th>PWU</th>
<th>Society</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>0.00%</td>
<td>3.00%</td>
<td>3.00%</td>
</tr>
<tr>
<td>2011</td>
<td>3.50%</td>
<td>3.00%</td>
<td>3.00%</td>
</tr>
<tr>
<td>2012</td>
<td>3.50%</td>
<td>3.50%</td>
<td>3.00%</td>
</tr>
<tr>
<td>thereafter</td>
<td>3.50%</td>
<td>3.50%</td>
<td>3.50%</td>
</tr>
</tbody>
</table>
Even if the salary structure doesn't change from year to year, members' salaries increase due to promotions, the accumulation of seniority and movement within and between salary bands. The following table summarizes the assumed salary increases due to these movements within the salary structure.

### Salary Increases Due to Movement Within the Salary Structure

<table>
<thead>
<tr>
<th>Age</th>
<th>First 4 Years of Employment</th>
<th>Subsequent Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>9.0%</td>
<td>2.5%</td>
</tr>
<tr>
<td>25 – 29</td>
<td>6.5%</td>
<td>2.5%</td>
</tr>
<tr>
<td>30 – 34</td>
<td>5.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>35 – 39</td>
<td>4.5%</td>
<td>1.5%</td>
</tr>
<tr>
<td>40 – 44</td>
<td>4.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>45 – 49</td>
<td>3.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>50 – 54</td>
<td>2.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>55 – 59</td>
<td>2.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>60 &amp; over</td>
<td>1.5%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

### Rationale for Assumptions

A rationale for each of the assumptions used in the current valuation is provided below.

#### Discount Rate

We have discounted the expected benefit payment cash flows using the expected investment return on the market value of the fund. Other bases for discounting the expected benefit payment cash flows may be appropriate, particularly for purposes other than those specifically identified in this valuation report.

The discount rate is comprised of the following:

- Estimated returns for each major asset class consistent with market conditions on the valuation date and the target asset mix specified in the Plan's investment policy.
- Implicit provision for investment and administrative expenses determined as the average rate of investment and administrative expenses paid from the fund over the last 3 years.

The discount rate was developed as follows:

- Assumed investment return: 6.60%
- Investment and administrative expenses provision: (0.30%)
- Margin for adverse deviation: 0.00%
- Net discount rate: 6.30%

17 Over and above any increase in salaries due to adjustments to the salary structure itself.
Ontario Power Generation Inc. Pension Plan

Inflation
The inflation assumption is based on the spread between the yields on nominal and real return bonds at the valuation date of 2.50%.

Income Tax Act Pension Limit and Year's Maximum Pensionable Earnings
The assumption is based on historical real economic growth and the underlying inflation assumption.

Pensionable Earnings
The assumption is based on general wage growth assumptions.
The increase in pensionable earnings assumption is adjusted to include increases due to movement within the salary structure based on an experience study considering pay adjustments over the years 1989 to 1995.

Post retirement pension increases
The assumption is based on a formula related to the increases in the Consumer Price Index (CPI). We have assumed that CPI will increase at the inflation assumption above.

Retirement rates
Because early retirement pensions are reduced in accordance with a formula, the retirement age of plan members has an impact on the cost of the Plan. The assumed retirement rates used in this valuation are based on a study of the Plan’s retirement experience between 2004 and 2007 (inclusive).

Termination rates
The assumption is based on experience over the years 2004 to 2007.

Mortality rates
The assumption is based on experience from 2004 to 2007. Based on the results of this study, mortality rates were approximately 85% of those expected based on the generational UP94 table.

Interest on employee contributions
The assumption is based on plan terms and the underlying investment return assumption.

Disability rates
The assumption is based on experience of plans with similar benefits. Disabled employees are assumed to remain disabled until age 65, as few recoveries have been recorded.

Eligible spouse
The assumption is based on plan experience for non-retired members (actual status used for retirees).

Spousal age difference
The assumption is based on plan experience showing males are typically 4 years older than their spouse.
Methods and Assumptions – Hypothetical Wind-up and Solvency

The hypothetical wind-up and solvency liabilities at January 1, 2011 were determined based on a projection of a valuation performed using membership data as of January 1, 2010. Specifically, the hypothetical wind-up and solvency liabilities were calculated as at January 1, 2010 using January 1, 2010 membership data and assumptions applicable at January 1, 2011 and rolled forward to January 1, 2011 assuming that they would remain at a constant percentage of the going concern liabilities. Given the relatively stable population of the Plan over the recent years, we believe that this produces a reasonable approximation of the hypothetical wind-up and solvency liabilities at January 1, 2011.

Hypothetical Wind-up Basis

The Canadian Institute of Actuaries requires actuaries to report the financial position of a pension plan on the assumption that the plan is wound-up on the effective date of the valuation, with benefits determined on the assumption that the pension plan has neither a surplus nor a deficit. For the purposes of the hypothetical wind-up valuation, the plan wind-up is assumed to occur in circumstances that maximize the actuarial liability.

To determine the actuarial liability on the hypothetical wind-up basis, we have valued those benefits that would have been paid had the employer’s business and the Plan been wound up on the valuation date, including benefits that would be immediately payable if the employer’s business were discontinued on the valuation date, with all members fully vested in their accrued benefits.

Upon plan wind-up members are given options for the method of settling their benefit entitlements. The options vary by eligibility and by province of employment, but in general, involve either a lump sum transfer or an immediate or deferred pension.

The value of benefits assumed to be settled through a lump sum transfer is based on the assumptions described in Section 3500 – Pension Commuted Values of the Canadian Institute of Actuaries’ Standards of Practice applicable for January 1, 2011.
Benefits provided as an immediate or deferred pension are assumed to be settled through the purchase of annuities based on an estimate of the cost of purchasing annuities.

We note that, due to an absence of an active market for indexed annuities, if the Ontario Power Generation Inc. Pension Plan was wound up, it is highly likely that indexed annuities could not be purchased at any reasonable price, if they could be purchased at all. This is a shared problem with virtually all large indexed pension plans in Ontario.

In accordance with the Canadian Institute of Actuaries Educational Note: Assumptions for Hypothetical Wind-up and Solvency Valuations with Effective Dates Between December 31, 2010 and December 30, 2011, we have assumed that an appropriate proxy for estimating the cost of such purchase is using the yield on the long-term Government of Canada Real Return bonds.

We have not included a margin for adverse deviation in the solvency and hypothetical wind-up valuations.

To determine the hypothetical wind-up position of the Plan, a provision has been made for estimated termination expenses payable from the Plan's assets in respect of actuarial, administration and legal expenses that may reasonably be expected to be incurred in terminating the Plan and to be charged to the Plan. Also included in the provision are transaction fees related to the liquidation of the Plan's assets and any reduction in the value of the Plan's equity assets resulting from this liquidation.

Because the settlement of all benefits on wind-up is assumed to occur on the valuation date and is assumed to be uncontested, the provision for termination expenses does not include custodial, investment management, auditing, consulting and legal expenses that would be incurred between the wind-up date and the settlement date or due to the terms of a wind-up being contested. Expenses associated with the distribution of any surplus assets that might arise on an actual wind-up are also not included in the estimated termination expense provisions.

We have also assumed, without analysis, that the Plan’s terms as well as applicable legislation and court decisions would permit the relevant expenses to be paid from the Plan.

Actual fees incurred on an actual plan wind-up may differ materially from the estimates disclosed in this report.

**Incremental Cost**

In order to determine the incremental cost, we estimate the hypothetical wind-up liabilities at the next scheduled valuation date which, for the Plan, is January 1, 2014. For this purpose, we have assumed that the cost of settling benefits by way of a lump sum or purchasing annuities remains consistent with the assumptions described above.
Since the projected hypothetical wind-up liabilities will depend on the membership in the Plan at the next valuation date, we must make assumptions about how the plan membership will evolve over the period until the next valuation. For this purpose, we have assumed that the plan membership will evolve in a manner consistent with the going-concern assumptions as follows:

- Members terminate, retire and die consistent with the termination, retirement and mortality rates used for the going-concern valuation;
- Pensionable earnings, the Income Tax Act pension limit and the Year’s Maximum Pensionable Earnings increase in accordance with the related going-concern assumptions;
- Active members accrue pensionable service in accordance with the terms of the Plan; and
- Cost of living adjustments are consistent with the inflation assumption used for the going-concern valuation.

To accommodate for new entrants to the Plan, we have included in the projected liability, an amount equal to the liability of new entrants that have joined the Plan over the three years preceding January 1, 2010.

**Solvency Basis**

In determining the financial position of the Plan on the solvency basis, we have used the same assumptions and methodology as were used for determining the financial position of the Plan on the hypothetical wind-up basis, except for the following:

- as permitted under the *Pension Benefits Act (Ontario)* and elected by OPG, when determining the solvency actuarial liability, we have excluded the cost of future pre and post retirement indexing; and
- we have used an adjusted market value method to determine the smoothed value of plan assets.

The solvency position is determined in accordance with the requirements of the Act.
The derivation of the adjusted market value of assets is shown in the following table. Under the method used, the differences between the actual investment returns during a given year and the expected investment returns, before margins and provision for expenses, used in the January 1, 2008 funding valuation of the Plan are spread on a straight line basis over five years. As a result, the adjusted market value of assets produced as at December 31, 2010 recognizes the following percentages (indicated in column e) of excess investment income that arose in those prior years.

The adjusted market value of assets produced by this method is related to the market value of assets, with the advantage that, over time, the smoothed asset value will tend to be more stable than market values.

### Adjusted Market Value of Assets as at December 31, 2010 (in 000s)

<table>
<thead>
<tr>
<th>Year</th>
<th>Investment Returns</th>
<th>Expected Investment Return</th>
<th>Investment Gains / (Losses)</th>
<th>Investment Gains / (Losses) excluded at December 31, 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(b)</td>
<td>(c)</td>
<td>(d) = (b) - (c)</td>
<td>(e)</td>
</tr>
<tr>
<td>2007</td>
<td>$178,289</td>
<td>$632,492</td>
<td>($454,203)</td>
<td>20% ($90,841)</td>
</tr>
<tr>
<td>2008</td>
<td>($1,531,431)</td>
<td>$637,339</td>
<td>($2,168,770)</td>
<td>40% ($867,508)</td>
</tr>
<tr>
<td>2009</td>
<td>$1,084,083</td>
<td>$516,945</td>
<td>$567,138</td>
<td>60% $340,283</td>
</tr>
<tr>
<td>2010</td>
<td>$1,005,652</td>
<td>$585,228</td>
<td>$420,424</td>
<td>80% $336,339</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>($281,727)</td>
<td>$281,727 (f)</td>
</tr>
</tbody>
</table>

**Adjusted market value of assets (a) + (f)** $9,356,252
The hypothetical wind-up and solvency assumptions are as follows:

<table>
<thead>
<tr>
<th>Form of benefit settlement elected by member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lump sum</td>
</tr>
<tr>
<td>50% of active and deferred vested members not eligible to retire and 20% of active and deferred vested members eligible to retire elect to receive their benefit entitlement in a lump sum</td>
</tr>
<tr>
<td>Annuity purchase</td>
</tr>
<tr>
<td>All remaining members are assumed to elect to receive their benefit entitlement in the form of a deferred or immediate pension. These benefits are assumed to be settled through the purchase of deferred or immediate annuities from a life insurance company.</td>
</tr>
</tbody>
</table>

**Mortality rates:**

```
UP94 projected to 2020
```

**Interest rates for benefits assumed to be settled through a lump sum**

<table>
<thead>
<tr>
<th>Hypothetical wind-up:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.90% per year for 10 years, 2.40% per year thereafter (after adjustment for inflation)</td>
</tr>
<tr>
<td>Unsmoothed solvency:</td>
</tr>
<tr>
<td>3.70% per year for 10 years, 5.00% per year thereafter</td>
</tr>
<tr>
<td>Smoothed solvency:</td>
</tr>
<tr>
<td>4.18% per year for 10 years, 5.22% per year thereafter</td>
</tr>
</tbody>
</table>

**Interest rates for benefits assumed to be settled through the purchase of an annuity**

<table>
<thead>
<tr>
<th>Hypothetical wind-up:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.10% per year (after adjustment for inflation)</td>
</tr>
<tr>
<td>Unsmoothed solvency:</td>
</tr>
<tr>
<td>4.50% per year</td>
</tr>
<tr>
<td>Smoothed solvency:</td>
</tr>
<tr>
<td>4.59% per year</td>
</tr>
</tbody>
</table>

**Inflation Rate**

<table>
<thead>
<tr>
<th>Hypothetical wind-up:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.76% per year for 10 years, 2.61% per year thereafter</td>
</tr>
<tr>
<td>Unsmoothed solvency:</td>
</tr>
<tr>
<td>1.76% per year for 10 years, 2.61% per year thereafter</td>
</tr>
<tr>
<td>Smoothed solvency:</td>
</tr>
<tr>
<td>1.70% per year for 10 years, 2.23% per year thereafter</td>
</tr>
</tbody>
</table>

**Retirement age**

<table>
<thead>
<tr>
<th>Maximum value:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members are assumed to retire at the age which maximizes the value of their entitlement from the Plan based on the eligibility requirements which have been met at the valuation date</td>
</tr>
<tr>
<td>Grow-in:</td>
</tr>
<tr>
<td>The benefit entitlement and assumed retirement age of Ontario members whose age plus service equals at least 55 at the valuation date reflect their entitlement to grow into early retirement subsidies</td>
</tr>
</tbody>
</table>

**Other assumptions**

<table>
<thead>
<tr>
<th>Special payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discounted at the average smoothed interest rate of 4.51% per year</td>
</tr>
<tr>
<td>Final average earnings:</td>
</tr>
<tr>
<td>Based on actual pensionable earnings over the averaging period</td>
</tr>
<tr>
<td>Family composition:</td>
</tr>
<tr>
<td>90% of plan members will have an eligible spouse and the male spouse will be 4 years older than the female spouse</td>
</tr>
<tr>
<td>Maximum pension limit:</td>
</tr>
<tr>
<td>$2,494.44 in 2010, $2,552.22 in 2011 and increasing at a rate of inflation plus 1% per year thereafter</td>
</tr>
<tr>
<td>Termination expenses:</td>
</tr>
<tr>
<td>$73,400,000</td>
</tr>
</tbody>
</table>
Membership Data

Analysis of Membership Data

The actuarial valuation is based on membership data as at January 1, 2010, provided by Ontario Power Generation Inc.

We have applied tests for internal consistency, as well as for consistency with the data used for the previous valuation. These tests were applied to membership reconciliation, basic information (date of birth, date of hire, date of membership, gender, etc.), pensionable earnings, credited service, contributions accumulated with interest and pensions to retirees and other members entitled to a deferred pension. Contributions, lump sum payments and pensions to retirees were compared with corresponding amounts reported in financial statements. The results of these tests were satisfactory.

Plan membership data are summarized below. For comparison, we have also summarized corresponding data from the previous valuation.

<table>
<thead>
<tr>
<th></th>
<th>01.01.2010</th>
<th>01.01.2008</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active Members</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>11,990</td>
<td>11,603</td>
</tr>
<tr>
<td>Total pensionable earnings for the following year</td>
<td>$1,167,415,667</td>
<td>$1,025,572,678</td>
</tr>
<tr>
<td>Average pensionable earnings for the following year</td>
<td>$97,366</td>
<td>$88,389</td>
</tr>
<tr>
<td>Average years of pensionable service</td>
<td>14.8</td>
<td>15.3</td>
</tr>
<tr>
<td>Average age</td>
<td>45.6</td>
<td>45.6</td>
</tr>
<tr>
<td>Accumulated contributions with interest</td>
<td>$848,294,113</td>
<td>$780,958,499</td>
</tr>
</tbody>
</table>

18 Excludes the 63 members transferred to NWMO and 51 members transferred to Bruce Power.
### Ontario Power Generation Inc. Pension Plan

#### Report on the Actuarial Valuation for Funding Purposes as at January 01, 2011

#### Members on Long Term Disability

<table>
<thead>
<tr>
<th></th>
<th>01.01.2010</th>
<th>01.01.2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>416</td>
<td>411</td>
</tr>
<tr>
<td>Total pensionable earnings for the following year(^{19})</td>
<td>$30,461,399</td>
<td>$28,540,032</td>
</tr>
<tr>
<td>Average pensionable earnings for the following year(^{19})</td>
<td>$73,225</td>
<td>$69,440</td>
</tr>
<tr>
<td>Average years of pensionable service</td>
<td>23.6</td>
<td>23.0</td>
</tr>
<tr>
<td>Average age</td>
<td>54.2</td>
<td>53.2</td>
</tr>
<tr>
<td>Accumulated contributions with interest</td>
<td>$24,902,540</td>
<td>$22,944,938</td>
</tr>
</tbody>
</table>

#### Deferred Pensioners

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>854</td>
<td>882</td>
</tr>
<tr>
<td>Total annual lifetime pension(^{19})</td>
<td>$7,872,043</td>
<td>$8,743,351</td>
</tr>
<tr>
<td>Average annual lifetime pension(^{19})</td>
<td>$9,218</td>
<td>$9,913</td>
</tr>
<tr>
<td>Average age</td>
<td>51.0</td>
<td>50.0</td>
</tr>
</tbody>
</table>

#### Pensioners

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>7,315</td>
<td>6,975</td>
</tr>
<tr>
<td>Total annual lifetime pension(^{19})</td>
<td>$274,998,345</td>
<td>$246,152,308</td>
</tr>
<tr>
<td>Total annual temporary pension(^{19})</td>
<td>$37,969,432</td>
<td>$37,298,488</td>
</tr>
<tr>
<td>Average annual lifetime pension(^{19})</td>
<td>$37,594</td>
<td>$35,291</td>
</tr>
<tr>
<td>Average age</td>
<td>69.0</td>
<td>68.6</td>
</tr>
</tbody>
</table>

#### Survivors (excluding children)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>1,899</td>
<td>1,805</td>
</tr>
<tr>
<td>Total annual lifetime pension(^{19})</td>
<td>$37,667,329</td>
<td>$33,833,036</td>
</tr>
<tr>
<td>Total annual temporary pension(^{19})</td>
<td>$954,848</td>
<td>$1,007,553</td>
</tr>
<tr>
<td>Average annual lifetime pension(^{19})</td>
<td>$19,835</td>
<td>$18,744</td>
</tr>
<tr>
<td>Average age</td>
<td>75.7</td>
<td>74.8</td>
</tr>
</tbody>
</table>

#### Children

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>30</td>
<td>29</td>
</tr>
<tr>
<td>Total annual temporary pension(^{19})</td>
<td>$379,117</td>
<td>$369,346</td>
</tr>
<tr>
<td>Average annual temporary pension(^{19})</td>
<td>$12,637</td>
<td>$12,736</td>
</tr>
<tr>
<td>Average age</td>
<td>24.1</td>
<td>20.8</td>
</tr>
</tbody>
</table>

\(^{19}\) Includes increases effective January 1, 2010 and January 1, 2008 respectively, of 100% of the increase in the Consumer Price Index
Breakdown of Active Members at January 1, 2010 by Representation

<table>
<thead>
<tr>
<th></th>
<th>Management</th>
<th>PWU</th>
<th>Society</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>1,284</td>
<td>6,971</td>
<td>3,735</td>
<td>11,990</td>
</tr>
<tr>
<td>Total pensionable earnings</td>
<td>$168,136,012</td>
<td>$598,283,053</td>
<td>$400,996,602</td>
<td>$1,167,415,667</td>
</tr>
<tr>
<td>Average pensionable earnings</td>
<td>$130,947</td>
<td>$85,825</td>
<td>$107,362</td>
<td>$97,336</td>
</tr>
<tr>
<td>Average years of pensionable service</td>
<td>18.4</td>
<td>14.2</td>
<td>14.7</td>
<td>14.8</td>
</tr>
<tr>
<td>Average age</td>
<td>49.2</td>
<td>45.0</td>
<td>45.3</td>
<td>45.6</td>
</tr>
<tr>
<td>Accumulated contributions with interest</td>
<td>$154,305,383</td>
<td>$394,901,114</td>
<td>$299,087,616</td>
<td>$848,294,113</td>
</tr>
</tbody>
</table>

The membership movement for all categories of membership since the previous actuarial valuation is as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Total at 01.01.2008</th>
<th>New entrants</th>
<th>Change in status:</th>
<th>Terminations:</th>
<th>Total at 01.01.2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actives</td>
<td>11,603</td>
<td>1,425</td>
<td></td>
<td></td>
<td>11,990</td>
</tr>
<tr>
<td>LTD</td>
<td>411</td>
<td></td>
<td></td>
<td></td>
<td>416</td>
</tr>
<tr>
<td>Deferred</td>
<td>882</td>
<td></td>
<td></td>
<td></td>
<td>854</td>
</tr>
<tr>
<td>Pensioners</td>
<td>6,975</td>
<td></td>
<td></td>
<td></td>
<td>7,315</td>
</tr>
<tr>
<td>Survivors (incl. Children)</td>
<td>1,834</td>
<td></td>
<td></td>
<td></td>
<td>1,929</td>
</tr>
<tr>
<td>Total</td>
<td>21,705</td>
<td>1,425</td>
<td></td>
<td></td>
<td>22,504</td>
</tr>
<tr>
<td>New entrants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• to active</td>
<td>22</td>
<td>(22)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• to LTD</td>
<td>(78)</td>
<td>78</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• reinstated from deferred</td>
<td>23</td>
<td>(23)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminations:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• no further benefits</td>
<td>(133)</td>
<td>(1)</td>
<td>(71)</td>
<td>(205)</td>
<td></td>
</tr>
<tr>
<td>• deferred pensions</td>
<td>(126)</td>
<td>126</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deaths</td>
<td>(17)</td>
<td>(21)</td>
<td>(8)</td>
<td>(356)</td>
<td>(144)</td>
</tr>
<tr>
<td>Retirements</td>
<td>(615)</td>
<td>(29)</td>
<td>(52)</td>
<td>696</td>
<td>(546)</td>
</tr>
<tr>
<td>New Beneficiaries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>239</td>
</tr>
<tr>
<td>NWMO Transfers</td>
<td>(63)</td>
<td></td>
<td></td>
<td></td>
<td>(63)</td>
</tr>
<tr>
<td>IMCS Transfers</td>
<td>(51)</td>
<td></td>
<td></td>
<td></td>
<td>(51)</td>
</tr>
<tr>
<td>Total</td>
<td>11,990</td>
<td>416</td>
<td>854</td>
<td>7,315</td>
<td>1,929</td>
</tr>
<tr>
<td>Total at 01.01.2010</td>
<td>22,504</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Ontario Power Generation Inc. Pension Plan

The distribution of the active members and their average annualised pensionable earnings²⁰ by age and pensionable service as at January 1, 2010 is summarized as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>0-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-24</th>
<th>25-29</th>
<th>30-34</th>
<th>35+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 24</td>
<td>297</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>297</td>
</tr>
<tr>
<td>25 to 29</td>
<td>789</td>
<td>164</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>955</td>
</tr>
<tr>
<td>30 to 34</td>
<td>485</td>
<td>513</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,051</td>
</tr>
<tr>
<td>35 to 39</td>
<td>388</td>
<td>408</td>
<td>108</td>
<td>72</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>982</td>
</tr>
<tr>
<td>40 to 44</td>
<td>381</td>
<td>383</td>
<td>119</td>
<td>497</td>
<td>318</td>
<td>1</td>
<td></td>
<td></td>
<td>1,699</td>
</tr>
<tr>
<td>45 to 49</td>
<td>340</td>
<td>346</td>
<td>148</td>
<td>501</td>
<td>744</td>
<td>380</td>
<td>19</td>
<td></td>
<td>2,478</td>
</tr>
<tr>
<td>50 to 54</td>
<td>200</td>
<td>263</td>
<td>89</td>
<td>354</td>
<td>412</td>
<td>597</td>
<td>399</td>
<td>10</td>
<td>2,324</td>
</tr>
<tr>
<td>55 to 59</td>
<td>87</td>
<td>133</td>
<td>101</td>
<td>261</td>
<td>284</td>
<td>266</td>
<td>331</td>
<td>74</td>
<td>1,537</td>
</tr>
<tr>
<td>60 to 64</td>
<td>22</td>
<td>63</td>
<td>44</td>
<td>107</td>
<td>114</td>
<td>101</td>
<td>97</td>
<td>36</td>
<td>587</td>
</tr>
<tr>
<td>65+</td>
<td>4</td>
<td>12</td>
<td>7</td>
<td>20</td>
<td>15</td>
<td>11</td>
<td>8</td>
<td>3</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>2,993</td>
<td>2,288</td>
<td>671</td>
<td>1,812</td>
<td>1,693</td>
<td>1,356</td>
<td>854</td>
<td>123</td>
<td>11,990</td>
</tr>
</tbody>
</table>

²⁰ Earnings are not shown for cells with less than 3 members for confidentiality purposes.
The distribution of the disabled members and their annualised pensionable earnings by age and pensionable service as at January 1, 2010 is summarized as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>0-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-24</th>
<th>25-29</th>
<th>30-34</th>
<th>35+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 24</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>25 to 29</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>30 to 34</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>35 to 39</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>$62,559</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 to 44</td>
<td>2</td>
<td>7</td>
<td>11</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26</td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$66,426</td>
<td>$77,370</td>
<td>$81,168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45 to 49</td>
<td>1</td>
<td>12</td>
<td>1</td>
<td>13</td>
<td>31</td>
<td>12</td>
<td>1</td>
<td></td>
<td>71</td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$70,953</td>
<td>$77,612</td>
<td>$74,843</td>
<td>$75,884</td>
<td></td>
</tr>
<tr>
<td>50 to 54</td>
<td>13</td>
<td>3</td>
<td>16</td>
<td>23</td>
<td>24</td>
<td>27</td>
<td>1</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$78,332</td>
<td>$72,679</td>
<td>$68,730</td>
<td>$73,443</td>
<td>$68,740</td>
</tr>
<tr>
<td>55 to 59</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>10</td>
<td>21</td>
<td>17</td>
<td>30</td>
<td>13</td>
<td>99</td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$83,148</td>
<td>$72,960</td>
<td>$83,858</td>
<td>$73,141</td>
<td>$77,156</td>
</tr>
<tr>
<td>60 to 64</td>
<td>5</td>
<td>2</td>
<td>13</td>
<td>21</td>
<td>18</td>
<td>25</td>
<td>17</td>
<td>17</td>
<td>101</td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$71,775</td>
<td>$69,428</td>
<td>$64,510</td>
<td>$85,919</td>
<td>$79,056</td>
</tr>
<tr>
<td>65+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>43</td>
<td>13</td>
<td>63</td>
<td>102</td>
<td>71</td>
<td>83</td>
<td>31</td>
<td>416</td>
</tr>
</tbody>
</table>

$73,225

21 Earnings are not shown for cells with less than 3 members for confidentiality purposes.
The distribution of the deferred pensioners, pensioners and survivors and their average lifetime pension by age as at January 1, 2010 is summarized as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>Deferred Pensioners</th>
<th>Number</th>
<th>Average Lifetime Pension</th>
<th>Number</th>
<th>Average Lifetime Pension</th>
<th>Number</th>
<th>Average Lifetime Pension</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 25</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>26</td>
<td>$9,751</td>
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Appendix F

Summary of Plan Provisions

Introduction
The following is a summary of the main provisions of the Ontario Power Generation Inc. Pension Plan (the "Plan") in effect on January 1, 2011. It is not intended as a complete description of the Plan.

The Plan has been amended since the date of the previous valuation, as at January 1, 2008 as follows:

- to increase the required employee contribution rate for members represented by the PWU to 5.0% on base earnings up to the YMPE and 7.0% on base earnings above the YMPE;
- to increase the amount of bonus recognized in pensionable earnings for certain groups of employees; and
- for certain housekeeping issues which did not impact the valuation.

All the terms of the Plan are set out exclusively in the plan text, as amended and filed with the Financial Services Commission of Ontario. While this Report summarizes certain terms of the Plan, this Report does not change or supplement the Plan text in any manner whatsoever. Accordingly, the plan text will govern exclusively in all cases should any questions or differences arise.
Eligibility for Membership
The following categories of employees are members of the Plan:

- All regular and probationary employees;
- Employees for whom the Office and Professional Employees International Union was the bargaining agent prior to July 30, 1982; and,
- Employees who became continuing construction clerical employees after July 29, 1982 and before August 8, 1984.

Any other employee, with the exception of construction trades, machinists, and hotel and restaurant employees, who has completed twenty-four months of continuous employment and who has at least 700 hours of employment or earnings of 35% of the YMPE in each of the two previous calendar years, may elect to become a member of the Plan.

Other members include pensioners, terminated employees with deferred pensions, and employees receiving long term disability benefits.

Employee Contributions
The PWU members contribute at the following rates until they complete 35 years of credited service:

- 5.0% of base annual earnings up to the YMPE, and
- 7.0% of base annual earnings in excess of the YMPE.

The Society and Management members contribute at the following rate until they complete 35 years of credited service:

- 7.0% of base annual earnings.

Members may elect to contribute after they have completed 35 years credited service.

Normal Retirement Date
The normal retirement date for a female member whose continuous employment commenced prior to January 1, 1976 is the day on which she attains age 60 or any subsequent day when she in fact retires which is not later than her sixty-fifth birthday.

The normal retirement date for all other members is the day the member attains age 65.
Normal Retirement Pension

The amount of lifetime pension payable commencing on a member's normal retirement date is equal to:

- 2% of the member’s “high three-year average” (see note below) for each year of credited service subject to a maximum of 35 years. Members may elect to contribute beyond 35 years and earn credited service.

LESS

- 0.5% of the member’s “high five-year average” up to the “average YMPE” (see note below) for each year of credited service subsequent to December 31, 1965.

In addition, the member is entitled to a bridge pension of 0.625% of the member’s “high five-year average” up to the “average YMPE” (see note below) for each year of credited service subject to a maximum of 30 years, multiplied by 35 years, and divided by 30, plus the number of years that the member contributed beyond 35 years. This bridge pension is generally payable until the end of the month in which the member attains age 65.

The “high three-year average” is the average of the member’s base annual earnings during the thirty-six consecutive months when the base earnings were highest. Base annual earnings include bonuses up to:

- a maximum of 5% of a member’s base annual earnings for Management Group employees in Bands A to M;
- a maximum of 28% of a member’s base annual earnings for Authorized Nuclear Operators;
- a maximum of 25.2% of a member’s base annual earnings for Certified Unit 0 Control Room Operators;
- a monthly maximum of 28% of a member’s base annual earnings divided by 12 for Society-represented Control Room Shift Supervisors and Control Room Shift Operating Supervisors;
- a maximum of 21% of a member’s base annual earnings for Society-represented Authorization Training Supervisors; and
- a maximum of 18.9% of a member’s base annual earnings for Unit 0 Training Specialists who were formerly Certified Unit 0 Control Room Operators.

The “average YMPE” is the average of the Year’s Maximum Pensionable Earnings, as defined for purposes of the Canada Pension Plan, during the sixty consecutive months when the base earnings were highest.
Early Retirement Pension

Unreduced Pension
An employee may retire prior to the normal retirement date without any reduction in the accrued pension if the sum of the employee's age plus years of continuous employment is equal to or greater than 84 (82 for employees represented by the PWU or the Society).

Formula Reduction
A female employee whose continuous employment commenced prior to 1976 with at least 15 years of continuous employment, or any other employee with 15 or more years of continuous employment but less than 25 years of continuous employment, who does not qualify for unreduced early retirement may retire within 10 years of normal retirement date. In such a case, the employee's accrued pension is reduced by 2% for each year up to five years and 3% for each additional year by which the early retirement date precedes the employee's normal retirement date.

Otherwise, an employee who does not qualify for unreduced early retirement may retire prior to age 60 with 25 or more years of continuous employment, but within 10 years of normal retirement date. In such a case, the employee's accrued pension is reduced by 3% for each year by which early retirement precedes age 60.

Actuarial Reduction
An employee, who does not qualify under any of the previously mentioned early retirement provisions and who has at least two years of plan membership, may retire within 10 years of normal retirement date. In such a case, the pension is the actuarial equivalent of the member's deferred pension.

Retirement from Deferred Status
A terminated employee with a deferred pension may retire under any provision for early retirement without reduction provided that such provision was in effect on the date of termination.

A terminated employee with a deferred pension, who terminated after March 31, 1986, with 25 or more years of continuous employment, or who terminated between May 3 and October 29, 1993, inclusive, under the Voluntary Separation Program with 15 or more years of continuous employment, or who terminated after October 31, 2003 with 15 or more years of continuous employment and was within ten years of normal retirement and was not represented by the PWU has the same early retirement provisions as those in effect for active employees at the date of termination.
Otherwise, a terminated employee with a deferred pension, who terminated with 15 or more years of continuous employment, or who terminated with 2 or more years of plan membership after 1987, may receive a pension within 10 years of normal retirement in accordance with the rules in effect on the date of termination. In such a case, the pension is the actuarial equivalent of the member's deferred pension.

**Maximum Pension**

The benefits in respect of continuous employment after 1991 are limited to the maximum allowable under the *Income Tax Act*.

**Pension Increases**

Pension increases of 100% of the increase in the CPI (Ontario), subject to a maximum of 8%, will be given every January 1 to pensioners, beneficiaries and terminated employees with deferred pensions. Increases in CPI in excess of 8% and decreases in CPI are carried forward to subsequent years.

**Disability**

A totally disabled employee receives benefits from an income replacement plan and ceases to contribute to the Pension Fund, but continues to accrue credited service. For this member, the base annual earnings for pension purposes are deemed to be increased by the same percentage increases described for pensions above.

**Survivor Benefits**

**Death Before Retirement**

The following is a summary of death benefits payable to a member who dies before the pension payments have begun:

1. **Benefits in respect of Continuous Employment Prior to 1987 for Members Represented by the PWU**

   A. If the member has completed 10 years of continuous employment, the surviving spouse or dependent child is entitled to a survivor's pension. The survivor's pension is of an amount equal to 66.67% of the pension to which the member would have been entitled had the member retired on the date of death with no reduction for early retirement. The survivor's pension is payable to the surviving spouse until death or, if there is no eligible spouse, to the dependent children until age 18 (longer if disabled or in full-time attendance at a school or university). The total benefits paid are subject to a minimum of the member's contributions with interest.

   B. Otherwise, a payment of the member's contributions with interest is made to the beneficiary or estate.
Ontario Power Generation Inc. Pension Plan

2. Benefits in respect of all Continuous Employment for Members not Represented by the PWU and in respect of Continuous Employment After 1986 for Members Represented by the PWU

A. If the member has less than 2 years of plan membership and has not completed 10 years of continuous employment, a payment of the member's contributions with interest is made to the beneficiary or estate.

B. If the member has less than 2 years of plan membership, but has completed 10 years of continuous employment, the surviving spouse is entitled to a survivor's pension as described in (1)(A) above. If there is no surviving spouse, a payment of the member's contributions with interest is made to the beneficiary or estate.

C. If the member has at least 2 years of plan membership, but has not completed 10 years of continuous employment, the surviving spouse is entitled to receive the commuted value of the member's deferred pension. In lieu of such payment, the surviving spouse may elect to receive an immediate or deferred pension of equivalent commuted value. If there is no surviving spouse, a payment of the commuted value of the member's deferred pension is made to the beneficiary or estate.

D. If the member has at least 2 years of plan membership and has completed 10 years of continuous employment, the surviving spouse is entitled to the greater of an immediate pension of 66.67% of the pension to which the member would have been entitled had the member retired on the date of death with no reduction for early retirement, or an immediate pension with commuted value equivalent to the commuted value of the member's deferred pension. In lieu of this pension, the surviving spouse may elect to receive the commuted value of the member's deferred pension or a deferred pension of equivalent commuted value. If there is no surviving spouse, the dependent children are entitled to a pension of 66.67% of the pension to which the member would have been entitled had the member retired on the date of death with no reduction for early retirement, payable to age 18 (longer if disabled or in full-time attendance at a school or university). If there is no surviving spouse, a payment of the commuted value of the member's deferred pension less the commuted value of the pension payable to any dependent children is made to the beneficiary or estate.

Death After Retirement

A survivor's pension, an amount equal to 66.67% of the pension to which the member would have been entitled, is payable on death after retirement to the surviving spouse or dependent children, subject to other options chosen at the time of retirement.

If the member does not have a spouse at the time of pension commencement, the normal form is a life annuity guaranteed 5 years.
Termination Benefits

The benefits payable on termination of employment are as follows:

1. Benefits in respect of Continuous Employment Prior to 1987

   A. The member is entitled to a refund of all of the member’s pre-1987 contributions with interest, subject to (D) and (E) below.

   B. A member, who has at least one year of plan membership, may elect to receive, in lieu of (A) above, the pension accrued prior to 1987 commencing at normal or early retirement age ascertained in accordance with the rules pertaining to terminated employees with deferred pensions in effect upon termination of employment.

   C. A member, who has at least 10 years of plan membership, may elect to receive, in lieu of (A) or (B) above, a cash payment of 25% of the commuted value of the pension accrued prior to 1987, with 75% of such pension being paid at normal or early retirement age ascertained in accordance with the rules pertaining to terminated employees with deferred pensions in effect upon termination of employment.

   D. A member, who was represented by the PWU and has both attained age 45 and completed 10 or more years of continuous employment, may not elect to receive a refund of contributions in respect of service between January 1, 1965 and December 31, 1986. The member may, however, elect to receive, in lieu of (B) or (C) above, a refund of the member’s contributions to the Fund prior to 1965 together with credited interest plus 25% of the commuted value of the pension accrued after 1964 but prior to 1987, with entitlement to 75% of such pension being paid commencing on the normal or early retirement date ascertained in accordance with the rules pertaining to terminated employees with deferred pensions in effect upon termination of employment. The member may elect to transfer (see note below) the greater of the commuted value of the 75% pension or 75% of the member’s contributions with interest made after 1964 but prior to 1987.

   E. A member, who was not represented by the PWU and has both attained age 45 and completed 10 or more years of continuous employment, may not elect to receive a refund of contributions in respect of service between January 1, 1965 and December 31, 1986. The member may, however, elect to receive, in lieu of (B) or (C) above, a cash payment of 25% of the commuted value of the pension accrued prior to 1987, with entitlement to 75% of such pension being paid commencing on the normal or early retirement date ascertained in accordance with the rules pertaining to terminated employees with deferred pensions in effect upon termination of employment. The member may elect to transfer (see note below) the commuted value of the 75% pension.
2. Benefits in respect of Continuous Employment After 1986

A. A member is entitled to a refund of the member’s post-1986 contributions with interest, subject to (C) below.

B. A member, who has at least one year of plan membership, may elect to receive, in lieu of (A) above, the pension accrued after 1986 commencing at normal or early retirement age ascertained in accordance with the rules pertaining to terminated employees with deferred pensions in effect upon termination of employment.

C. A member, who has at least two years of plan membership, may not elect to receive a refund under (A) above. The member may, however, elect, in lieu of (B) above, to transfer (see note below) the commuted value of the deferred pension.

Note: Amounts must be transferred to a pension fund related to another pension plan, a prescribed retirement savings arrangement, or a life annuity which does not commence before the earliest date on which the member would have been entitled to retire.

Excess Contributions

Upon the earliest of termination of employment, death or retirement, the amount by which the member’s post-1986 contributions with interest exceed 50% of the commuted value of the deferred pension accrued after 1986 (the "Excess Contributions") is refunded to the member (to the spouse, beneficiary or estate, in the case of death).

Upon termination of employment, if a member who was represented by the PWU has attained age 45 and completed 10 or more years of continuous employment elects to fully divest the pension accrued prior to 1987, the member is entitled to receive the amount by which the contributions with interest made after 1964 but prior to 1987 exceeds the commuted value of the pension accrued after 1964 but prior to 1987.

Upon the earliest of termination of employment, death or retirement of a member who was not represented by the PWU, the amount by which the member's contributions with interest made prior to 1987 exceed the commuted value of the deferred pension accrued prior to 1987 is refunded to the member (to the spouse, beneficiary or estate in the case of death).
Appendix G

Employer Certification

With respect to the report on the actuarial valuation of the Ontario Power Generation Inc. Pension Plan, as at January 1, 2011, I hereby certify that, to the best of my knowledge and belief:

- the valuation reflects the terms of the Company's engagement with the actuary, particularly the requirement to not reflect a margin for adverse deviations in the going-concern valuation,
- the valuation reflects the Company's decisions in regards to determining the solvency funding requirements,
- a copy of the official plan documents and of all amendments made up to January 1, 2011, were provided to the actuary and is reflected appropriately in the summary of plan provisions contained herein,
- the asset information summarised in Appendix B is reflective of the Plan's assets,
- the membership data provided to the actuary included a complete and accurate description of every person who is entitled to benefits under the terms of the Plan for service up to January 1, 2010, and
- all events subsequent to January 1, 2011 that may have an impact on the Plan have been communicated to the actuary.

Signed
Craig Hacket
Name
Vice President, HR Services
Title

Signed
Colleen Stidford
Name
Vice President, Treasurer
Title

Date
June 14/11

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Mercer (Canada) Limited
REPORT ON THE ACTUARIAL VALUATION OF THE NWMO PENSION PLAN AS AT JANUARY 1, 2013

APRIL 2013

Prepared by:

Ian Edelist, FSA, FCIA
Kiersten Johnston, FSA, FCIA

Eckler Ltd.
110 Sheppard Avenue East, Suite 900
Toronto, Ontario
M2N 7A3
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REPORT ON THE ACTUARIAL VALUATION OF
THE NWMO PENSION PLAN AS AT JANUARY 1, 2013

Canada Revenue Agency Registration Number: 1207158
Office of the Superintendent of Financial Institutions Registration Number: 57641

Section 1. EXECUTIVE SUMMARY

We are pleased to present this report which was prepared at the request of Nuclear Waste Management Organization ("NWMO" or the "Company") for the following purposes:

1. To report on the financial position of the NWMO Pension Plan ("Plan") as at January 1, 2013;

2. To establish the minimum and maximum contributions for the period from January 1, 2013 until the results of the next valuation are available, for which the effective date must be no later than January 1, 2014;

3. To provide the actuarial certifications required under the Pension Benefits Standards Act and the federal Income Tax Act ("ITA").

The intended users of this report are NWMO, the Office of the Superintendent of Financial Institutions and Canada Revenue Agency. This report is not intended or necessarily suitable for purposes other than those listed above. Any party reviewing this report for other purposes should have their own actuary or other qualified professional assist in their review to ensure that the party understands the assumptions, results and uncertainties inherent in our estimates.

CHANGES SINCE PREVIOUS VALUATION
The last valuation of the Plan was prepared as at January 1, 2012.

Since the previous actuarial valuation, the wind-up and solvency valuations were updated to reflect market conditions as at the valuation date. In addition, the maximum pension level under the ITA for the wind-up and solvency valuation is assumed to increase with increases in the implied inflation rate plus 1%. The assumptions are summarized in Appendix B.
RELIANCE
We have relied on the asset information provided to us by the Company. We have also relied on the Company to provide all relevant data and to confirm the pertinent Plan terms.

SUMMARY OF RESULTS

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**Windup/Solvency Financial Position**

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**Minimum Contributions in First Year Following Valuation**

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<td>Total Minimum Required Contributions</td>
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This report should be filed with the Office of the Superintendent of Financial Institutions, to meet the filing requirements of the Pension Benefits Standards Act and with Canada Revenue Agency, in order to ensure that contributions recommended in the report will qualify as eligible contributions for purposes of the Income Tax Act. The next actuarial valuation of the Plan should be performed no later than January 1, 2014.
This report has been prepared and our opinions given in accordance with accepted actuarial practice in Canada.

Respectfully submitted,

_________________________________________  __________________________________________
Ian Edelist, FSA FCIA                      Kiersten Johnston, FSA FCIA

April 22, 2013                                            April 22, 2013

Date                                                  Date
Section 2. INTRODUCTION

Effective January 1, 2009, Ontario Power Generation Inc. ("OPG") transferred, and Nuclear Waste Management Organization ("NWMO") acquired, certain assets of OPG relating to its nuclear waste management division. As a result, employees of OPG engaged in the nuclear waste management business (the "Transferring Employees") became employees of NWMO on January 1, 2009.

NWMO established the NWMO Pension Plan (the "Plan") effective January 1, 2009 for employees hired on and after January 1, 2009 and to provide retirement benefits to the Transferring Employees who were participating in the OPG Pension Plan. This valuation includes the benefits earned by the Transferring Employees in the OPG Pension Plan prior to January 1, 2009 and takes into account service earned under the OPG Pension Plan for the purposes of eligibility and entitlement to benefits.

The asset transfer from the OPG Pension Plan in respect of the Transferring Employees was completed in November 2012. The value of the assets that were transferred was $31,750,383. There are no assets pending from the OPG Pension Plan at the date of this valuation.

SUBSEQUENT EVENTS

We are not aware of any events that occurred between the valuation date and the date this report was completed that would have a material impact on the results of this valuation.

VALUATIONS INCLUDED IN THIS REPORT

In this report, we describe the results of three different valuations of the Plan:

- A "going concern valuation" which is used to estimate the funded position of the Plan, assuming the Plan is continued indefinitely, and to estimate the contributions currently required to be made to the Plan’s fund, both to fund the cost of any benefits being earned by members for current service and, in the event there is a funding deficiency, to liquidate the amount of the funding deficiency.

- A "wind-up valuation", which is intended to reflect the status of the Plan as if it had been wound up on the valuation date and the Plan members had been provided with the benefits specified by the Plan and the Pension Benefits Standards Act. The purpose of this valuation is to show the degree of benefit security provided for all of the Plan members’ accrued benefit by the current assets of the pension fund. The wind-up valuation is not used to determine the required contributions to the Plan.

- A "solvency valuation", which is similar to a wind-up valuation, except that it reflects certain adjustments to the Plan assets, as permitted by the Regulations under the Pension Benefits Standards Act. If this valuation reveals a "solvency deficiency" (as defined in those Regulations), additional contributions may be required.
FILING REQUIREMENTS
The last filed actuarial report was effective January 1, 2012. This report outlines the movements of the Plan’s financial position since the previous valuation and is to be filed with the Office of the Superintendent of Financial Institutions and Canada Revenue Agency, and is to be used by the Company to determine its funding requirements for the period following the valuation.
Section 3. DATA

The valuation was based on data as of the valuation date, January 1, 2013, supplied to us by the Company. This data is summarized in Appendix C.

We subjected this data to a number of tests of reasonableness and consistency, including the following:

- a member’s (and partner’s as applicable) age is within a reasonable range;
- all dates remained unchanged from the data used in the previous actuarial valuation of the Plan;
- accrued pensions changed by a reasonable amount;
- a member’s gender did not change;
- an active member’s salary increased by a reasonable amount;
- the form of pension payment did not change (other than resulting from the death of a retired member);
- the pension amounts on the pensioner file was compared with the payments reported in the financial statements for the Plan; and
- we examined the additions to and deletions from each of the data files (i.e., the files for active employees, pensioners and terminated members entitled to a deferred vested pension) since the previous valuation to determine whether all Plan members were accounted for in this valuation, to check for duplicate records and to confirm pension amounts.

All of our tests had satisfactory results or the data was corrected.

Assets of the Plan accumulated since January 1, 2009 are held by CIBC Mellon in account #NWNF30010002 and were invested in three Connor, Clark and Lunn pooled funds. We have relied on the asset information provided by NWMO as of December 31, 2012. Additional information on the Plan’s assets is set out in Appendix D.
Section 4. ACTUARIAL ASSUMPTIONS AND METHODS

ACTUARIAL ASSUMPTIONS
The actuarial assumptions used in the going concern, wind-up and solvency valuations are summarized in Appendix B of this report.

Economic Assumptions – Going Concern Valuation
For the going concern valuation, we have used the same economic assumptions as those used at the previous valuation, as at January 1, 2012. The selection of the economic assumptions (i.e. those related to interest rates and inflation) for this valuation was based on reasonable expectations of the relationships between key economic variables over the long term, as well as the expected impact of those economic variables on the investment performance of the pension fund, given the fund’s Statement of Investment Policies and Procedures.

To determine the going concern discount rate, our model determined expected long term capital market returns, standard deviations and correlations for each major asset class noted in Appendix D (universe bonds, Canadian equities, global equities, etc.) by using historic returns, current yields and forecasts. We then stochastically generated projected asset class returns for 1,000 paths over 20 years to create expected returns for each asset class. The simulated going concern discount rate was the return at the median of each asset class weighted by the Plan’s target asset mix.

To determine the net discount rate, we have assumed that there will be no added-value returns from the active management strategy employed in excess of the associated additional investment management fees. We note that NWMO pays all investment and non-investment fees directly. Finally, we have included a provision for adverse deviations.

Based on the methodology described above, the going concern discount rate assumption was developed as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Discount rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simulated gross going concern discount rate</td>
<td>6.44%</td>
</tr>
<tr>
<td>Provision for investment management and custodial expenses</td>
<td>0.00%</td>
</tr>
<tr>
<td>Estimated net discount rate before provisions</td>
<td>6.44%</td>
</tr>
<tr>
<td>Provision for adverse deviations</td>
<td>(0.44%)</td>
</tr>
<tr>
<td>Going Concern discount rate assumption</td>
<td>6.00%</td>
</tr>
</tbody>
</table>

Because the going concern assumptions are intended to represent expected economic conditions over long periods of time, covering several decades, it is anticipated that the assumptions will be changed relatively infrequently, and that any change will be justified either by new economic conditions that are likely to persist over the long term, (rather than by short-term fluctuations in the financial markets), or changes in, the underlying objectives adopted by the Company for the funding of the Plan’s benefits.
For salary increases we assumed that the real economic growth in salary would be 1.0% above the assumed inflation rate of 2%, plus an allowance for individuals’ merit/promotion increase that is based on an individual’s age and service. This leads to a long-term rate of 3.0% for salary increases plus the merit/promotion component. The increase in the yearly maximum pensionable earnings (“YMPE”) was assumed to grow at a real economic rate of 1.0% above the assumed inflation rate, which leads to a long term assumption of 3.0% for YMPE increases. The Income Tax Act benefit limit after 2013 was also increased at the same rate as the YMPE.

In our view, the economic assumptions we have used for the going concern valuation remain within an acceptable range that would be considered by actuaries to be appropriate for the current circumstances of the Plan.

**Demographic Assumptions – Going Concern Valuation**
For mortality, we used the 1994 Uninsured Pensioner Mortality Table with generational projection using mortality projection scale AA. This table reflects mortality experience from 1994 for a large sample of North American pension plans, with projected improvements in mortality after 1994 based on an individual’s birth cohort. This table is commonly used for valuations of pension plans where the amount of data relating to actual mortality experience of the specific plan is of limited statistical significance and there is no reason to believe mortality experience for the plan will differ significantly from that of other plans. Hence the use of this table is reasonable for this Plan.

The Canadian Institute of Actuaries is conducting studies of Canadian pension mortality experience, and once released, the final results of the studies may affect the mortality assumptions in future valuations.

For termination and retirement, we have used the rates developed by OPG due to the limited statistical volume of Plan specific data.

**Assumptions - Wind-up/ Solvency Valuation**
For the solvency and wind-up valuations, the economic assumptions were changed to reflect market conditions at January 1, 2013. We made no provision for adverse deviations in these valuations as these assumption bases are stipulated by regulation and reflect market conditions at the valuation date.

**ACTUARIAL COST METHOD**

**Going Concern Valuation**
As with the previous valuation, we used the projected unit credit actuarial cost method to determine the going concern actuarial liabilities of the Plan and the Company’s current service cost. Under this method, the actuarial liabilities consist of the present value of pensions in payment and vested deferred benefits for terminated members, plus that portion of the future benefits expected to be paid to present members which are related to their credited service up to the valuation date. Amounts of pension are determined based on each member’s projected final average earnings. If the value of these actuarial liabilities exceeds the actuarial value of the assets (determined as described below), the excess is defined as the unfunded actuarial liability and is funded by fixed special payments over a specified period or periods.
The Company’s current service cost for the year following the valuation date is the present value of benefits accrued by Plan members with respect to their service in that year, less the amount of the members’ contributions in the year.

The characteristics of this actuarial cost method are that it matches year-by-year costs of benefits expected to be accrued by the Plan members each year to the contributions required for those years and since it results in a pattern of progressively increasing costs for an individual employee as that employee ages, it may also result in progressively increasing costs for the Plan as a whole if the average age profile of the Plan membership increases from year to year.

**Wind-up/Solvency Valuation**

As with the prior valuation, we valued the termination benefit payable under the Plan or the Pension Benefits Standards Act, if different. Under this valuation, the actuarial liabilities consist of the present value of pensions in payment and vested deferred benefits for terminated members, plus the portion of the future benefits expected to be paid to present members which are related to their credited service up to the valuation date. Amounts of pension for active members are determined based on each member’s final average earnings at the valuation date.

**Asset Valuation Method**

As with the previous valuation, we used the market value of assets for the going concern, wind-up and solvency valuations, adjusting for amounts in transit and amounts payable.

Appendix D shows the reconciliation of the market value of assets from January 1, 2012 to January 1, 2013.

**Benefits Valued**

The benefits valued were those in effect at the valuation date. A summary of the Plan provisions is provided in Appendix A.

**Incremental Cost**

The incremental cost is the present value, at the valuation date, of the expected aggregate change in the hypothetical wind-up or solvency liability between the valuation date and the next valuation date. It also reflects expected benefit payments between the valuation date and the calculation date.

In our report we have determined the incremental cost under the wind-up basis. The incremental cost was determined as the sum of (a) and (b) minus (c):

a) the projected wind-up liability at the next valuation date for those members at the current valuation date, allowing for service accrual and increase in earnings between the current valuation date and the next valuation date. No adjustment was made for new entrants between the two valuation dates. The resulting projected wind-up liability was then discounted to the current valuation date;

b) the present value of the benefit payments expected to be paid between current valuation date and the next valuation date, discounted to the current valuation date;

c) the wind-up liability as at the current valuation date.
Section 5. GOING CONCERN VALUATION

VALUATION BALANCE SHEET
The following is the going concern valuation balance sheet as at January 1, 2013 based on:

- the Plan provisions (summarized in Appendix A);
- the going concern valuation assumptions (described in Appendix B); and
- the membership data (summarized in Appendix C); and
- the actuarial value of assets (summarized in Appendix D).

with comparative figures from the valuation as at January 1, 2012.

<table>
<thead>
<tr>
<th></th>
<th>January 1, 2013</th>
<th>January 1, 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Going Concern Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market Value</td>
<td>$51,073,000</td>
<td>$41,082,000</td>
</tr>
<tr>
<td>Contributions Receivable</td>
<td>72,000</td>
<td>54,000</td>
</tr>
<tr>
<td>Benefits and Fees Payable</td>
<td>-(198,000)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Actuarial Value of Assets</strong></td>
<td>$50,947,000</td>
<td>$41,136,000</td>
</tr>
<tr>
<td><strong>Going Concern Liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active Members</td>
<td>$28,794,000</td>
<td>$24,616,000</td>
</tr>
<tr>
<td>Deferred Vested Members</td>
<td>292,000</td>
<td>522,000</td>
</tr>
<tr>
<td>Retired Members and Survivors</td>
<td>7,818,000</td>
<td>7,915,000</td>
</tr>
<tr>
<td><strong>Total Actuarial Liabilities</strong></td>
<td>$36,904,000</td>
<td>$33,053,000</td>
</tr>
<tr>
<td><strong>Going Concern Surplus/(Unfunded Liability)</strong></td>
<td>14,043,000</td>
<td>$8,083,000</td>
</tr>
</tbody>
</table>
GAIN AND LOSS ANALYSIS
The Plan had a going concern surplus of $14,043,000 at January 1, 2013. The previous valuation of the Plan (at January 1, 2012), showed the Plan had a surplus of $8,083,000. The derivation of the going concern surplus at January 1, 2013 is approximately as follows:

Going concern surplus / (unfunded liability) at January 1, 2012 $8,083,000
Total solvency special payments and transfer deficiency payments made in inter-valuation period 3,097,000
Interest during inter-valuation period 485,000
Expected surplus / (unfunded liability) at January 1, 2013 $11,665,000

Plus actuarial gains / (losses) due to experience differing from assumed during the inter-valuation period:

Gain/(loss) attributable to net investment experience $1,124,000
Gain/(loss) on salaries, YMPE and ITA limits increasing at a different rate than expected 419,000
Gain/(loss) on indexation experience 122,000
Gain/(loss) on buyback/transfer in of service 715,000
Net actuarial experience gain/(loss) $2,380,000
Miscellaneous gain/(loss) (2,000)

Going concern surplus / (unfunded liability) at January 1, 2013 $14,043,000

CURRENT SERVICE COST
Under the actuarial cost method used for this valuation, the current service cost represents the estimated value of the benefits for service in the year following the valuation date. Based on the plan provisions, the data and assumptions described in Appendices A to C, the estimated amount of Company current service cost is:

Total current service cost: $2,466,000
Estimated employee contributions: (860,000)
Company current service costs: $1,606,000

2013 estimated pensionable earnings: $12,384,000
Company current service cost as a percent of earnings: 12.97%
The actual dollar amount of current service contribution for the years following the valuation date may be higher or lower than the amounts indicated above if the actual pensionable earnings are different than assumed.

**Sensitivity Analysis**

If the going concern discount rate decreased by 1%, from 6% per year to 5% per year, and all other assumptions remained the same, the total going concern liabilities would increase by $7,030,000 to $43,934,000 and the Company current service cost would increase by $694,000 to $2,300,000 as of January 1, 2013.
The purpose of the wind-up valuation is to determine the financial position of the Plan if it were wound up on the valuation date. Accordingly, the following approach was used:

1. The Plan assets were valued at their market value less an allowance for wind-up expenses.

2. The benefits valued were the pensions to which members would be entitled under applicable legislation and the Plan if the Plan were wound up on the valuation date.

3. It was assumed that 50% of active and deferred vested members who are within 10 years of pensionable age are assumed to choose the option that creates the highest solvency liability (i.e. to be settled by annuity purchase). For all other members, it was assumed that their pension benefits were settled by a lump sum transfer.

4. For retired members, it was assumed that their pension benefits were settled by annuity purchase.

5. Members were assumed to retire at the age that produced the highest present value of their pension. Members not yet eligible to retire were assumed to retire at age 65.

6. The actuarial assumptions are developed in accordance with the Canadian Institute of Actuaries’ (CIA’s) Standard of Practice for determining Pension Commuted Values effective February 1, 2011 and 2012 Year-End Annuity Proxy advice of the CIA’s Committee on Pension Plan Financial Reporting. These assumptions are described in detail in Appendix B.

7. The values of the pensions are not discounted for death or disability before the pension start date.
Based on the Plan provision in effect on January 1, 2013, the wind-up valuation assumptions mentioned above and the membership data supplied by the Company, the following is the wind-up position as of January 1, 2013 with comparative figures as of January 1, 2012:

<table>
<thead>
<tr>
<th>January 1, 2013</th>
<th>January 1, 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind-up Assets</td>
<td></td>
</tr>
<tr>
<td>Market Value</td>
<td>$51,073,000</td>
</tr>
<tr>
<td>Contributions Receivable</td>
<td>72,000</td>
</tr>
<tr>
<td>Benefits and Fees Payable</td>
<td>(198,000)</td>
</tr>
<tr>
<td>Allowance for wind-up expenses</td>
<td>(150,000)</td>
</tr>
<tr>
<td>Total wind-up assets</td>
<td>$50,797,000</td>
</tr>
<tr>
<td>Wind-up Liabilities</td>
<td></td>
</tr>
<tr>
<td>Active Members</td>
<td>$51,966,000</td>
</tr>
<tr>
<td>Deferred Vested Members</td>
<td>600,000</td>
</tr>
<tr>
<td>Retired Members and Survivors</td>
<td>12,760,000</td>
</tr>
<tr>
<td>Total wind-up liabilities</td>
<td>$65,326,000</td>
</tr>
<tr>
<td>Wind-up Surplus/(Deficiency)</td>
<td>($14,529,000)</td>
</tr>
</tbody>
</table>

As shown above, if the Plan had terminated at January 1, 2013, the wind-up liabilities would have exceeded the wind-up assets by $14,529,000.

**INCREMENTAL WIND-UP COST**

In accordance with the Canadian Institute of Actuaries’ Standards of Practice, we have estimated the incremental cost of the wind-up liability. This is the expected aggregate change in wind-up liability between January 1, 2013 and January 1, 2014.

The solvency incremental cost reflects expected decrement and related changes in membership status, accrual of service, any expected changes in benefits, members’ contributions and projected pensionable earnings during the year.

The incremental cost as of January 1, 2013 is $6,092,000. The incremental cost does not impact the funding requirements of the Plan and is for information purposes only.

**SENSITIVITY ANALYSIS**

If the wind-up discount rate decreased by 1% from the assumptions described in Appendix B, and all other assumptions remained the same, the total wind-up liabilities would increase by $14,197,000 to $79,523,000 as of January 1, 2013.
Section 7. **SOLVENCY VALUATION**

A solvency valuation is a requirement of the Regulations under the Pension Benefits Standards Act.

As per the regulations, an Adjusted Solvency Asset Amount is calculated by multiplying the Average Solvency Ratio by the amount of the wind-up liabilities. As permitted under the Regulations, the solvency ratios at the prior valuation date and the prior second valuation date are adjusted. This is done by increasing the solvency assets by an amount not in excess of the present value of any special payment made in respect of the period between the prior valuation date or prior second valuation date and the valuation date. The Average Solvency Ratio is determined as follows:

<table>
<thead>
<tr>
<th>Valuation Date</th>
<th>Jan 1, 2011</th>
<th>Jan 1, 2012</th>
<th>Jan 1, 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind-up assets at valuation date</td>
<td>$35,016,000</td>
<td>$40,986,000</td>
<td>$50,797,000</td>
</tr>
<tr>
<td>Present value of special payments made to January 1, 2013</td>
<td>$3,980,000</td>
<td>$3,018,000</td>
<td>$0</td>
</tr>
<tr>
<td>Adjusted wind-up assets</td>
<td>$38,996,000</td>
<td>$44,004,000</td>
<td>$50,797,000</td>
</tr>
<tr>
<td>Wind-up liabilities</td>
<td>$40,206,000</td>
<td>$55,990,000</td>
<td>$65,326,000</td>
</tr>
<tr>
<td>Adjusted Solvency ratio</td>
<td>97.0%</td>
<td>78.6%</td>
<td>77.8%</td>
</tr>
<tr>
<td>3 Year Average Solvency Ratio</td>
<td></td>
<td></td>
<td>84.5%</td>
</tr>
<tr>
<td>Adjusted solvency assets</td>
<td></td>
<td>$55,200,000</td>
<td></td>
</tr>
<tr>
<td>Solvency liabilities</td>
<td></td>
<td>65,326,000</td>
<td></td>
</tr>
<tr>
<td>Statutory solvency excess (statutory solvency deficiency)</td>
<td></td>
<td>$(10,126,000)</td>
<td></td>
</tr>
</tbody>
</table>

**Annual solvency special payment calculation**

1. Deficit divided by 5 years $2,025,000
2. Annual going concern special payments 0

Required 2013 Solvency Special Payment $2,025,000
Section 8. ELIGIBLE CONTRIBUTIONS

MINIMUM CONTRIBUTIONS
The Company’s minimum contributions required under the Pension Benefits Standards Act from January 1, 2013 until the date of the next valuation (due to be made no later than as of January 1, 2014) are as follows:

1. Current service cost contributions at the rate of 12.97% of the covered earnings of Plan members from January 2013 until the date of the next valuation. The total estimated annual normal cost contributions based on this rate and assumed payroll of $12,384,000 is $1,606,000; and

2. Special payments at the rate of $2,025,000 per year from January 2013 until the next valuation to liquidate the solvency deficiency.

MAXIMUM CONTRIBUTIONS
At the Company’s option, the Company may choose to fund at a higher level than the minimum requirement stated above. The maximum tax deductible contributions the Company could make is equal to the sum of:

1. A lump sum equal to the greater of the unfunded actuarial liability and the windup deficiency, which was $14,529,000 as of January 1, 2013; plus

2. The current service contributions of 12.97% of earnings, per year until the date of the next valuation.

Under federal pension legislation, all contributions due to the Plan should be remitted at least monthly and no later than 30 days following the end of the relevant month.
Section 9. SOLVENCY RATIO

The “solvency ratio” for purposes of the Regulations under the Pension Benefits Standards Act is the ratio of:

1. The assets (at market value plus contributions receivable and less fees and benefits payable) less the allowance for wind-up expenses, $50,797,000 to

2. The solvency liabilities, $65,326,000

As at January 1, 2013, the solvency ratio for the Plan was determined to be 77.8%.

The Regulations under the Pension Benefits Standards Act provide that, if the solvency ratio is greater than 100%, transfers of commuted values to terminating employees may be made in full, immediately. If the solvency ratio is less than 100%, then a portion of a terminated employee’s commuted value cannot be paid in a lump sum, but instead must be held back and paid in instalments, with interest, over a 5-year period unless the Company remits an additional contribution to the fund equal to the portion of the commuted value that should be held back.
Section 10. ACTUARIAL OPINION

With respect to the NWMO Pension Plan forming part of the actuarial report dated April 2013 and based on a valuation of the Plan as at January 1, 2013:

1. The purpose of the report was to provide actuarial estimates of the funding payments required to be made by NWMO over the period from January 1, 2013 to the date of the next valuation. Based on current legislation, the effective date of the next valuation must be no later than January 1, 2014 in order to comply with applicable legislation.

2. The Plan had a going concern surplus of $14,043,000 as at January 1, 2013.

3. In our opinion, the value of the Plan assets would not be sufficient to cover the actuarial liabilities if the Plan were to be wound up as at January 1, 2013. The estimated deficit would be approximately $14,529,000.

4. The Plan had a statutory solvency deficiency of $10,126,000 as at January 1, 2013.

5. The rule for determining Company current service cost is 12.97% of pensionable earnings. The Company current service cost for 2013 is estimated to be $1,606,000. In addition, plan member contributions are estimated to be $860,000 in 2013.

6. The minimum special payments required to liquidate the solvency deficiency liability in accordance with the Regulations under the Pension Benefits Standards Act is $2,025,000 per year.

7. In our opinion, in respect of the going concern valuation, the wind-up valuation and the solvency valuation,
   a) the data on which the valuation is based are sufficient and reliable for the purposes of the valuations,
   b) the assumptions are, in aggregate, appropriate for the purposes of the valuations, and
   c) the methods employed in the valuation are appropriate for the purpose of the valuation.

8. Notwithstanding the foregoing opinion, emerging experience differing from the assumptions will result in gains or losses which will be revealed in future valuations.

9. This report has been prepared, and our opinions given, in accordance with accepted actuarial practice in Canada.
10. This report has been prepared in a manner consistent with the recommendations for the preparation of actuarial valuation reports issued by the Canadian Institute of Actuaries.

Ian Edelist
Fellow, Canadian Institute of Actuaries

Kiersten Johnston
Fellow, Canadian Institute of Actuaries

April 2013
Appendix A. SUMMARY OF PLAN PROVISIONS

SUMMARY OF MAIN PLAN PROVISIONS

The following is a summary of the Plan provisions as of December 31, 2012 which materially affect the costs of the Plan.

Effective Date

The effective date of the Plan is January 1, 2009.

Eligibility

Former employees of OPG’s nuclear waste management division who were members of the OPG Pension Plan as at January 1, 2009 automatically became members as of the effective date.

Each regular or probationary employee is eligible to join the Plan on their date of hire.

Contributions

Employees represented by the Power Workers' Union (the "PWU") contribute at the following rates*:

- 5.0% of base annual earnings up to the YMPE, and
- 7.0% of base annual earnings in excess of the YMPE.

Employees represented by the Society of Energy Professionals (the "Society") and Management and non-union employees contribute at the following rate*:

- 7.0% of base annual earnings

*Employee contributions, as well as his or her pensionable service accrual, cease once the employee completes 35 years of Pensionable Service. However, an employee who has contributed to the Plan for a period of 35 years may elect to continue to contribute and to continue to accrue Pensionable Service up until retirement.

Average Earnings

Base annual earnings include bonuses up to a set percentage (5%) where applicable.

“High three-year average” is the average of the member’s base annual earnings during the thirty-six consecutive months when the base earnings were highest. “High five-year average” has a similar meaning based on the highest sixty months.

The “average YMPE” is the average of the YMPEs during the sixty consecutive months when the base earnings were highest.
Normal Retirement

The normal retirement date is the day that the member attains age 65.

A member's normal retirement benefit is 2% of the member's “high three-year average” for each year of credited service subject to a maximum of 35 years. From this a deduction is made of 0.5% of the member's "high five-year average" up to the "average YMPE" for each year of credited service included above.

Early Retirement

Society and PWU members may retire prior to the normal retirement date without any reduction in the accrued pension, if the sum of the employee's age plus years of continuous employment is equal to or greater than 82. All other members can retire with an unreduced pension if they have age plus years of continuous employment greater than or equal to 84.

Notwithstanding the above, any member may retire prior to the normal retirement date without any reduction in the accrued pension if the member has completed thirty-five years of continuous employment.

For members who retire prior to the normal retirement date, a bridge pension is payable equal to 0.625% of the member's "high five-year average" up to the "average YMPE" for each year of credited service, multiplied by an adjustment factor. Such adjustment factor is the sum of (a) 35 multiplied by the lesser of 1 and credited service divided by 30, plus (b) credited service in excess of 35 years for which the member elected to continue to contribute. This is payable until age 65 (except where the member dies prior to age 65 and there is no survivor pension payable). The bridge pension is subject to the same early retirement reductions as are applied to the lifetime retirement benefit.

An employee with 15 or more years of continuous employment but less than 25 years of continuous employment, who does not qualify for unreduced early retirement may retire within 10 years of normal retirement date. In such a case, the employee's accrued pension (inclusive of the bridge pension) is reduced by 2% for each year up to five years and 3% for each additional year by which the early retirement date precedes the employee's normal retirement date.

Otherwise, an employee who does not qualify for unreduced early retirement may retire prior to age 60 with 25 or more years of continuous employment, but within 10 years of normal retirement date. In such case, the employee's accrued pension (inclusive of the bridge pension) is reduced by 3% for each year by which early retirement precedes age 60.

An employee, who does not qualify under any of the previously mentioned early retirement provisions and has less than 15 years of continuous employment, may retire within 10 years of the normal retirement date. In such a case, the pension is the actuarial equivalent of the member's deferred pension payable at normal retirement date.
An employee, who has not yet attained age 55 and therefore does not qualify under any of the previously mentioned early retirement provisions, but who is within 10 years of the earliest unreduced retirement date, may elect to retire. In such a case, the pension (inclusive of the bridge pension) is the actuarial equivalent of the early retirement pension that would be payable at age 55.

**Indexing**

Pensions will be indexed each January 1st at the rate of 100% of the increase in the Consumer Price Index (Ontario). Deferred pensions are also indexed after commencement.

Pensions are indexed during the deferral period at the rate of 100% of the increase in the Consumer Price Index (Ontario).

**Normal Form**

The normal form of pension is payable for the lifetime of the retired member with payments guaranteed for sixty months for single members. Married members will receive a 66 2/3% joint and survivor pension.

**Retirement From Deferred Status**

A terminated member with a deferred pension may retire under any provision for unreduced early retirement, provided that such provision was in effect on the date of termination and the member had completed the requirements for the unreduced pension at the date of termination.

A terminated member with a deferred pension, who terminated with 25 or more years of continuous employment, has the same early retirement provisions as those in effect for active employees at the date of termination.

Otherwise, a terminated member with a deferred pension, who terminated with 15 or more years of continuous employment but less than 25 years of continuous employment may receive a pension within 10 years of normal retirement in accordance with the rules in effect on the date of termination. In such a case, the pension is the actuarial equivalent of the member's deferred pension.

**Termination Benefits**

The member is entitled to receive their accrued pension commencing at normal or early retirement age determined in accordance with the rules pertaining to terminated employees with deferred pensions in effect upon termination of employment.

**Pre-Retirement Death Benefit**

The surviving spouse is entitled to receive the commuted value of the member’s deferred pension. If there is no surviving spouse, a payment of the commuted value of the member’s deferred pension is made to the beneficiary or estate.
The spouse may elect to receive, in lieu of the commuted value payment, a pension which is the greater of an immediate pension of 66.67% of the pension to which the member would have been entitled had the member retired on the date of death with no reduction for early retirement, or an immediate pension with commuted value equivalent to the commuted value of the member’s deferred pension. The spouse can also elect to receive a deferred pension on an actuarial equivalent basis.

**Disability**

If a member should become totally disabled while in the employ of NWMO and is in receipt of a benefit under a long-term disability programme sponsored by NWMO, his pension benefits continue to accrue and his contributions will cease. For this purpose the earnings of the member will be deemed to continue at the rate in effect on his date of total disability, subject to increase by CPI (Ontario) from that date.

**Excess Contributions**

Upon termination of employment or retirement, if the total value of the member’s contributions exceeds 50% of the member’s accrued benefits, then there is an additional amount payable to the member equal to the excess contributions.

**Maximum Benefits**

The benefits in respect of continuous employment after 1991 are limited to a maximum allowable under the Income Tax Act (Canada).
# Appendix B. ACTUARIAL ASSUMPTIONS METHODS

## GOING CONCERN

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>January 1, 2013</th>
<th>January 1, 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economic Assumptions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discount rate</td>
<td>6.0% per annum</td>
<td>6.0% per annum</td>
</tr>
<tr>
<td>Inflation rate</td>
<td>2.0% per annum</td>
<td>2.0% per annum</td>
</tr>
<tr>
<td>Increases in pensionable earnings</td>
<td>1% plus Inflation rate plus promotion and merit increases as summarized in Table 1</td>
<td>1% plus Inflation rate plus promotion and merit increases as summarized in Table 1</td>
</tr>
<tr>
<td>YMPE starting value (year)</td>
<td>$51,100 (2013)</td>
<td>$50,100 (2012)</td>
</tr>
<tr>
<td>YMPE increase</td>
<td>3.00% (i.e. rate of inflation + 1.00%)</td>
<td>3.00% (i.e. rate of inflation + 1.00%)</td>
</tr>
<tr>
<td>Maximum pension per year of pensionable service</td>
<td>$2,696.67 for 2013, increasing with the YMPE increase rate starting in 2014</td>
<td>$2,646.67 for 2012, increasing with the YMPE increase rate starting in 2013</td>
</tr>
<tr>
<td>Interest on contributions</td>
<td>5.00% per annum</td>
<td>5.00% per annum</td>
</tr>
<tr>
<td><strong>Demographic Assumptions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortality</td>
<td>UP94 Mortality Table with generational projection using Scale AA</td>
<td>UP94 Mortality Table with generational projection using Scale AA</td>
</tr>
<tr>
<td>Termination</td>
<td>Age-based (Table 2)</td>
<td>Age-based (Table 2)</td>
</tr>
<tr>
<td>Retirement</td>
<td>Based on age and unreduced retirement eligibility (Table 3)</td>
<td>Based on age and unreduced retirement eligibility (Table 3)</td>
</tr>
<tr>
<td>Disability</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Marital Status</td>
<td>90% married at commencement of pension</td>
<td>90% married at commencement of pension</td>
</tr>
<tr>
<td>Member/Spouse age difference</td>
<td>Males 4 years older</td>
<td>Males 4 years older</td>
</tr>
</tbody>
</table>
### TABLE 1 – PROMOTION, PRODUCTIVITY AND MERIT SCALE

<table>
<thead>
<tr>
<th>Age</th>
<th>First 4 years of Employment</th>
<th>Subsequent Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>9.0%</td>
<td>2.5%</td>
</tr>
<tr>
<td>25-29</td>
<td>6.5%</td>
<td>2.5%</td>
</tr>
<tr>
<td>30-34</td>
<td>5.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>35-39</td>
<td>4.5%</td>
<td>1.5%</td>
</tr>
<tr>
<td>40-44</td>
<td>4.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>45-49</td>
<td>3.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>50-54</td>
<td>2.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>55-59</td>
<td>2.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>60 &amp; over</td>
<td>1.5%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

### TABLE 2 – TERMINATION RATES

<table>
<thead>
<tr>
<th>Age</th>
<th>Rates per 1000 Members</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
</tr>
<tr>
<td>20</td>
<td>29</td>
</tr>
<tr>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>30</td>
<td>16</td>
</tr>
<tr>
<td>35</td>
<td>11</td>
</tr>
<tr>
<td>40</td>
<td>8</td>
</tr>
<tr>
<td>45</td>
<td>7</td>
</tr>
<tr>
<td>50</td>
<td>7</td>
</tr>
<tr>
<td>55</td>
<td>-</td>
</tr>
</tbody>
</table>

### TABLE 3 – RETIREMENT RATES

Subject to the adjustments described below, the assumed rates of retirements are as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>Eligible for Unreduced Pension Males &amp; Females</th>
<th>Eligible for Reduced Pension Males</th>
<th>Eligible for Reduced Pension Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 55</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>55-60</td>
<td>20%</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>61-64</td>
<td>25%</td>
<td>7%</td>
<td>10%</td>
</tr>
<tr>
<td>65</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
### SUMMARY OF ACTUARIAL ASSUMPTIONS – SOLVENCY BASIS

<table>
<thead>
<tr>
<th>Economic Assumptions</th>
<th>January 1, 2013</th>
<th>January 1, 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interest Rates used for wind-up liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Lump Sum transfer</td>
<td>1.10% per annum for 10 years, then 1.30% per annum.</td>
<td>1.20% per annum for 10 years, then 1.50% per annum.</td>
</tr>
<tr>
<td>- Annuity Purchase</td>
<td>0.38% per annum</td>
<td>0.45% per annum</td>
</tr>
<tr>
<td><strong>Percentage of members electing annuity purchase/commuted value</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All retired members, and 50% of active and deferred vested members within 10 years of pensionable age and 0% of active and deferred vested members more than 10 years from pensionable age, are assumed to be settled by annuity purchase; the balance of members are assumed to be settled by commuted value</td>
<td>All retired members, and 50% of active and deferred vested members within 10 years of pensionable age and 0% of active and deferred vested members more than 10 years from pensionable age, are assumed to be settled by annuity purchase; the balance of members are assumed to be settled by commuted value</td>
<td></td>
</tr>
<tr>
<td><strong>Allowance for wind-up expenses</strong></td>
<td>$150,000</td>
<td>$150,000</td>
</tr>
<tr>
<td><strong>Salary increases</strong></td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>YMPE increases</strong></td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Maximum pension per year of pensionable service</strong></td>
<td>$2,696.67 for 2013, increasing at the implied inflation rate plus 1% per year thereafter</td>
<td>$2,646.67</td>
</tr>
<tr>
<td><strong>Interest on contributions</strong></td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Demographic Assumptions</td>
<td>January 1, 2013</td>
<td>January 1, 2012</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td><strong>Mortality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Lump Sum transfer</td>
<td>UP94 mortality table with generational projection using Scale AA</td>
<td>UP94 mortality table with generational projection using Scale AA</td>
</tr>
<tr>
<td>- Annuity Purchase</td>
<td>UP94 mortality table with generational projection using Scale AA</td>
<td>UP94 mortality table with generational projection using Scale AA</td>
</tr>
<tr>
<td><strong>Termination</strong></td>
<td>Immediate</td>
<td>Immediate</td>
</tr>
<tr>
<td><strong>Retirement Age</strong></td>
<td>Most valuable</td>
<td>Most valuable</td>
</tr>
<tr>
<td><strong>Disability</strong></td>
<td>None assumed</td>
<td>None assumed</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td>90% married at commencement of pension</td>
<td>90% married at commencement of pension</td>
</tr>
<tr>
<td><strong>Member/Spouse Age Difference</strong></td>
<td>Male 4 years older</td>
<td>Male 4 years older</td>
</tr>
<tr>
<td><strong>Actuarial cost method</strong></td>
<td>Unit Credit</td>
<td>Unit Credit</td>
</tr>
<tr>
<td><strong>Asset valuation method</strong></td>
<td>Market Value</td>
<td>Market Value</td>
</tr>
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</table>
Appendix C. MEMBERSHIP DATA

The Plan membership and asset data used in the valuation were compiled as at January 1, 2013. These files were created with information gathered from the Company.

The membership data used in the valuation may be summarized as follows:

MEMBERSHIP DATA SUMMARY

<table>
<thead>
<tr>
<th></th>
<th>January 1, 2013</th>
<th>January 1, 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active Members</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>107</td>
<td>104</td>
</tr>
<tr>
<td>Average pensionable earnings</td>
<td>$115,737</td>
<td>$113,035</td>
</tr>
<tr>
<td>Average years of credited service</td>
<td>9.0</td>
<td>8.2</td>
</tr>
<tr>
<td>Average age</td>
<td>45.4</td>
<td>44.5</td>
</tr>
<tr>
<td><strong>Deferred Vested</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Average annual lifetime pension</td>
<td>$12,855</td>
<td>$23,281</td>
</tr>
<tr>
<td>Average annual bridge pension</td>
<td>$2,664</td>
<td>$2,858</td>
</tr>
<tr>
<td>Average age</td>
<td>50.3</td>
<td>48.8</td>
</tr>
<tr>
<td><strong>Pensioners and Survivors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Average annual lifetime pension</td>
<td>$56,595</td>
<td>$55,924</td>
</tr>
<tr>
<td>Average annual bridge pension</td>
<td>$9,127</td>
<td>$8,837</td>
</tr>
<tr>
<td>Average age</td>
<td>60.2</td>
<td>59.2</td>
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</table>
### RECONCILIATION OF MEMBERSHIP DATA

<table>
<thead>
<tr>
<th></th>
<th>Active Members</th>
<th>Deferred Vested Members</th>
<th>Retired Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number on January 1, 2012</td>
<td>104</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>New Members</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfers In</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>New Beneficiaries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminations:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deferred vested status</td>
<td>(1)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Paid out</td>
<td>(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid out, partial payment owing</td>
<td></td>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Deaths</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retirement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number on January 1, 2013</td>
<td>107</td>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>
### DISTRIBUTION OF ACTIVE MEMBERS AS AT JANUARY 1, 2013

<table>
<thead>
<tr>
<th>Age</th>
<th>Males</th>
<th></th>
<th></th>
<th></th>
<th>Females</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Members</td>
<td>Average Credited Service</td>
<td>Average Annual Rate of Earnings</td>
<td></td>
<td>Number of Members</td>
<td>Average Credited Service</td>
<td>Average Annual Rate of Earnings</td>
<td></td>
</tr>
<tr>
<td>25-29</td>
<td>2</td>
<td>2.9</td>
<td>$84,425</td>
<td>4</td>
<td>4.1</td>
<td>$79,410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td>10</td>
<td>2.8</td>
<td>$88,499</td>
<td>9</td>
<td>3.7</td>
<td>$97,639</td>
<td></td>
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</tr>
<tr>
<td>35-39</td>
<td>5</td>
<td>4.1</td>
<td>$96,801</td>
<td>7</td>
<td>3.5</td>
<td>$109,710</td>
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<td></td>
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<tr>
<td>40-44</td>
<td>10</td>
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<td>$132,813</td>
<td>5</td>
<td>3.8</td>
<td>$85,962</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-49</td>
<td>7</td>
<td>5.6</td>
<td>$127,832</td>
<td>7</td>
<td>7.6</td>
<td>$127,691</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-54</td>
<td>8</td>
<td>15.8</td>
<td>$146,438</td>
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<td>16.9</td>
<td>$114,303</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55-59</td>
<td>8</td>
<td>23.5</td>
<td>$152,801</td>
<td>7</td>
<td>10.8</td>
<td>$112,669</td>
<td></td>
<td></td>
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<tr>
<td>60-65</td>
<td>7</td>
<td>17.4</td>
<td>$145,258</td>
<td>3</td>
<td>16.0</td>
<td>$73,740</td>
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<tr>
<td>&gt; 65</td>
<td>1</td>
<td>3.6</td>
<td>*</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>9.9</td>
<td>*</td>
<td>49</td>
<td>7.9</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figures have not been shown for confidentiality reasons

Average age: 45.4  
Average service: 9.0

### DISTRIBUTION OF DEFERRED VESTED MEMBERS AS AT JANUARY 1, 2013

<table>
<thead>
<tr>
<th>Age</th>
<th>Males</th>
<th></th>
<th></th>
<th></th>
<th>Females</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Average Annual Pension</td>
<td></td>
<td></td>
<td>Number</td>
<td>Average Annual Pension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-50</td>
<td>0</td>
<td>0</td>
<td></td>
<td>1</td>
<td>*</td>
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<tr>
<td>50-55</td>
<td>2</td>
<td>*</td>
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<td>0</td>
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</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>*</td>
<td></td>
<td>1</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figures have not been shown for confidentiality reasons

Average age: 50.3

---

Filed: 2014-03-19  
EB-2013-0321  
Exhibit L  
Tab 6.8  
Schedule 17 SEC-103  
Attachment 2
### DISTRIBUTION OF PENSIONERS AND SURVIVORS AS AT JANUARY 1, 2013

<table>
<thead>
<tr>
<th>Age</th>
<th>Males</th>
<th>Average Annual Pension</th>
<th>Females</th>
<th>Average Annual Pension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td></td>
<td>Number</td>
<td></td>
</tr>
<tr>
<td>50-55</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>*</td>
</tr>
<tr>
<td>55-59</td>
<td>2</td>
<td>72,107</td>
<td>2</td>
<td>83,569</td>
</tr>
<tr>
<td>60-65</td>
<td>2</td>
<td>61,853</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 65</td>
<td>1</td>
<td>*</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>*</td>
<td>3</td>
<td>*</td>
</tr>
</tbody>
</table>

*Figures have not been shown for confidentiality reasons

Average age: 60.2

---

*Filed: 2014-03-19
EB-2013-0321
Exhibit L
Tab 6.8
Schedule 17 SEC-103
Attachment 2*
## Appendix D. PLAN ASSETS

### RECONCILIATION OF ASSETS

<table>
<thead>
<tr>
<th>Description</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market value as at beginning of year</td>
<td>$41,081,743</td>
</tr>
<tr>
<td>Investment Income</td>
<td>$3,898,739</td>
</tr>
<tr>
<td>Contributions</td>
<td></td>
</tr>
<tr>
<td>Employer Normal Costs</td>
<td>$1,514,666</td>
</tr>
<tr>
<td>Employer Required Special Payments</td>
<td>1,736,000</td>
</tr>
<tr>
<td>Employer Additional Contributions</td>
<td>1,300,000</td>
</tr>
<tr>
<td>Employee Contributions</td>
<td>818,045</td>
</tr>
<tr>
<td>Past Service Buybacks</td>
<td>1,903,226</td>
</tr>
<tr>
<td>Transfer Deficiency Payments</td>
<td>60,980</td>
</tr>
<tr>
<td>Total</td>
<td>$7,332,917</td>
</tr>
<tr>
<td>Disbursements</td>
<td></td>
</tr>
<tr>
<td>Pension Payments</td>
<td>($510,522)</td>
</tr>
<tr>
<td>Benefit Payments</td>
<td>(729,631)</td>
</tr>
<tr>
<td>Expenses</td>
<td>(0)</td>
</tr>
<tr>
<td>Total</td>
<td>($1,240,153)</td>
</tr>
<tr>
<td>Market value as at end of year</td>
<td>$51,073,246</td>
</tr>
<tr>
<td>Fund rate of return</td>
<td>8.8%</td>
</tr>
<tr>
<td>Classification</td>
<td>Assets at Market Value</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Cash and Equivalents</td>
<td>$43,000</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>$22,592,000</td>
</tr>
<tr>
<td>Canadian Equities</td>
<td>$10,249,000</td>
</tr>
<tr>
<td>Global Equities</td>
<td>$18,189,000</td>
</tr>
<tr>
<td><strong>Total Market Value of Assets</strong></td>
<td><strong>$51,073,000</strong></td>
</tr>
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Appendix E. EMPLOYER CERTIFICATE

With regards to the January 1, 2013 actuarial report for the NWMO Pension Plan, I hereby certify that, to the best of my knowledge and belief:

1. A copy of the official Plan document and all amendments made to January 1, 2013, were provided to the actuary;

2. The membership data provided to the actuary includes a complete and accurate description of every person who is entitled to benefits under the terms of the Plan for service up to January 1, 2013; and

3. All events subsequent to January 1, 2013 that may have an impact on the valuation have been communicated to the actuary.

Signature

Chief Financial Officer

Date

April 3, 2013

NWMO – AVR AS AT JANUARY 1, 2013
SEC Interrogatory #104

Ref:
[D1/1/2/Attachment 1/Tab 1/p.9]

Issue Number: 6.8
Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please explain the Chestnut Park Accord.

Response

The Chestnut Park Accord Addendum ("CPAA") is a tripartite jurisdictional process OPG has agreed to follow for the assignment of trades work between Building Trades Unions ("BTU") and the Power Workers Union ("PWU"). In general, construction work is assigned to the BTU, and maintenance work is assigned to the PWU.
SEC Interrogatory #105

Ref: F4-3-1, p.9

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please provide all documents, including but not limited to strategies, proposals, memorandums, opinions, expert analysis, utilized during the negotiations of the last collective agreement with the PWU (Apr 1, 2012 to March 31, 2015).

Response

Please see Ex L-6.8-1 Staff-102.
Witness Panel: Corporate Groups, Compensation

SEC Interrogatory #106

Ref: F4-3-1/p.13

Issue Number: 6.8
Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please provide a copy of the interest arbitration award that set out the wage increases for the 2013-2015 period between OPG and the Society.

Response

Please see Attachment 1 to this response, “April 2013 Interest Arbitration Award ONTARIO POWER GENERATION AND -THE SOCIETY OF ENERGY PROFESSIONALS.”
IN THE MATTER OF AN ARBITRATION

BETWEEN

ONTARIO POWER GENERATION

(“the company” / “OPG” / “the employer”)

- AND -

THE SOCIETY OF ENERGY PROFESSIONALS

(“the Society” / “the union”)

CONCERNING AN INTEREST ARBITRATION FOR THE RENEWAL OF A
COLLECTIVE AGREEMENT

BOARD OF ARBITRATION

Christopher Albertyn – Mediator / Arbitrator

APPEARANCES

For the Society:

Joseph Fierro          Local Vice-President
Victor Chetcuti       Unit 2 Director
Peter Tien            Unit 8 Director
Tony Kokus            Unit 9 Director
Joel Barton           Unit 10 Director
Alex Saba             Unit 16 Director
Shirley Kung          Unit 43 Director
Andre Kolompar        Staff Officer
Sonia Pylyshyn        Staff Officer
Andrew Todd           Staff Officer
Mary Byberg           Staff Officer
For OPG:

Richard Charney  Legal Counsel, Norton Rose
Brian Gottheil  Legal Counsel, Norton Rose
Jason Fitzsimmons  VP Safety, Wellness, Employee & Labour Relations
Glenn Zavitz  Director, Labour Relations
Connie Hergert  Director, Employee Relations
Matt Dowdle  Manager (Acting), Labour Relations
Carissa Nowak  Senior Labour Relations Consultant
Scott Martin  SVP Business & Admin Services
Mike Peckham  VP Projects & Modifications
Melanie Braaten  VP Business Partners- People and Culture
Jeff Hansen  Plant Manager - Nanticoke
Gerry Foote  Production/Project Manager – Chenaux GS
Brandon Bondy  Senior Human Resources Officer - Pickering
Joanne Kranyak  Human Resources Advisor – Hydroelectric Northwest

Mediation-arbitration held in TORONTO on January 29, 30, 31 and February 23, 24 and 28, 2013.

Award issued on April 8, 2013.
1

**AWARD**

**Jurisdiction**

1. This is an interest arbitration pursuant to the parties’ collective agreement in order to effect a renewal collective agreement, following the expiry of the parties’ collective agreement on December 31, 2012. The principles agreed by the parties that govern the arbitrator’s jurisdiction read as follows under Article 15 of the parties’ collective agreement:

15 **Collective Agreement Negotiation Disputes**

Future contract negotiations disputes shall be resolved by binding arbitration.

The dispute resolution process shall be mediation-arbitration using the same individual as both the mediator and arbitrator. The negotiating process is set out in full in Appendix VII.

The mediator-arbitrator shall consider the following issues as relevant to the determination of the award on monetary issues:

a) a balanced assessment of internal relativities, general economic conditions, external relativities;

b) OPG need to retain, motivate and recruit qualified staff;

c) the cost of changes and their impact on total compensation;

d) the financial soundness of OPG and its ability to pay.
A mediator-arbitrator shall have the power to settle or decide such matters as are referred to mediation-arbitration in any way he/she deems fair and reasonable based on the evidence presented by representatives of OPG or The Society in light of the criteria in items (a) to (d) and his/her decision shall be final and binding.

2. The determination of monetary items is to be done on the basis of categories a) to d) above. The determination of other issues is to be done on the basis of what the arbitrator considers fair and reasonable based on the evidence presented, having regard to the considerations in categories a) to d) above.

3. The general arbitral principle that an arbitrator’s award should replicate the results the parties would have reached had they freely negotiated a collective agreement also applies and informs this award: Re Board of School Trustees, School District 1 (Fernie) (1982), 8 L.A.C. (3d) 157 (Dorsey), at p. 159; Re Bruce Power LP and Society of Energy Professionals (2004), 126 LAC (4th) 144 (Burkett), p.152.

**Background**

4. The parties have a long established collective bargaining relationship.
5. Ontario Power Generation (“OPG”) is a corporation wholly owned by the Province of Ontario. Since 1999 it has operated the majority of the electricity generating assets of the former Ontario Hydro. OPG operates three nuclear stations (Pickering A, Pickering B and Darlington); five fossil-fuel stations (Nanticoke, Lambton, Lennox, Thunder Bay and Atikokan); and 65 hydroelectric stations, the principal two of which are regulated by the province, under the Ontario Energy Board (OEB), which sets electricity rates for the regulated portion of OPG’s business.

6. Although OPG is wholly owned by the province of Ontario, it is a non-transfer payment partner of the Government, i.e., it is an entity that does not receive any funding from the provincial government, but rather funds its operations through its own revenue generation.

7. OPG employs approximately 10,910 regular employees (as of October 31, 2012) widely distributed throughout Ontario. Approximately 90% of OPG’s employees are covered by collective bargaining agreements respectively with the Society and the Power Workers Union (PWU). Approximately 3,453 of OPG’s employees are members of the bargaining unit represented by the Society, and 6,308 by the PWU.
8. OPG and the Society have a single collective agreement covering OPG’s nuclear and non-nuclear generating operations.

9. The Society membership is comprised of engineers, scientists, and other highly skilled professional staff who provide supervisory, administrative and technical services at OPG. Certain nuclear plant employees are licensed by the Canadian Nuclear Safety Commission (CNSC). They supervise and train licensed employees. OPG employees require particular knowledge and skill to work in nuclear power generation.

10. The previous round of collective bargaining did not result in agreement between the parties. As in the present case, the parties referred their interest dispute to mediation-arbitration. The award, *Ontario Power Generation and The Society of Energy Professionals*, [2011] O.L.A.A. No. 117 (Burkett), resulted in a collective agreement for the period January 1, 2011 to December 31, 2012. In that award, Society-represented employees were awarded wage increases of 3% on January 1, 2011, 2% on January 1, 2012, and a further 1% on April 1, 2012.

11. In the current round of collective bargaining the parties did not reach an
agreement. Their disagreement was referred to mediation-arbitration. The mediation phase did not produce an agreement. The dispute was then dealt with by arbitration. This award determines the terms of the renewal collective agreement.

12. The bargaining pattern of the parties, as reflected in the internal comparison criterion described above for the conduct of this arbitration, has, on monetary issues, substantially followed that agreed between OPG and the PWU. The two units have historically engaged in pattern bargaining and have received very similar, if not identical, increases.

13. OPG and the PWU do not have an agreement to refer their interest disputes to arbitration. Strikes or lockouts potentially result from impasse. Although they draw somewhat different conclusions, both the Society and OPG treat the OPG-PWU three-year agreement as an important guide for the replication of collective bargaining.

Relevant facts

14. In the most recent bargaining round between the PWU and OPG, they
negotiated wage increases of 2.75% on April 1 in each of the three years of the collective agreement (for the period April 1, 2012 to March 31, 2015) ("the PWU agreement" concluded on March 20, 2012). So the increases of 2.75% were, or are to be paid, on April 1, 2012, April 1, 2013 and April 1, 2014. There were other improvements for workers represented by the PWU. The Society relies upon those increases and improvements for advancing its wage increment and other proposals in this arbitration. OPG responds that, despite the improvement in wage rates for the PWU agreement, closer analysis of the agreement reveals that the agreement resulted, calculated without compounding, in a net zero cost for OPG over the term of the agreement. This contention was vigorously challenged by the Society.

15. As a result of the factual dispute between the parties, and unusually for an interest arbitration, OPG presented the oral evidence of its Vice-President of Business Planning & Reporting, John Mauti. His evidence was subject to a comprehensive confidentiality undertakings, signed by all who attended the hearing. I will respect that confidentiality in this award, so I address the financial issues of which Mr. Mauti testified with circumspection and with much greater generality than I was privy to. Mr. Mauti’s evidence followed a ruling made during the arbitration on the scope of production and evidence by OPG:
The dispute between the parties is as to the scope of evidence to be produced by the employer to support submissions on two issues: the company’s claims regarding its financial projection and that it achieved a net zero collective agreement with the PWU, the Society’s principal internal comparator.

The employer argues that providing some additional written material is sufficient to support the submissions it makes in its written brief. The Society argues it is necessary to go beyond the written material to the source documents that inform the additional submissions.

As the employer argues, interest arbitration is an extension of bargaining. The disclosure requirements within an interest arbitration are akin to those in bargaining. A party presents a position and supports it to the extent it considers prudent and persuasive, given considerations of confidentiality and proprietary concern.

The procedure of an interest arbitration, particularly in the context of a mediation-arbitration such as this, under Article 15 of the collective agreement, is designed to expedite the resolution of the disputes and to avoid a long and detailed hearing. Speed and informality are traded for the precise investigative characteristics of court trials. There is a robustness to the conduct of interest arbitration. Each party provides the evidence it considers relevant in its brief, very occasionally supplemented by oral evidence, and disputes of fact are left to the arbitrator to determine on a balance of probability. The evidence referred to in Article 15 is the evidence the parties consider relevant to present for consideration by the arbitrator. Not every document any party wishes to have forms part of an interest arbitration, and nor does natural justice require that. The arbitrator must be placed in the position, as here, where the parties provide the information they consider relevant, supplemented by oral argument on what they and the other party have submitted. The arbitrator makes an assessment of the relevant agreed facts, the relevant disputed facts and the arguments in the context of all of the information provided by the parties, some of which may be inconsistent. The arbitrator assesses all of the information provided to determine the reasonable probabilities and to draw appropriate conclusions.

In light of these principles and the contest that has arisen over the company’s projections and its net zero claim, I will admit the additional information the employer wishes to introduce to supplement its submissions. I will permit the employer to have its Vice-President
Finance explains its financial projections and the structure of savings in the PWU agreement, with the Society being able to question him, though subject to the employer’s proprietary interest in the scope of the financial information it will provide, and also subject to the rules of confidentiality to be stipulated.

It is important to bear in mind that the parties have made submissions and provided information on areas other than the two that have been focused on in this ruling. The company’s Vice-President Finance is to testify. This is in itself unusual. It entails the provision of more tested information than is customary in an interest arbitration. The Society will have an opportunity to question the witness on the several financial questions Ms. Pylyshyn raises. The Society will have the opportunity to inquire into the apparent financial anomalies she mentions and to question the apparent contradictions. From the additional information provided by the witness, the Society can make its own assessments and draw its own conclusions on the two matters on which the witness will testify. Thereafter, it will have the opportunity to make submissions to me on those assessments and conclusions. If, after hearing the evidence and all of the submissions, I am left in such significant doubt as to the likelihood of any evidence, such that I am not able to render a decision on the information and submissions the parties have made, I will address that situation with the parties at the time and the issue raised now might be revisited.

However, at this stage, I will not require the employer to produce the source documents that inform its witness’s evidence and the documents it wishes to add to its brief. To do so would, as the employer argues, fundamentally alter this interest arbitration process, converting it from being an extension of bargaining into a much more formal proceeding with the attendant consequences in delay and cost.

The case of each party will be evaluated on the submissions made, including any submissions they make on the additional documents and evidence I am permitting the employer to present. This evaluation will be done in the context of all of the submissions made by the parties in their briefs and subject to the usual process of assessing factual disputes that arise in an interest arbitration made on written briefs, supplemented by oral submissions.

16. Mr. Mauti’s evidence sought to establish two propositions that the Society
disputed. Firstly, that OPG’s financial prospects for the foreseeable three years are grim; markedly more gloomy than prevailed at the time the PWU agreement was concluded. Secondly, that, despite the relatively large increases each year of the three year term, the PWU agreement resulted in a net zero cost (costed without compounding) as a result of concessions OPG was able to obtain. The cost savings were in eight different categories, of varying percentages, the details of which were presented confidentially in evidence.

17. Closer analysis of the actual cost of the PWU deal, compounded, showed, on OPG’s calculation, a net cost of 0.73% annualized, in each of the three years of the PWU agreement. The cost savings achieved by OPG included concessions within the collective agreement, as well as the value of ending certain practices that OPG told the PWU it would not extend beyond the term of the previous collective agreement. The Society suggested that OPG’s cost savings assumptions inflated the actual cost saving. The Society focused particularly on two items of cost saving (of the eight categories): those from changes in the rules governing nuclear radiation protective clothing, and the efficiency gains in staggering the start and stop times of operations and maintenance crews. The Society pointed out that these changes regarding protective clothing and shift times occurred later than the start of the three year period, so arguably have been marginally inflated.
There is no evidence as to whether the original cost saving calculations took account of the later start of the changes, though they might have. I give the Society the benefit of the doubt that in this respect the cost calculation might be slightly inflated. Moreover Society members were also affected by the protective clothing change. The Society should receive some monetary acknowledgement in cost saving as a result. I treat the impact of these minor adjustments to the net annualized increase to the PWU (after taking account of the cost savings, including base rate, overtime and benefits impact, compounded over the three period) as amounting to 0.75%. In other words, the total compensation adjustment for the PWU amounted to a yearly increase of 0.75%.

18. The principal dispute between the parties concerns compensation increases for the period of the renewal agreement. OPG takes the position that there should be no compensation increase whatsoever. This position follows the expectations and directives of its shareholder, the government of Ontario, in line with the 


The Society takes the position that it should see improvements in certain
conditions of employment, as well as a 2.75% wage increase in each of the three years of the collective agreement it proposes, following the increases agreed between OPG and the PWU.

19. As a relevant internal comparator, besides the PWU, the Society relies on increases given to managerial employees. OPG management has been subject since 2010 to the provincial government’s compensation freeze applicable to the broader public sector. There have been some salary adjustments, though. The first category of adjustments is performance bonuses that are exempt from the compensation freeze legislation. The Society points out that the top 50 income earners within OPG had their income increase by an average of 10.7% in 2011 over 2010, the result of incentive pay improvements. The second category of adjustments is for increased responsibilities. The Society says that in the first 10 months of 2012 there was significant upgrading of managerial positions into highest bands – an increase of over 8%. OPG explains this was the result of restructuring, on the recommendation of a third party. Over 100 Society-represented employees were also promoted as a result of the exercise. OPG also points out that the net overall saving in 2012 over 2011 in management compensation was 8%, in spite of the promotions. The third category is of adjustments made to prevent wage compression as a result of increases to Society
members in the 2011-2012 collective agreement. In 2012, 680 Society-represented employees earned greater salaries than their management supervisors. To temporarily mitigate the impacts of this compression, a one-time salary adjustment was made for 220 management supervisors (about 20% of management) to place them at 3% above their highest paid reporting employee.

20. One of the proposals made by OPG is that there be a freeze on automatic step progression by Society-represented employees. The cost savings of such a freeze within the Society wage grid in any year would be equivalent to approximately 1% of the Society wage cost.

**Internal relativities**

21. PWU-represented employees typically report to Society-represented supervisors, who in turn report to management group employees. Therefore, an important measure of internal relativity is salary differentials between these groups. Salary compression between supervisors and their direct reports is of concern.

22. The Society points out that if no increase were given to the Society, with
the PWU members receiving their 2.75% per year under the PWU three-year agreement, and taking account of the higher pension premiums paid by Society members as compared to PWU members, some PWU wages would eclipse the salaries of their supervisors in the Society. OPG responds by showing that only 10 would earn more than their Society-represented supervisors in 2013 and 2014 if no salary adjustment occurred for the Society.

23. The wage compression between Society-represented employees and management was a more severe problem until the one-time salary adjustments described above. Increases of the amounts sought by the Society would result in a repeat of that problem.

24. I conclude from this that, although there would be some limited wage compression between the PWU and the Society if no increase were given to the Society, any increase to the Society will necessarily have a greater wage compression impact in relation to management, who are subject to the public sector provincial wage freeze. Any increase will necessarily distort internal relativity between those two groups. The extent of the distortion will depend on the extent of any increase to Society-represented employees. This is a relevant consideration because management group employees are chiefly drawn from the
ranks of Society-represented employees.

25. I conclude from the evidence presented in the arbitration, as explained above, that internal relativity with the PWU will be maintained if the Society-represented employees receive increases of 0.75% in each of the three years of the collective agreement. Any other increases must be off-set by savings to the company, as occurred in the PWU deal.

**General economic conditions**

26. The parties have rival extrapolations on the future of the Ontario economy, and on its recovery from the recession. The Society has a more optimistic projection than does OPG.

27. Part of this consideration is the Ontario government’s direction to OPG, as part of its wage restraint policy, that OPG, among the broader public sector, is to give no compensation increases during the term of the collective agreement. This reality is a factor to be considered as part of the resolution of the dispute between the parties concerning compensation adjustments: The Participating Nursing Homes and Service Employees International Union Local 1 Canada (September
28. General economic conditions continue to be weak as Ontario makes a slow recovery from the recent major recession. Overall economic growth in Ontario was less than 2% in 2012. Projected growth for 2013 is under 2% (TD Canada Trust).

29. Weak general economic conditions directly affect OPG’s revenues and its ability to fund compensation increases. OPG draws attention to the OEB’s considerations when setting OPG’s electricity rates. The OEB considers the public interest in low-cost electricity. This is particularly pertinent when economic conditions are poor.

**External relativities**

30. The relevant external comparators are those in the energy sector, particularly the Society-represented employees in other energy sector companies.

31. Society-represented employees have received the following comparative increases, at:
a. Bruce Power a 3.5% increase on January 1, 2013 with a 2.75% increase effective from January 1, 2014.

b. Brookfield Power (a one-person bargaining unit) increases of 4.75% in 2013, 4.50% in 2014 and 4.50% in 2015.

c. The OEB, 3% increase on January 1, 2013 and 3% on January 1, 2014.

d. Kinectrics, spun off from OPG, providing technical services to OPG and to other energy related companies in the province, 3% on January 1, 2013.

e. New Horizons System Solutions (NHSS), spun off from OPG, providing information technology services for OPG, 3% on January 1, 2013.

f. The Independent Electricity System Operator (IESO), pursuant to an interest arbitration award, 2% increase in each of 2013 and 2014.

g. The Electrical Safety Authority (ESA), in a recently concluded a collective agreement, wage increases of 2.5% in 2012, 2.5% in 2013 and 2.75% in 2014, though with substantial increases in employee contributions to the ESA’s pension plan.
32. From the above, the normative increase over the relevant period in the energy sector is in the region of 3% p.a.

33. In the nuclear industry, in an interest arbitration award released on December 10, 2012, the federal Public Service Labour Relations Board awarded salary increases in the Canadian Nuclear Safety Commission (CNSC) of 1.75% in 2011, 1.5% in 2012 and 2.0% in 2013.

34. OPG refers to more distant external comparators, outside of the electricity sector, such as nursing homes, particularly *The Participating Nursing Homes v. Service Employees’ International Union Local 1 Canada* (unreported, September 27, 2012) (Teplitsky), in which 0% wage increases with lump sum payments were ordered for a significant portion of the nursing home sector. OPG relies also on the 0% increases in the public sector: between the provincial government and AMAPCEO, and with OPSEU, between the Ministry of Education and OECTA, and between the Ontario Provincial Police and the police association. The average compensation increase in public sector collective agreements during 2012 was 1.7% (Mercer Report).

35. Of all of these, the most relevant external comparators are those in the
energy sector.

**OPG’s need to retain, motivate and recruit qualified staff**

36. The Society compares the Society members’ compensation at OPG with the compensation paid to engineers of the Ontario Society of Professional Engineers (OSPE), given that about 38% of Society represented employees of OPG have an engineering background. The relative salary variance of Society-represented OPG employees is 8.8% above the OSPE median, as a weighted average.

37. The Society points out that OPG’s current workforce demographic is aging rapidly. Half the current workforce is 47 years of age or older. 20-25% (25%-50% of engineering staff) will need to be replaced due to retirement by 2014. The Society projects that employers in Ontario will have difficulty recruiting qualified engineering staff in the local and regional labour market in the years ahead. The Society suggests the compensation increases it is requesting will assist OPG to retain and recruit qualified staff.

38. OPG responds that Society-represented engineers at OPG are paid above
the 50th percentile of the engineering market on base salary and incentive pay. They also receive numerous other benefits which increase the value of their compensation relative to their private sector counterparts.

39. OPG is going through significant downsizing. Almost 2,000 positions are to be reduced, by attrition, by December 2015. Consequently the retention and recruitment of staff will not be a priority for OPG’s business for the foreseeable future. Also, OPG experiences no difficulty recruiting qualified staff.

40. Similarly, OPG appears to experience no difficulty in retaining qualified staff. Except for employees who retired, the termination rate for Society employees in 2011 was only 1.1%.

**The cost of changes and their impact on total compensation**

41. As a result of attrition and headcount reductions, OPG’s staffing costs for Society-represented employees was lower in 2011 than in 2010, despite the 3% increase given in 2011. Further staffing reductions in 2012 have had a similar impact: lower staffing costs than in the previous year, despite the 3% salary increase.
42. The changes sought by the Society would have an impact on total compensation. The purpose of the staffing reductions is to reduce overall staffing costs. So while some cushion is created through the reductions, that does not warrant that OPG has the ability to pay for the proposed changes. The net income calculations from OPG’s forecasts were based on zero increases to Society-represented employees. Those calculations took account of staff reductions and cost savings. They also took account of further projected staff reductions in 2013, 2014 and 2015, estimated to be a further 2,000 positions. Consequently, little credit can be given to the cost savings from staff attrition because that credit has already been taken into account in the cost projections for the forthcoming years. The Society correctly notes, though, that existing staff have maintained the efficient operation of the company and will continue to be expected to do so, despite the overall staff reductions.

43. Any increase to Society-represented employees will result in an increased projected loss for 2013. Increases in subsequent years will compound the compensation costs.

**The financial soundness of OPG and its ability to pay**
44. The business of OPG is diminishing. One of its nuclear generating stations (Pickering) will be at the end of its life by 2020, and all coal-fired thermal generating stations will be closed by 2014. In recent years, demand for electricity in Ontario has dropped, largely on account of declining manufacturing, while OPG has experienced substantially more competition, resulting in a shrinking market share within a smaller market. OPG’s market share is expected to decline significantly even compared to January 2011, when these parties last engaged in interest arbitration. At that time, OPG generated approximately 70% of all electricity consumed in Ontario. Market share has continuously declined since then and by 2015 OPG’s market share is expected to be approximately 55%.

45. OPG’s operations, maintenance and administration (OM&A) costs are projected to increase. The most significant factor underlying the increase is the higher pension and other post-employment benefits (OPEB) costs expected in the coming years. There are almost 10,000 former employees, survivors and dependants receiving pensions from OPG, including 3,052 pensioners (including survivors and dependents) represented by the Society. OPG has nearly as many pensioners as active employees and the ratio of pensioners to active employees is expected to increase, as OPG has recently announced its need to significantly
reduce its employee headcount by December 2015.

46. OPG must retain nuclear funds. These are segregated funds which OPG is obligated to maintain to cover the cost of decommissioning its nuclear generation facilities at the end of their lives and for the long term management of nuclear waste. The money in the nuclear funds is not available to OPG to cover operational expenses or reinvestment. OPG expects to contribute an additional $800-million to the funds over the 2012-2015 period. These contributions will have to be paid out of OPG’s operating revenues.

47. For the first time in its history, OPG has budgeted for a sizeable financial loss in the 2013 fiscal year, and will face continued net income financial challenges for the period covered by the collective agreement. As described more fully below, OPG faces significant regulatory constraints on its ability to increase the rates it charges for its regulated assets, enter new lines of business, or take other large-scale measures to improve its financial performance, while facing increasing pension, benefit, operational and capital costs. Furthermore, in November of 2012 the rating agency Standard and Poor (S&P) revised OPG's ratings outlook to “negative” from “stable,” reflecting OPG's weaker cash flow and funds from operations (FFO) interest coverage.
To address these financial challenges, OPG has in part focused on reducing operations, maintenance and administration (OM&A) costs. To that end it has reduced its staff complement or headcount by attrition.

The regulated portion of OPG’s business accounts for approximately 80% of its electricity production. The proportion of OPG’s revenues from its regulated production will increase in the future as the government plans to eliminate coal-fired generation, which is unregulated, by 2014. OPG’s business will therefore be even more extensively regulated by the OEB and the government than at present.

In OPG’s most recent rate application to the OEB it sought an increase of approximately 6.2%. At the end of the two-stage process of hearing, the OEB actually reduced the rate OPG is entitled to charge, by approximately 1%. (This decision was made, in part, because the OEB was persuaded that OPG compensation levels should be lowered, benchmarked to the 50th percentile of North American comparators, rather than to the 75th percentile as OPG had done.) This means that OPG’s electricity is being charged at rates frozen at approximately 2008 levels. As a consequence, with declining demand and declining market share, at fixed rates, OPG’s revenue is projected to drop.
51. OPG is the low cost electricity producer in Ontario. For electricity generated from its regulated hydroelectric plants, under the OEB, OPG receives a rate of $37/MW. For its unregulated hydroelectric plants it received on average $25/MW during 2012. These rates are considerably below those of its competitors. New hydroelectric generators under the Green Energy Act, 2009, SO 2009, c 12, Sch A receive $110/MW. The only other major producer of hydroelectric power in the province, Brookfield, gets $68/MW. OPG’s nuclear plants are also highly regulated. Under the OEB’s direction, OPG receives $54/MW for the electricity generated from those plants. Bruce Power, the only other operator of a nuclear plant in the province, receives $68/MW from Bruce A. OPG is the residual cheap electricity producer, an implicit subsidizer of ratepayers.

52. Restrictions on OPG’s capacity to enter the new, more lucrative markets prevent it from taking advantage of the higher rates for generating electricity. The mandate the government has set for OPG precludes OPG from investing in renewable electricity generation. Consequently, OPG is unable to pursue investment in non-hydro-electric renewable generation projects.
53. The approximately 20% unregulated energy production by OPG is sold at the Ontario electricity spot market price, which is subject to volatile fluctuations. The current spot market price is approximately half of what it was in 2008, with equivalent loss of revenue for OPG.

54. Prices are not expected to recover during the next few years. Factors including low electricity demand, low natural gas prices, a dramatic ramp-up of wind and solar capacity driven by the *Green Energy Act, 2009* (over 8,400MW between 2003 and 2010) and abundant supply from competitors are likely to continue in the coming years and keep spot market prices at historic lows. All of this will have an adverse impact on OPG’s profitability.

55. OPG’s future projection depends in large measure on the rate increase the OEB will give to OPG when it makes an application for a rate increase in 2014. The OEB will either force OPG into the gloomy net income forecast presented in Mr. Mauti’s evidence, or, if it allows collection of the full cost of the service and the payment of receivables from ratepayers that have accumulated in OPG variance accounts, it will enable OPG to proceed on a firmer financial footing.

56. As OPG argues, in summary, OPG’s financial outlook reflects declining
market share, lower electricity production, lower electricity spot market prices, currently little appetite from the OEB and the province for regulated rate increases, increased pension and OPEB costs, high annual contributions to its pension and nuclear funds, and challenges to reduce its costs. These factors result in adverse financial performance and prospects, including a substantial expected net loss for the 2013 fiscal year.

57. As a consequence of the above, despite OPG’s efforts to lower OM&A costs as it improves efficiencies and reduces headcount, OPG’s capacity to function profitably is significantly constrained. The effect is that OPG’s ability to pay compensation increases to its Society employees is severely restricted.

**Conclusions on proposals**

58. The Society requests that the collective agreement be effective for a period of three years. Although OPG prefers a two-year agreement, it is not strongly opposed to a three-year agreement. Having regard to the pattern of bargaining between OPG, the Society and the PWU, with the Society agreement generally following the pattern of the PWU agreement, a three-year agreement is preferable. Such extended agreement also brings stability to the relationship between the
parties.

59. The most important comparator for the OPG-Society collective agreement is the agreement between OPG and the PWU. From the evidence presented I am persuaded that the PWU agreement resulted in a net cost to the employer of 0.75% per year over the three-year agreement. External comparators recommend a substantially greater increase than the 0.75% p.a., but OPG’s financial circumstances discount that factor. I must consider, though, whether the greater awareness of a downturn in OPG’s fortunes since the conclusion of the PWU agreement in March 2012 should affect Society-represented employees relative to their PWU counterparts. In my view, that awareness should not affect the financial outcome for Society-represented employees. The historical pattern of maintaining parity with the PWU settlement should be conserved.

60. Taking account of the factors referred to in Article 15 and replication, I have determined that the net increase to the Society-represented employees should be 0.75% for each of the three years of the collective agreement. Taking account also of the additional items awarded, and having regard to their impact on total compensation, those awarded to the Society slightly increase the cost to the company, but the items awarded to the company mean cost savings that offset the
slight increase.

61. OPG has asked for a freeze on grid movement for the period of the collective agreement. Pursuant to the Ontario Government, its shareholder’s, direction, it asks that any movement through the wage grid be fully offset by cost savings within the total compensation package. As I have said, a grid freeze is worth about 1% p.a. of the Society-represented employees’ payroll. With a grid freeze the bargaining unit can be credited with the saving. 1% can be added to the salary increase in the two years, 2014 and 2015, when the grid freeze will apply, so as to make the compensation deal between the parties as commensurate as possible with that between OPG and the PWU. The increases to be paid to the Society-represented employees will therefore be 0.75% in 2013, 1.75% in 2014 and 1.75% in 2015. At the end of 2015 the employees affected by the escalator clause freeze (Article 24) will be restored to where they would have been on the grid had there been no freeze, on their normal progression date.

62. The parties currently have a cost of living adjustment (COLA) provision. The Society would like to amend it, to make it more favourable to employees by lowering the inflation rate at which it will become effective and by making any adjustment payment part of the base wage and no longer a lump sum. OPG would
like to suspend it for the operation of the collective agreement. Given the length of the collective agreement being awarded, there ought to be some protection against unanticipated inflation, permitting an appropriate offsetting adjustment. In my view, the COLA provision should apply as does the escalator clause at Part A, Item 29.0 of the PWU agreement, with the necessary changes. So, COLA will apply in the third year of the collective agreement, January 1 to December 31, 2015 if the increase in the Ontario All Items index in November 2014 (published in December 2014) over the index in November 2013 (published in December 2013) is more than 2.75%.

63. The Society proposes an amendment to the payment method for the overtime worked provision. The Society complains that its members are increasingly unable to take time off for overtime worked. It seeks an amendment that gives the election to the Society member concerned to decide between overtime payment and time off. Currently the employee’s supervisor has the discretion to determine the method of payment. I recognize the employer’s concern that operational needs should prevent payment as time off. Subject to operational needs, I am persuaded that a reasonable limit should be placed on the supervisor’s discretion.
64. My reason for declining the Society proposals on eyeglasses and travel time compensation is that they are cost items that would increase the financial burden on OPG. Taking account of total compensation, save for one exception, I have placed the compensation adjustments into wages, rather than benefits.

65. The exception concerns the parental leave provision. Unlike the OPG-PWU agreement, which treats the waiting period for EI parental benefits the same as the waiting period for pregnancy benefits, the OPG-Society agreement has no equivalent provision. Article 41.3 currently guarantees continuation of 93% of an employee’s base pay for the first two weeks of pregnancy leave, but not for the first two weeks of parental leave.

66. The Society tables a proposal for two changes to the Supplementary Unemployment Benefits (SUB) Plan in Article 41.3. The first change is that mentioned in the paragraph above. It would amend the language that currently disadvantages fathers, parents of adopted children and same sex partners relative to biological mothers. The second proposed change would improve top up for parental leave from 3 to 5 weeks. Both of these changes are warranted. The first brings the Society agreement in line with the PWU agreement, which has the benefit, and it addresses an inequity that is not justified. The second brings the
benefit closer to the parental top up provided by the external comparators (OEB 35 weeks, IESO 8 weeks, ESA 6 weeks, Bruce Power 5 weeks).

67. The Society would like to reduce some of the pension contribution rates its members pay (currently 7% for all, including for those below the year’s maximum pensionable earnings (YMPE)) to the lower rate paid by some PWU members (5% for those below the YMPE). OPG would like to increase the current contribution rates. The pension contributions made by OPG have been considerably higher than the amounts contributed by employees, heightened by additional payments to address fund deficits. OPG would like to move to the position recommended by the provincial government, that single-employer public sector plan members steadily increase their contributions to the point where they share the ongoing cost of pension benefits equally with the employer. OPG proposes that the Society be directed to meet to negotiate a more affordable pension plan. In addition OPG would like an order of more equal premium contributions by OPG and members. These important issues require much fuller consideration and discussion by both parties, including with the PWU. I am not persuaded to order such discussion and to remain seized. Furthermore, I am not persuaded that the Society’s proposal of a contribution reduction should be awarded. I leave over to a future collective agreement any discussions for reforms
to the current pension plan contributions structure.

68. OPG proposes a provision for the appointment of a chief arbitrator to expedite the resolution of rights disputes between the parties, with powers to schedule hearing dates, appoint arbitrators, issue standing orders and orders for particulars, and otherwise promote efficiencies. This is the same proposal it put forward for inclusion in the current collective agreement, before the last mediation-arbitration. Arbitrator Burkett thought the proposal required further deliberation by the parties and did not grant it. While I think the proposal would serve the parties’ best interests, it is a material departure from what obtains at present and it requires further deliberation by both parties. I think the parties should have further discussion on the issue and I refer it back to them, with the requirement that, within the next 3 months, they meet to discuss the proposal. I do not remain seized.

69. The purpose of Article 64B is to provide for the redeployment of Society-represented employees to different work locations or to lower-rated positions, instead of declaring them surplus. It is designed to protect employees in the event of reorganizations by maximizing the number of employees who are able to “follow their work.” Given the prospect of substantial headcount reductions in the
forthcoming period, OPG would like the process to be as expeditious as possible.

70. Currently, the redeployment process in Article 64B takes place within certain units of application which broadly reflect OPG’s existing business units: nuclear, corporate, hydroelectric, and fossil. However, the existing units of application may no longer accurately reflect the structure of OPG’s business. OPG proposes that the redeployment process mirror OPG’s actual business structure. To this end, it proposes that Article 64A of the Collective Agreement, which deals with “surplus” redeployment, also apply to redeployments governed by Article 64B. Specifically, OPG proposes to move Articles 64.9.9 and 64.9.10 of the Collective Agreement (currently in Article 64A) to the general section of Article 64, and to clarify that they apply to both Article 64A and Article 64B. This will make available to the parties the expedited process of resolution that currently applies to surplus redeployments. In my view this proposed change will be of benefit to the parties in resolving issues concerning the units of application for non-surplus redeployment.

71. The Society proposes that the units of application in Article 64A (as amended by Letter of Understanding 191) be amended. Article 64A describes the staff redeployment process to be followed when reorganization may result in
employees being declared surplus. Article 64.9 describes how the size of a unit of application is to be determined. The Society’s concern is with the units of application to be used for employees in the Corporate area in an Article 64A (surplus) redeployment. The four units of application, regardless of the scope of the redeployment, are: Finance (approximately 150 employees); People and Culture (approximately 100 employees); Business and Administrative Services (BAS) (approximately 150 employees); and the balance of Corporate groups (approximately 125 employees). The Society’s proposal is that, where a redeployment impacts more than 10% of Society-represented employees in any of the four Corporate Divisions, the 4 small units of application will be treated as a single unit of application, consisting of approximately 525 employees.

72. I am not persuaded that this change is warranted because Letter of Understanding 191 was negotiated very recently and the units of application described were determined on the basis of communities of interest between the employees in each unit. Furthermore, as OPG points out, if a refinement of the Letter of Understanding 191 units of application were appropriate, there is a mechanism in Articles 64.9 and 64.10 to amend units of application for Article 64A redeployments.
73. OPG proposes a variation in the contracting out provisions of Article 67 read with Letter of Understanding 188. The effect of the proposal is to alter the status quo pending determination of a dispute over contracting out. Currently the OPG may not effect the contracting out until agreement with the Society is achieved or an arbitrator rules it is permissible. The proposed change is that OPG could contract out work, pending the determination of a grievance challenging the contracting out. This proposal has very significant financial implications for the Society and its members. It also significantly affects the integrity of the Society’s bargaining unit. I am not persuaded it should be granted.

74. Pursuant to OPG’s employee pension plan, employees are eligible to retire with a reduced pension at age 55. OPG’s Extended Health Benefits Brochure, which is incorporated by reference into the Collective Agreement, states that any employee who retires with a pension will receive other post-employment benefits (OPEBs) for life. The impact of this provision is that, if an employee hired by OPG at age 55 leaves OPG’s employ, say, the next year at age 56, they receive lifetime OPEBs. To address this, OPG proposes requiring employees to have at least 10 years of service with OPG in order to qualify for OPEBs.

75. This proposal will be awarded, save that it will not apply to any Society-
represented employee who reached the age of 55 prior to the date of this award or
who is declared surplus as part of the headcount reductions during the period of
the collective agreement.

******

76. In light of the above considerations, I make the award set out below.

77. The renewal agreement will consist of the unchanged items from the
collective agreement which expired on December 31, 2012, the item agreed by the
parties themselves, described below, which are incorporated into this award, and
the items described below on which the parties made submissions.

78. Unless directly dealt with in this award, all outstanding employer and
union proposals are dismissed. All items awarded are effective from the date of
the award, save for the wage increases that are retroactive to the dates specified.

79. The agreed item is under Article 30.5, concerning boots. It will read as
follows:
Article 80.5 – Boots

80.5 Staff will be reimbursed for the cost of up to two pairs of protective footwear per year where such footwear is required by OPG as follows:

- Safety boots/shoes – 50% of actual cost to a maximum of $75 per pair;
- Electric Shock Resistant footwear – 75% of actual cost for one or two pairs per calendar year to a total annual maximum of $250.

80. The items awarded are as follows.

81. The term of the collective agreement will be for the period January 1, 2013 to December 31, 2015, under the following Article 9.1:

This collective agreement shall remain in effect from January 1, 2013 to December 31, 2015 inclusive and, thereafter, shall be renewed automatically from year to year, subject to Section 4.0 of the Voluntary Recognition Agreement (VRA) as amended in the Collective Agreement, unless either Party notifies the other, in writing, not less than 90 days prior to the expiration of the Collective Agreement that it desires to amend the Collective Agreement. As long as Sections 4.0, as amended, and 5.0 of the VRA remain in effect, where notice to amend the Collective Agreement is given, the provisions of this Collective Agreement shall continue in force until a new Collective Agreement is signed.

82. The wages are adjusted as follows:

   a. Effective January 1, 2013: 0.75%
   b. Effective January 1, 2014: 1.75%
83. Progression on the salary grid will be frozen for the two-year period from the end of 2013 until the end of 2015.

84. A COLA provision will apply, as the PWU – OPG Part A, Item 39.0 escalator clause, with the necessary date changes, as described above.

85. As to the method of payment of overtime worked, Article 57.1 is amended to read:

   The method of compensation, for authorized overtime, may be money or time off at the appropriate premium rate. If the employee elects for time off, the time for such time off will be subject to their supervisor’s approval, which will be granted unless OPG’s operational needs are such as to make the time off unreasonably difficult. If approval is not granted, the method of compensation will be money.

86. The parental leave provisions will be amended as follows:

   a. Article 41.3 b) i) will read:

      for the first 2 weeks, payments equivalent to 93% of the employee's base pay (pregnancy and parental leaves); and

   b. Article 41.3 b) ii) will read:
when receiving EI benefits, the employee is eligible to receive payments equivalent to the difference between the EI benefits and 93% of the employee's base pay for up to 15 weeks while on pregnancy leave and for up to 5 weeks while on parental leave. Where the employee's base salary exceeds 1.5 times the Years Maximum Insurable Earnings, the employee will receive an additional $300 as a lump sum as full compensation if a clawback is required by Canada Customs and Revenue Agency or any other government agency.

87. OPG’s chief arbitrator proposal is referred back to the parties for further discussion and consideration within the next 3 months. I do not remain seized if they are unable to resolve the issue.

88. Articles 64.9.9 and 64.9.10 of the Collective Agreement (currently in Article 64A) are to be moved to the general section of Article 64, so that they apply to both Article 64A and Article 64B. The provision will therefore read as follows:

- There are three separate and distinct parts to Article 64:
  1. Part A Redeployment Surplus
  2. Part B Non-Surplus Redeployment of Society Staff
  3. Part C Decontrol/Change of Employer

- In accordance with Article 64.32 Article 64 Part B is applicable in non-surplus situations that necessitate the redeployment of Society represented employees, except as follows:
- In the Nuclear Unit of Application, where employees who are in an over complement situation at their work headquarters and can be
accommodated at another work headquarters that is under complement on the basis of same job classification (i.e. like to like) Article 105.5 will apply;

- In the Fossil Unit of Application, where there is a “closure” of a Fossil location announced by the government LOU #166 “Coal Plant Closure” will apply.
  
  Clarity Note: The term “closure” applies to both full and partial station closures (e.g. unit closure or fuel conversion).

- For Surplus redeployment as outlined in Article 64.34 Article 64 Part A is applicable.

- Notwithstanding the above, in the event where there is decontrol or change of employer the parties agree Article 64 Part C will apply.

**Unit of Application**

- Where OPG establishes organizational units which do not clearly fit the definitions contained in the unit of application default provisions **under Article 64A and/or Article 64B**, the matter of the appropriate unit of application will be reviewed by the JSMC. The JSMC will make a decision which ensures that employment continuity rights are fairly applied.

**Unit of Application Dispute Resolution Process**

- In the event of a change during the term of the Agreement, with respect to a default units of application issue **under Article 64A and/or Article 64B**, that cannot be resolved by the parties, the dispute shall be resolved as follows:

  - Where no decision of the JSMC is reached on a proposed change to default units of applications, within 10 working days of the JSMC’s consideration of the matter, the parties shall exchange written briefs.

  - The matter will be determined prior to the mix and match by a designated, mutually agreed arbitrator within 10 working days after the briefs have been exchanged.

  - The arbitrator shall hear the matter in the most expeditious manner possible, and shall only hear oral evidence where he/she determines that it cannot be determined on the basis of the written briefs and oral submissions. The arbitration decision shall be based on an updated equivalent balance of the Units of Application of this Article as of January 1, 2006.

  - The arbitrator shall issue an award within 5 working days of the hearing, setting out the default unit of application.
The arbitrator has all the powers under the applicable Labour Relations Act.

The JRPT shall continue to function and develop other elements of its first report pending determination of the default unit of application through this process, and the outcome of this process does not preclude the JRPT from achieving consensus on a unit of application notwithstanding the arbitrator’s award.

This process does not prejudice or waive any grievance rights under Article 64.3 but the arbitrator’s award on the default unit of application cannot be grieved.

89. As explained above, employees who take early retirement shall have at least 10 years of service with OPG in order to qualify for OPEBs, provided that this limitation will not apply to any Society-represented employee who reached the age of 55 prior to the date of this award or who is declared surplus as part of the headcount reductions during the period of the collective agreement. The Extended Health Benefits brochure is to be amended accordingly, as follows:

- Employees who go from employee to pensioner and are ≥ age 55 with at least 10 years of pensionable service or have reached rule of 82 WITHOUT a break in service having had subsidized Health and Dental coverage will continue to receive benefits during their retirement equivalent to the current benefits available to active employees. This includes former employees who are otherwise eligible to retire under the OPG Pension Plan on their last day of employment and who instead elect a commuted value pension.

90. I remain seized of the implementation of this award until a collective
agreement is in effect between the parties. I further remain seized to deal with any errors or omissions.

DATED at TORONTO on April 8, 2013.

_____________________
Christopher J. Albertyn
Sole Arbitrator
SEC Interrogatory #107

Ref: [F4-3-1]

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please provide a copy of the current collective agreement between:
   a) OPG and the PWU
   b) OPG and the Society

Response

The most recent PWU Collective Agreement (2012 – 2015) is provided as Attachment 1 to this response.

The most recent available Society Collective Agreement (2011 – 2012) is provided as Attachment 2 to this response. Please note that finalization of the 2013 to 2015 agreement is still under discussion.
COLLECTIVE AGREEMENT

Between

ONTARIO POWER GENERATION INC.

and

POWER WORKERS’ UNION

CANADIAN UNION OF PUBLIC EMPLOYEES – C.L.C.

LOCAL 1000

April 1, 2012 – March 31, 2015
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**NOTE**

In order to readily identify changes in this Agreement from the previous one, new changes are printed in bold. Note that certain foreign words used within the text are, by convention, printed in italics, however these words are easily identifiable and should not cause confusion.
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COLLECTIVE AGREEMENT
BETWEEN
ONTARIO POWER GENERATION INC.
(Hereinafter referred to as “The Company”)

and

POWER WORKERS’ UNION (PWU), CANADIAN UNION OF PUBLIC EMPLOYEES, Local 1000 - CLC,
hereinafter referred to as the “Union” which executes this Agreement by B. Walker, B. Carnduff, A. Clunis,

WHEREAS the Union has requested the Company to enter into a Collective Agreement and the Company has
consented thereto:

NOW THIS AGREEMENT WITNESSETH

that there shall be seven parts, namely, Part A - General Items, Part B - Maintenance Trades, Part C -
Stations, and Part G – Nuclear Generating Stations. It is also witnessed that the Company and the Union
agree each with the other as follows:

ARTICLE 1
RECOGNITION
COLLECTIVE BARGAINING UNIT

1.1 The Company recognizes the Union as the sole bargaining agent for all regular, part-time and
temporary employees1, including technicians of the construction field forces and security
employees but excluding:

(a) Employees now represented by other bargaining agents.

(b) Persons above the rank of working supervisor.

(c) Persons who exercise managerial functions in accordance with the Ontario Labour
Relations Act.

(d) Persons employed in a confidential capacity in matters relating to labour relations in
accordance with the Ontario Labour Relations Act.

1.2 The grievance/arbitration procedure may be used to challenge any unreasonable, arbitrary or bad
faith action taken by the Company which results in the exclusion of any employee or position from
the bargaining unit. The parties will attempt to resolve disputes expeditiously.

1 “Employees” are employees pursuant to the Labour Relations Act for Ontario SO, 1995, c.1 Schedule A, as amended.
1.3 When an employee is removed from normal duties to act in a vacated position or relieve for an incumbent or perform a temporary assignment, the following shall apply:

(a) When the length of time involved is known to be three months or less, the employee will retain his/her present jurisdictional status.

(b) When it is expected that the length of time will be longer than three months, the employee will be excluded or included at the commencement of his/her new responsibilities. However, in the event the period is actually less than three months:

(1) in exclusion cases, the Union will be reimbursed the dues which would have been paid;

(2) in inclusion cases, the Union will reimburse the employee the dues which have been paid.

(c) When the length of time is unknown, the employee will retain his/her present jurisdictional status up to the three month period. If the period extends beyond three months, the employee will then be either included or excluded.

ARTICLE 2
GRIEVANCE PROCEDURE

2.1 Any allegation that an employee has been subjected to unfair treatment or any dispute arising out of the content of this Agreement shall be understood to be a fit matter for the following grievance procedure. All matters of grievance by any employee or group or class of employees for whom the Union is the bargaining agent and which the Union may desire to present shall be dealt with in accordance with the following procedure.

2.2 It is mutually agreed by the parties hereto that it is the spirit and intent of this Agreement to adjust grievances promptly. Therefore, any employee covered by this Agreement having a grievance may present such grievance to the representative of the Union appointed by the Union for that purpose. The Union representative may then proceed to have such grievance adjusted in accordance with the following steps established hereby for the purpose of adjusting grievances.

2.3 Grievances

Grievances are to be filed within thirty (30) days from the date that the grievor knew or should have known the facts giving rise to the grievance. The Company is to reply in writing within seven (7) days.

Steps in grievance process: Non-disciplinary matters:

Step 1 Within seven (7) days of reply or time limited for reply, a meeting with contact supervisor.

Step 2 If Step 1 meeting not held or if grievance not resolved at Step 1, grievances go to next scheduled meeting of Grievance Review Board.
2.4 Grievance Review Board

The Grievance Review Board shall consist of two Union representatives (Chief Stewards) and two Management representatives (at a high level), who will have the authority to agree unanimously to a final and binding settlement of any grievance or unanimously agree to the scheduling of any grievance, save and except the following types of grievances, which shall go directly to mediation or arbitration, as the parties may agree, or the Chief Arbitrator so determines:

i. Grievances requiring medical disclosure;
ii. Policy grievances;
iii. Terminations;
iv. Cases where the parties have agreed that facts should only be disclosed to those directly involved and the appropriate counsel acting on behalf of the parties for final resolution.

Grievance Review Board meetings are to be scheduled regularly as agreed to by the parties or ordered by the Chief Arbitrator in all work locations. The purpose of the Grievance Review Board will be to attempt to settle all cases, failing which the Grievance Review Board will agree to facts where possible and ensure that all documentary and other evidence is disclosed by the parties.

If not resolved at the Grievance Review Board, grievances move to arbitration. Unless the parties agree to regular arbitration, or the Arbitrator so orders, all grievances shall be submitted to Expedited Arbitration.

2.5 Disciplinary Matters

2.5.1 Prior to the imposition of any disciplinary penalty, the Company shall hold a Disciplinary Interview, which shall replace Step 1 of the grievance process.

2.5.2 The Company shall provide the Union and any employees who may be disciplined three (3) days’ notice of the Interview.

2.5.3 The Interview shall take place between the Company, the Union and the accused individual.

2.5.4 The Company shall set out its allegations and except where the allegations could constitute a criminal offence, the Union or the individual(s) shall set out their version of the events. Minutes, but not a transcript, of the Interview setting out the substance of the discussion shall be taken.

2.5.5 The minutes of the meeting shall be provided to the Union and the accused individual(s) within seven (7) days of the Interview except where the accused individual or Union unreasonably fails to attend the interview and there is no agreement to re-schedule, in which case the Company will proceed with discipline under 2.5.7 below.

2.5.6 The Union and the accused individual(s) shall forward a written reply to the minutes, if any, within seven (7) days of receipt of the minutes.

2.5.7 Should the Company choose to impose discipline, the Union has ten (10) days to file a grievance commencing at Step 2.
2.5.8 Nothing in the disciplinary interview process is intended to interfere with the Company’s right to investigate matters.

2.6 Facilities and Costs

2.6.1 The Company shall provide the necessary facilities for all meetings in the grievance process.

2.6.2 Maintenance of normal earnings and payment of expenses shall be provided by the Company for all Union representatives on a grievance committee.

2.6.3 The fees of all arbitrators and costs associated with arbitration hearings shall be shared equally by the parties, subject to current practices.

ARTICLE 2A
DISCIPLINE AND DISCHARGE

2A.1 Any allegation that an employee has been demoted, suspended, discharged or otherwise disciplined without just cause shall be a fit matter for the grievance and arbitration procedures as provided for in this Collective Agreement.

2A.2 When disciplining or discharging probationary employees for just cause, it is recognized that the probationary period is an extension of the selection process and that they have short service. Therefore, the threshold for discipline and discharge may be less than that of a regular employee in similar circumstances.

2A.3 Disciplinary penalties resulting in a suspension without pay will not be imposed until a final decision, (agreement between Union and Management, or an arbitrator's judgment) has been reached.

2A.4 Unless otherwise agreed to, after a letter(s) of reprimand has been on an employee's file for a maximum of two years, and there have been no further occurrences, then the letter(s) of reprimand will be removed from all files.

2A.5 DISCIPLINARY PENALTIES

A copy of all letters of employee reprimand shall be sent to the chief steward, except in cases where in the Company's opinion the matter involved is of a confidential nature. In the latter instance, the letter will state that the Union has not received a copy of the letter.

This shall not prevent a supervisor from taking on-the-job disciplinary action including immediate suspension subject to later confirmation.
ARTICLE 3
ARBITRATION

3.0 THE REGULAR ARBITRATION PROCESS

The regular arbitration process will continue on the basis of the practice currently adhered to by the parties, but any disputes relating to such practice or any requests for changes in the practice may be referred to the Chief Arbitrator for a ruling.

3.1 This procedure shall not apply to Union allegations of unfair treatment or Union concerns regarding the adequacy of job documents and/or the rating, for jobs covered by the Clerical-Technical Job Evaluation Plan which shall be processed in accordance with the challenge procedures contained in The Union Clerical-Technical Job Evaluation Manual.

3.2 Where a difference arises between the parties relating to the interpretation, application, or administration of this Agreement, including any question as to whether a matter is arbitrable, or where an allegation is made that this Agreement has been violated, either of the parties may, after exhausting any grievance procedure established by this Agreement, refer the grievance to arbitration pursuant to Article 2.4.

The Arbitrator shall hear and determine the difference or allegation and shall issue a decision and the decision shall be final and binding upon the parties and upon any employee affected by it. However, in no event shall the Arbitrator have the power to change, alter, modify or amend any provision of this Agreement.

3.3 Principles of Expedited Arbitration

(a) Mediation prior to arbitration is normally an integral part of this arbitration process.

(b) The decisions are precedent setting and shall be accompanied by reasons on any non-factual issues.

(c) The parties may use the services of counsel.

3.3.1 Chief Arbitrator

The Chief Arbitrator will have exclusive, final and binding authority over all issues relating to the scheduling of cases, including decisions as to who hears which case and when it is heard and shall have the power to relieve against time limits, including those in the grievance process and the referral to arbitration in respect of all cases.

Powers of the Chief Arbitrator

(a) The Chief Arbitrator will have the power to:

(i) appoint arbitrators;
(ii) assign grievances for resolution;
(iii) schedule hearing dates in consultation with the parties.
(iv) determine the hours within which arbitrations are conducted.
(v) assist in reducing the cost and delay and increasing the efficiency of the regular arbitration process.

3.3.2 All Arbitrators

Where a difference arises between the parties relating to the interpretation, application, or administration of this Agreement, including any question as to whether a matter is arbitrable, or where an allegation is made that this Agreement has been violated, either of the parties may, after exhausting any grievance procedure established by this Agreement, refer the grievance to arbitration pursuant to Article 2.4.

The Arbitrator shall hear and determine the difference or allegation and shall issue a decision and the decision shall be final and binding upon the parties and upon any employee affected by it. However, in no event shall the Arbitrator have the power to change, alter, modify or amend any provision of this Agreement.

All arbitrators are to determine their own procedure, may admit evidence that would not be admissible in court and may rely on such evidence to render a decision. All arbitrators will have the power and authority to determine the real issues in dispute between the parties in any particular case and to relieve against time limits in the grievance process. All arbitrators’ decisions will be final and binding. All arbitrators shall have the power to make interim relief orders.

ARTICLE 4
WORKING CONDITIONS

4.1 Working conditions during the term of this Agreement shall be as outlined in this Agreement and in Negotiated Policies and Practices and Mid-Term Agreement except such Mid-Term Agreements as are agreed obsolete by the parties.

In addition, the general environmental privileges surrounding an employee shall also be considered as working conditions. These privileges would include such things as wash-up time, transportation facilities, safety appliances, general safety or health precautions.

4.2 Any modification within the confines of this Agreement shall be subject to agreement by the Company and the Union’s executive. Changes to the undernoted subjects, however, can be made with the written agreement of the PWU Sector Vice-President or delegate and may be cancelled by either party upon the giving of 30 days’ notice:

(a) Changes in working hours between the hours of 7:00 am to 6:00 pm for an individual, work group or crew.

(b) The extension of acting positions beyond 90 days as outlined in Part B, Item 14.0; Part D, Section 6.2 A; Part D, Item 6.2 B; Part G, Section 12.0; and Part F, Item 9.0.

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2 A Mid-Term Agreement is a modification of the Collective Agreement executed by the parties on the prescribed form (a specimen of which is shown below) during the term of the Collective Agreement.
(c) Modifications to hours of work (specific) at all locations for banked time arrangements.

(d) Local extensions to a maximum of three months beyond the normal 12 accumulated months (in which there have been no breaks in employment exceeding five months) on the use of temporary employees to meet short term staffing requirements without invoking regular-seasonal status.

(e) Arrangements allowing flexibility for employees assigned to temporary work headquarters subject to PWU Sector Vice-President or delegates approval.

4.3 Unless specifically referred to in a Mid-Term Agreement the pertinent provisions of the Collective Agreements shall apply.

MID-TERM AGREEMENT

TITLE

Number Date

It is jointly agreed that the following Mid-Term Agreement shall form part of the Collective Agreement between the parties:

SAMPLE

THE COMPANY UNION

ARTICLE 5
UNION SECURITY

5.1 All employees covered by this Agreement who are members of the Union on the date hereof shall, as a condition of employment, maintain such membership.

5.2 Employees who are not members on the date hereof but who become members of the Union subsequent to said date shall as a condition of employment, maintain their membership thereafter.

5.3 New employees shall, as a condition of employment, be or become members of the Union within 15 days of their engagement and shall, as a condition of employment, maintain their membership thereafter.

5.4 Membership as a condition of employment as specified in 5.1, 5.2 and 5.3 shall not apply while membership is withheld or suspended, or where a member is expelled by the Union.

5.5 In all cases for employees in the Collective Bargaining Unit as defined in Article 1, the Company shall be responsible for the signing of dues authorizations and shall deduct from the weekly wages of each employee, an amount equal to the weekly union dues in effect at the time and shall transmit the monies so deducted to the Secretary-Treasurer of the Union at the times designated by the Union.
5.6 A Union representative will be given an opportunity to conduct an orientation session for new probationary/regular employee(s) or temporary employees with greater than 6 months' service within regular working hours at a time and of a duration that is mutually agreeable between the Company and the Union. The purpose is to acquaint the new employee with the benefits and duties of union membership.

5.7 The Company will not oppose any action by the Union to discipline its members as identified in its constitution.

ARTICLE 5A
SECURITY GUARDS - CONFLICT OF INTEREST
AND WITHDRAWAL OF SERVICES

5A.1 Conflict of Interest

The Union recognizes that the inclusion of security staff in this collective agreement may create the possibility of a conflict of interest between the responsibilities to their duties and their membership in the Union. The Union will not impede security staff from performing any of their job duties.

These provisions are intended to permit security staff to perform their duties unfettered and to preserve the confidentiality of their work. Security staff are sometimes required to take action with respect to other employees. It is the intent of these provisions that security guards will fulfill their duties irrespective of whether the other employees involved are or are not represented by PWU CUPE Local 1000. The Company agrees that all security staff represented by PWU CUPE Local 1000 will have normal access to Union representation.

The Union agrees not to pursue any internal disciplinary actions against security staff for performing their duties.

Any conflict of interest involving security staff will be subject to an expeditious internal confidential review/resolution process. If the internal resolution process is not capable of resolving the conflict of interest, then an expeditious external process will be activated.

The Executive Committee of the Union clearly recognizes the unique position of security staff regarding their relationship with other PWU CUPE Local 1000 represented employees and will strive to ensure that any conflict of interest, which may arise, is handled sensitively and expeditiously.

5A.2 Withdrawal of Services

Recognizing the need to protect the Company assets, employees, the public and in order to meet regulatory requirements, the parties agree to the following:

(a) The Union agrees to give the Company twenty-one (21) calendar days' formal notice in writing prior to any legal withdrawal of services by security staff;
(b) The Union agrees that the Company may use replacement workers from any non-PWU source to perform security functions withdrawn as a result of a legal strike. Replacement workers will only perform security functions during the duration of the legal work stoppage;

(c) PWU security staff will co-operate in the training of replacement workers and shall provide an orderly turnover to replacement workers before any withdrawal of services. Any training of replacement workers within twenty-one (21) calendar days prior to a legal work stoppage (i.e., during the notice period in (a) above) will not be subject to temporary instruction allowances provided for elsewhere in this agreement;

(d) Upon request, the Company will provide the Union with information on the number of replacement workers performing security functions;

(e) This agreement exempts the parties from Subsections 73.2(4) to 73.2(11) of the Ontario Labour Relations Act R.S.O. 1990 and any amendments thereto of that statute.

5A.3 The Union agrees to communicate and educate its stewards and membership on the intent of this Article.

**ARTICLE 6**

**NO DISCRIMINATION**

6.1 The Company shall not discriminate against an employee because of membership or activity in the Union or the exercise of his/her lawful rights, and any employee covered by the Agreement who feels that he or she has suffered discrimination shall have the right to seek redress in accordance with Grievance and Arbitration Procedures.

6.2 An employee who has a complaint with respect to discrimination in the employment relationship, as envisioned under the Canadian Human Rights Act, will have access to the internal Human Rights resolution process if he/she so desires. The employee, if he/she so desires, may have a Union representative present. The complaint, the Human Rights resolution process and the results of same shall not be subject to the grievance/arbitration process.

6.3 The Company shall not discriminate against an employee on grounds prohibited by the Ontario Human Rights Code. An allegation that this clause has been violated shall be a fit matter for redress under the grievance and arbitration procedure.

**ARTICLE 7**

**MANAGERIAL RIGHTS OF THE COMPANY**

The Company has and shall retain the exclusive right and power to manage its business and direct its working forces including, but without restricting the generality of the foregoing, to right to hire, suspend, discharge, promote, demote, and discipline any employee. The Company shall exercise the said functions in accordance with the provisions of this Collective Agreement.
ARTICLE 8
SKILL BROADENING AND WAGE STRUCTURE

8.1 Introduction

In order for the Company to be competitive it is essential that work efficiency be maximized. The Company must change its current approach to performing work while continuing to improve safety and quality standards. In addition, the Company must invest in employee development. These changes can be achieved through the introduction of skill broadening programs and a simplified wage structure.

The wage structure consists of three (3) salary bands.

All employees on the wage structure will be expected to perform any assigned work (as described in 8.2 below) within the same band or a lower band without additional compensation.

8.2 Skill Broadening

Skill broadening is the development and use of employees to perform work outside of their traditional roles. Skill broadening is achieved by providing employees with the training and opportunities to perform additional work safely. The intent of skill broadening is to enrich job content and increase work efficiency by:

a) Removing the traditional boundaries in working roles; and
b) Developing employee capabilities to perform work beyond their traditional roles.

Skill Broadening can be achieved by taking advantage of existing and future technology and by development of employees who are highly trained with multiple capabilities and responsibilities.

Skill Broadening will include training and instruction of other employees. It also will include new responsibilities required to maximize the commercial performance of the Company while ensuring compliance with market rules and sound health and safety and environmental practices.

Skill broadening and the consolidation of occupation codes into new job groupings will not eliminate the distinctions between positions. For example, Mechanical Maintainers will not become Control Technicians. However, there may be an overlap of duties between job groupings.

The intent of skill broadening is not to fully qualify an employee in all other jobs but rather to maximize the capabilities of employees.

Employees can be required to work outside their job grouping with employees in other job groupings to jointly complete work assignments. All work assignments are dependent on employees having appropriate skill, knowledge and training.

Employees working independently will be expected, once trained, to perform basic skills of other job groupings at the same or lower band. There may be limited circumstances where employees receive specific training in another job grouping to fully complete a specialized task.

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3 ANO and U0CRO treatment will be outside of band 3.
In addition to the responsibilities listed in their Job Documents, the work of employees will be expected to include additional tasks. This is further described in the Article 8 Intent Document, which forms part of this agreement.

8.3 Wage Structure

The wage structure will consist of three (3) bands comprised of a series of progression steps within each band. Progression through steps will be time based subject to satisfactory performance and successful completion of training.

The wage structure will eventually replace all existing wage schedules.

All new employees hired must participate in skill broadening.

8.4 Implementation Issues

8.4.1 Implementation Committee

A six (6) person committee will be established, comprised of three (3) Company representatives and three (3) PWU representatives, to identify and resolve any problems and make recommendations to the Oversight Committee for any changes to the collective agreement.

Any inconsistencies between the existing collective agreement and this article will be resolved in a manner consistent with the goals and principles of this Article.

Any unresolved matters and changes to the collective agreement will be referred to the Oversight Committee for resolution.

8.4.2 Oversight Committee

The Oversight Committee will resolve all issues arising out of the implementation of the wage structure and any unresolved issues arising out of the implementation committee review of the collective agreement and any other agreements between the parties. This committee will be comprised of two (2) senior level representatives from the Company and two (2) senior level representatives from the PWU. Should the Oversight Committee reach an impasse on an issue the matter may be remitted to mediation/arbitration using the same mediator/arbitrator as agreed to in Article 8.4.4.

8.4.3 Job Evaluation Plan

All occupation codes and associated job titles and job documents (job descriptions, occupational definitions and expectation documents) will be consolidated into new job groupings. Issues associated with the job groupings will be reviewed by the joint implementation committee.

The company will produce generic Job Documents to describe the job groupings within each band.

A gender neutral Job Evaluation Plan has been developed (see Article 8.13) to allow placement of any occupation code or job into one of the 3 bands. All new occupation codes will be evaluated under this new job evaluation process.
The Company shall notify the Union of the introduction of any new job classifications and their placement on a band (i.e. Band 1, 2 or 3). Where a difference arises between the parties, the Company may introduce the new job classification(s) or placement on a band (i.e. Band 1, 2 or 3). Either party may require that the differences between them be submitted directly to the arbitration process as detailed in Article 3 and the decision shall be binding on both parties.

When significant alterations in duties and/or technological changes occur, the Job Document will be modified by joint agreement or by the Job Challenge process outlined in Article 8 of the Collective Agreement.

Effective September 1st, 2012, job challenges disputing the placement on the band shall be filed within one (1) year from the date that the Union is notified of the placement of the new job classification on the band and the classification has been populated.

Effective September 1st, 2012 any existing job not currently challenged and in effect for a minimum of one (1) year can only be challenged when the Union can demonstrate that significant alterations in duties and/or technological changes have occurred. Evidence will be restricted to one year prior to the filing of the grievance.

Supervision is not reflected in the job evaluation plan, but is recognized with a premium. Supervising responsibilities which attract a supervisory premium can only be assigned and not assumed. The responsibilities for all supervisors are stated in Section 8.8 below.

Each employee shall have access to his/her job document, through their supervisor, and to documents covering other PWU represented employees through the Chief Steward or the Union Office.

Note: See also PWU Negotiated Policies and Practice 4-2: Nuclear Skill Broadened Job Descriptions – Revised Tuesday January 17th, 2006

8.4.4 Job Challenge Procedure

The Challenge Procedure is comprised of two distinct streams, one for employees who volunteered for skill broadening and another for those who did not.

Job Challenge Process:

1. The Union shall commence this dispute resolution process by filing a Job Challenge with the relevant contact supervisor. The parties shall meet within seven (7) days to attempt to resolve the matter. Failing a resolution of the matter within fourteen (14) days of filing the grievance, the matter will be referred to the next meeting of the Joint Classification Committee (JCC) in the former Nuclear bargaining unit, or the Implementation Committee (IC) in the former Non-Nuclear bargaining unit. Failing resolution at that meeting, the matter shall be referred to expedited arbitration using a mutually agreed upon expert in job evaluation to act as Arbitrator.

2. The JCC, or IC shall sit monthly or as otherwise agreed to by the parties and consist of three (3) union and three (3) employer representatives. It shall have the power to resolve any dispute concerning the placement of a job on a particular Band by unanimous agreement. If the JCC, or IC cannot reach agreement the matter may be submitted to the expedited resolution process.
3. The Arbitrator's jurisdiction in these matters is limited to a determination of the correct placement of a job on a particular Band. The Arbitrator cannot alter the rates of the Bands.

4. Briefs shall be prepared by each party for each claim including a statement of facts, brief argument and the relevant provisions of the Collective Agreement. The briefs shall be provided to the Arbitrator at least 7 days prior to any hearing date. The Arbitrator will advise which matters will require witnesses for credibility issues. The parties will also exchange these briefs.

5. The fees of the Arbitrator and costs associated with these hearings shall be shared equally by the parties.

6. Retroactivity will be restricted to 12 months prior to the filing date of the challenge.

8.4.5 Progression From Step to Step within a Band:

Each band will contain an Entry Rate, and a Terminal Rate. There will be 8 annual progression steps from the Entry Rate to Terminal Rate except Band 1 which will have 6 annual progression steps.

Progression through steps will be time based subject to satisfactory performance and successful completion of training.

Employees who are not offered developmental and/or training opportunities will progress annually to the next step in the Band up to the Terminal Rate subject to satisfactory performance.

New hires will have previous experience recognized and will be given credit for such experience and will be placed at the appropriate step within a band. The current practices for determining the appropriate hiring rate will continue to be used. Any disputes regarding such placements will be referred to the Oversight Committee for resolution.

Subject to satisfactory performance and the successful completion of training ANOITs will progress through an Authorized Nuclear Operator Schedule.

Employees on LTD or who have been approved for LTD prior to September 4th, 2001 are not eligible to volunteer for skill broadening. The Company will accept any request to volunteer from existing LTD employees when they return to regular employment.

Employees who are above the terminal rate of their band and are successful to a position in the same band will continue to maintain their above band rate. This does not include any premium paid for supervisory duties in accordance with Article 8, Item 8.8.1.

8.5 Temporary Employees

All temporary employees, excluding those hired pursuant to Appendix A, will be required to work to the skill broadening standards effective the ratification date of this agreement.

With the exception of temporary employees, hired pursuant to Appendix A, all temporary employees will receive the same wage treatment as regular employees according to the criteria outlined in Part A, Item 43.0, Wage Structure.
With the exception of temporary employees, hired pursuant to Appendix A, all temporary employees will be placed on the band appropriate to the classification hired into. Specific step placement will be assessed at the point of hire, or re-hire.

8.6 Article 11 as it relates to the wage structure

The existing Occupational Group Listings (OGLs) will continue in their current format until they are replaced.

Existing Occupational Group Listings (OGL) will be frozen and new OGLs for new job classifications will continue to be established pursuant to Article 11.4

When existing Occupational Codes are consolidated into job groupings as per section 8.4.4, then all OGLs will be updated at the same time.

New disputes arising over the grouping of a job or jobs into an Occupational Group Listing will be referred to the Oversight Committee. In the event that a dispute is not resolved at this level, then such disputes will be referred to the Chief Arbitrator for resolution.

8.7 Premiums

The following premiums are eliminated and the work assignments associated with them are considered to be part of normal job duties:

- Holding Work Protection for a Work Group
- Greenmanning
- Plastic Suits
- Confined Space Monitor
- Contract Monitor
- Entry Coordination/Access Control
- Procedure Writing
- Assessing tasks
- FME Monitors
- AA Rate
- Lead Hand
- Relief for any Position within Band
- Instructors rate
- Frontier Allowance
- Field Allowance
- Fossil Special Allowances (F6 “Dirt Pay”)
- Operator Agent Duties
- Carpenter Special

Subsequent to ratification of the Collective Agreement and upon mutual agreement any other premiums for the performance of specific tasks contained within the collective agreement and any other agreements between the parties will also be eliminated. Any unresolved issues will be referred to the Oversight Committee for resolution.
8.8 Supervision

Supervisory Responsibilities under the new wage structure are as stated below. Some supervision and/or coordination of work is included in the band rate of every job and will not attract extra premiums. Supervisory responsibilities which attract a supervisory premium can only be assigned and may not be assumed.

BASIC RESPONSIBILITIES OF SUPERVISORS

Supervisors are expected to demonstrate personal qualities such as leadership, reliability and good judgement.

Assist the Manager by performing the following duties:

1. Developing and maintaining a safe and healthy work environment. Upholding safety standards and ensuring all of OPG’s standards, rules and procedures are strictly adhered to.

2. Planning, organizing, scheduling, assigning, establishing parameters for, and checking work of staff/crews, including emergency work.


4. Ensuring all staff are qualified to perform the assigned work.

5. Scheduling and holding regular meetings (including safety meetings) to discuss context, plans, problems and suggestions. Identifying to the manager any emergencies/deviations to work.

6. Developing and improving skills and knowledge of staff to do their work and be capable of performing the full range of the processes and tasks that occur within the unit. Fostering a work environment that enhances employee performance and encourages employee engagement.

8.8.1 Full-Time Supervision

Full Time Supervisors will be paid at 10% above their individual wage rate, but in no case will their pay rate exceed 15% above the terminal rate of their band.

8.8.2 Temporary Supervision

Subject to the maximum permitted, employees who are assigned to act temporarily in a PWU represented supervisory position will be paid 10% above their individual wage rate except when reporting directly to another Union Supervisor in which case employees will be paid 5% above their individual wage rate. In no case will these temporary pay rates be more than 15% above the terminal rate of the band.

8.8.3 Temporary Relief in a Non-PWU Position

Employees who are assigned to act temporarily in a non-supervisory non-PWU position will be paid at 6% above their individual wage rate but in no case will their temporary pay rate exceed 6% above the terminal rate of their band.
Employees who are assigned to act temporarily in a non-PWU supervisory position will be paid at 15% above their individual wage rate but in no case will their temporary pay rate exceed 15% above the terminal rate of their band.

Note: above payments cannot be combined

8.8.4  Training Technician Supervisory Payment (Nuclear ONLY)

The Training Technician supervisory payments (5% above an individual wage rate) will apply to individuals who occupy a regular/temporary Training Technician posting/or when an individual is removed from his/her normal duties for greater than 30 days and performs the duties normally performed by a Training Technician i.e. training delivery and/or development.

8.9  Promotional Rule

Any employee who receives a promotion to a higher band will receive the next highest step above his/her current rate in the higher band, which provides at least a 6% increase.

8.10  Relief Rule

Any employee relieving in a higher band will receive the first step on the higher band that provides at least a 6% increase over the employees’ current rate.

8.11  Apprentices

Apprentices will be provided with the opportunity to work the hours necessary for Provincial Certification.

8.12  HOURS OF WORK

Employees who participate in the Wage Structure and Skill Broadening and who are regularly scheduled to work 35 or 37.5 hours per week may request a permanent change to 40 hours per week. Approval to increase regularly scheduled hours of work is at the discretion of the Company. The increased hours of regularly scheduled work will be at straight time.
8.13 Job Evaluation Plan

All new occupation codes will be evaluated under this job evaluation process. This plan uses the levels of work approach to job evaluation. Jobs are rated as a whole to consider which level is most appropriately applied to the job. Benchmarking plays an important role in administering this type of job evaluation plan. Several benchmarks will be selected from the agreed to list of jobs in each band.

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<td>Knowledge ⇒ Interpersonal</td>
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<td>❑ Customer Service</td>
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**“PERFORMS SKILLED INDUSTRY-SPECIFIC OPERATIONS”**

- Requires knowledge of a technical specialty and requires an understanding of Technical/trade processes.
- ComPLEtes complex procedures and/or provides assistance and support in the performance of technical/operational assignments.
- Resolves issues/problems by referring to established guidelines and exercising judgement within the defined framework and/or requires selecting the most appropriate choice from known alternatives.
- Completes work for internal/external customers according to technical/operational standards or specific instructions.
- Interactions may be internally and/or externally focused to exchange information or ideas that require explanation. Interactions require tact to handle problems or complaints.
- Accountability for the health, safety & well being of self and others is linked to compliance with technical/operating procedures and standards and includes the development of technical/operational solutions to problems.
- May be fatiguing as a result of regular physical activity; and/or may require concentrated periods of mental/sensory attention. Often situated in an environment with exposure to disagreeable and/or hazardous conditions.

**“PERFORMS SKILLED OPERATIONS”**

- Requires an understanding of clerical, technical or trades work processes.
- Completes routine procedures and provides assistance in the performance of technical/administrative assignments.
- Exercises some judgement to determine appropriate choice among established procedures.
- Completes work for internal/external customers according to specific instructions.
- Interactions require courtesy to maintain effective working relationships.
- Accountability for the health, safety & well being of self and others is linked to compliance with technical/operating procedures and standards.
- May be fatiguing as a result of regular periods of physical effort; and/or may require short periods of mental / sensory attention. Often situated in an environment with exposure to disagreeable and/or hazardous conditions.
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<td>♦ Problem Solving</td>
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<td>❑ Customer Service</td>
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"PERFORMS BASIC OPERATIONS"

♦ Requires an understanding of clerical, technical or trade established procedures.
○ Completes routine procedures.
✶ Activities are covered by defined rules and instructions.
❑ Completes work according to basic standards.
⇒ Interactions are internally focused to receive instruction and give basic information.
△ Accountability for the health, safety & well-being of self and others is linked to compliance with procedures and standards.
❖ May be fatiguing as a result of regular periods of physical effort; and/or may require short periods of mental / sensory attention. Often situated in an environment with exposure to disagreeable and/or hazardous conditions.

### ARTICLE 9

**SPECIFIC MATTERS OF AGREEMENT**

9.1 These matters are to be dealt with in accordance with Parts A, B, C, D, E, F, G and Article 8.

9.2 Where a new field of endeavour is undertaken by the Company and the employees concerned fall within the jurisdiction of the Union by virtue of Article 1, the question of whether such employees will be covered by an existing part of the Collective Agreement, an existing part of the Collective Agreement with special provisions or modifications, or a new part of the Collective Agreement will be one for joint agreement.

### ARTICLE 10

**SELECTION TO VACANCIES**

10.1 Vacancies

10.1.1 No person shall be appointed to a vacancy in the PWU - CUPE Local 1000 jurisdiction until all qualified PWU - CUPE Local 1000 represented applicants have been selected. Non-represented employees may be appointed to positions within the PWU’s jurisdiction but will only be able to use that portion of their service which was acquired while a member of the PWU.

10.1.2 If an employee is appointed to a vacancy within the PWU - CUPE Local 1000 jurisdiction from a bargaining unit which restricts seniority in the Company to its own membership, his/her seniority will be limited to service within the PWU - CUPE Local 1000 bargaining unit. A non-represented employee appointed to a vacancy within the PWU bargaining unit after April 1st, 2009 shall have his/her seniority limited to seniority earned in the PWU bargaining unit.
In filling vacancies within the PWU - CUPE Local 1000 bargaining unit, the Company will take into consideration whether the vacant position is supervisory or non-supervisory.

The following will apply:

(a) Supervisory Positions

1. In considering applicants for supervisory positions, primary consideration should not be given to seniority but to personal qualities such as leadership, reliability, judgment, ability to organize and instruct and an understanding and a display of the practice of good human relations. For supervisory positions, an endeavour will be made to select the most promising candidate.

2. Only those individuals satisfactorily possessing the above characteristics, as assessed by the Company, should be considered. Where practicable, applicants for supervisory positions should be interviewed by the supervisor responsible for the selection. Seniority will govern only in cases where there does not appear, in the Company's opinion, to be much difference in qualifications.

3. For the purpose of this article, supervisory positions are full time supervisors as defined in Article 8 and for Nuclear will include:

   (a) FLMa(s) (for example control, mechanical, clerical, civil, Supervising Nuclear Operator (SNO), etc.)

(b) Authorized Nuclear Operator

4. The provisions of Article 10.1.3 A-3 above will not affect the status of incumbents for Union representation or the future posting of vacancies as they may occur.

5. Appointments to positions above the jurisdiction of the Union shall not be subject to the Grievance Procedure. However, the Company will give due consideration to representations of the Union where there is evidence of obvious irregularities or discrepancies.

(b) Non-Supervisory Positions

1. The Company will use all available information and determine those applicants who are qualified to fill the vacancy.

   One of the requisites is the minimum years of experience as set out in the job specification. Before any consideration is given to seniority the supervisor responsible for making the selection must determine, from the list of applicants, those employees who have the qualifications to do the job satisfactorily.

   A recommendation by the supervisor should then be made from the qualified employees, overall seniority being the governing factor.
An employee's experience with another company will be taken into consideration in determining his/her qualifications for a position.

2. The senior qualified candidate will be selected to the vacancy with the following exceptions:

The Company may request a waiver of Posting and/or Selection from PWU - CUPE Local 1000 when there are medical reasons related to the employee or his/her immediate family, as verified by the Chief Physician/Manager of the Health Services Department. If the waiver request is agreed to by the Union, the employee will be appointed to the position.

Management reserves the right to restrict the transfer of successful applicants to a vacancy that represents a lateral or demotion. Prior to imposing this restriction, management will consider a delayed transfer, taking into account the availability of suitable replacements to allow for the delay. In the event that there are no reasonable alternatives to permit the transfer or delay, management reserves the right to restrict the transfer of the candidate to a lateral or demotion, where the transfer would reduce the capability in a given classification below a level necessary for the effective continued operation of the sending department.

Employees will receive written notice from his/her supervisor if their transfer is delayed or voided because they cannot be released. A copy of this written notice is to be given to the Chief Steward.

(c) General

1. If the candidate selected has already been appointed to another position, but has not yet reported to the new job, he/she shall be given the opportunity of choosing the one he/she prefers unless it is in the Company's interest that he/she accept the first appointment.

2. On request, the Company will explain, in writing, to any unsuccessful applicant for an advertised vacancy, the reason why he/she was not selected for the position.

3. Details of requirements for notification of applicants are found in Part A, Item 17.0.

10.1.4 The following definitions shall be used to determine an employee’s entitlement to be considered for a non-supervisory vacancy:

(a) Seniority

Except as provided in Section 10.1 of this Article:

1. An employee's seniority, for purposes of selection to vacancies, shall be the service credit as defined in Part A, Item 5.0.

2. Service with an acquired company will be added to the employee's seniority.
3. The total service credit with the Company will be used for comparing seniority of applicants rather than service in a position, trade, or occupation.

**Note**

After April 1st, 2009, non-represented employee appointed to a vacancy within the PWU bargaining unit shall have his/her seniority limited to seniority earned in the PWU bargaining unit.

(b) Base Hourly Rate

1. The maximum base rate per Part A, Item 43.

(c) Promotion Application

1. A promotion is defined as an advertised position that is in a higher Band than the applicant’s current position, regardless of the weekly hours of work.

(d) Lateral Application

A lateral is defined as an advertised position that is in the same Band as the applicant’s current position, regardless of the weekly hours of work.

(e) Demotion Application

A demotion is defined as an advertised position that is in a lower Band than the applicant’s current position regardless of the weekly hours of work.

**10.2 Transportation and Moving Expenses**

Candidates selected to vacancies which represent a lateral or demotion in accordance with Article 10.1 and employed for a minimum of three years in their current work headquarters shall be entitled to moving expenses in accordance with the provisions of Part A, Item 23.0.

Candidates selected to trainee operator positions who have two years' service shall be entitled to moving expenses in accordance with the provisions of Part A, Item 23.0.

Employees appointed to positions which are filled due to an agreed to waiver of posting and/or selection, as provided in 10.1.3 (b) (2), will be entitled to moving expenses in accordance with the provisions of Part A, Item 23.0.
ARTICLE 11
SURPLUS STAFF PROCEDURE

No employee will be involuntarily laid off during the term of the Collective Agreement. Article 11 with the exception of Article 11.0 will be suspended for the term of the Collective Agreement.

During the term of the Collective Agreement there will be no involuntary lay-offs. Any surplus of staff will be handled through either worksite / location re-deployment in accordance with Article 11.0, or the offer of severance under the applicable VSP mid-term agreements.

Any Thermal plant closure will be dealt with under the existing mid-term for Thermal plant closures.

During the term of this agreement if a surplus cannot be accommodated through re-deployment, VSP under the applicable mid-term agreements, or the Thermal Plant Closure Mid-Term where applicable, the treatment of employees who are adversely affected by such an event will be subject for discussion between the parties. These discussions will occur in the context of a commitment by the Company to employment security. If an agreement cannot be reached all unresolved issues may be referred to the Chief Arbitrator for resolution.

The suspension of Article 11 will expire on March 31, 2015 and will not be automatically renewed in any subsequent Collective Agreement.

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Management will determine whether they implement Article 11.0 and/or Article 11.1.

Note: Appendix A of Article 11 forms part of this Collective Agreement. Any changes to the list, including the addition or deletion of locations, worksites and work centres shall require joint agreement.

Note (Non-Nuclear ONLY):

In the event that an employee who did not volunteer for skills broadening is affected by an Article 11.1 implementation he/she will be asked if they wish to choose skills broadening. If they so choose they will be placed in the appropriate occupational group listing (OGL) but will only be able to displace into positions within lower bands. There will be no skills broadening bonus paid. If they do not choose skills broadening they will be covered by the Non-Nuclear Collective Agreement which expired March 31st, 2002. They can only displace employees who have not elected to skills broaden. For the purposes of worksite/location redeployment those who did not volunteer for skills broadening will be treated in the same manner as all other employees and should they be force transferred their election not to skills broaden will be honoured.

11.0 WORKSITE/LOCATION REDEPLOYMENT

This provision may be implemented and completed without activating Article 11 in total.

1. Within a worksite\(^4\) or between worksites in close proximity to each other, management may deploy employees within equal Job Groupings.

2. (i) Within a Location\(^5\) that has multiple worksites management may deploy employees within equal Job Groupings\(^6\) from an over-complement worksite to an under-complement
worksite, on a senior choice/junior force basis until either the over-complement or under-complement ceases to exist, whichever occurs first.

Management has the right to determine the Job Grouping(s), number of over-complement positions, number of under-complement positions and the worksite(s) that will be dealt with under each operation of this provision.

(ii) Where management has identified an over-complement in a Job Grouping within a Location(s) and an under-complement within another Location(s) in an equal Job Grouping, the following will occur. An employee may choose an equal or lower under-complement position within their OGL at their location on a senior choice basis. If this option is not chosen or available, management may deploy employees from an over-complement Location(s) to an under-complement Location(s) on a senior choice/junior force basis until either the over-complement or under-complement ceases to exist, whichever occurs first.

Management has the right to determine the Job Groupings, number of over-complement positions, number of under-complement positions and the Location(s) that will be dealt with under each operation of this provision.

(a) A junior employee who refuses to be transferred will be subject to discipline up to and including termination. All disputes regarding the discipline and termination of an employee who refuses a transfer will be referred to Martin Teplitsky for resolution on an expedited basis. An employee who is terminated for refusing a transfer under the terms of this agreement shall be eligible to receive reduced severance pay pursuant to Article 11.15(c) (iii) as well as Article 11.15.1 (Benefit Continuance/Tuition/Outplacement Services), if the proposed transfer is to a location that is not within a reasonable commuting distance from his/her residence.

Where an employee is terminated for refusing to transfer to a location which is within reasonable commuting distance from his/her residence, there is no severance or other provisions payable to such employees.

(b) Management will provide at least four (4) weeks’ notice to employees in the over-complement Job Grouping(s) and Location/worksite of the intended date of transfer by posting in the over-complement Location(s)/worksite(s) a notice which sets out:

- the affected Job Grouping(s);
- number of positions to be filled;
- under-complement Location(s)/worksite(s); and
- proposed transfer date.

Subsequent to this four (4) week posting employees designated for transfer will be provided with at least two (2) weeks’ notice of their actual transfer date. In determining an employee’s transfer date the company will consider the personal circumstances of the employee and the business needs of the company.
Employees transferring will be entitled to moving expenses and housing assistance as set out in Part A, Item 23.

3. Under-complement positions that remain vacant after the operation of 1 and 2 will be posted in accordance with the Collective Agreement.

4. If the transfer results in a move to an equal Job Grouping, the employee shall maintain his/her current rate. In situations involving a move to an “Equal” Job Grouping requiring fewer weekly hours of work, the employee shall have his/her rate frozen in accordance with Article 11.20.

If the employee chooses a “lower” under-complement position (including positions requiring fewer weekly hours of work) in the same location as per 11.0.2(ii) he/she shall have their rate frozen for a period of three months at which time a three percent (3%) reduction in rate will take place. Subsequent reductions of three percent (3%) will take place annually thereafter until the maximum rate for the lower rated job is reached.

5. There will be no permanent transfers under this Article into a worksite/centre which has been identified as a worksite/centre to be closed permanently during the 18 month period following intended transfer date.

11.1 Surplus Staff Procedure – Sequence of Events

1. The Company will give initial notice of termination/layoff in accordance with Article 11.5.

2. All vacancies, job challenges, OGLs and any other relevant proceedings before the Skills Broadening Implementation Committee will be frozen until the end of this process.

3. Employees will be required to make irrevocable elections within 7 (seven) days from the date of last posting of the initial notice of termination/layoff in accordance with Article 11.5. The Company will confirm to the Union the date of last posting.

4. Employee displacement rights will be determined and those employees who will be accepted for voluntary termination, placed, displaced, laid off and/or terminated shall be identified. All displacements and the names of employees to be laid off, terminated will be identified “on paper” at the outset prior to implementation of any changes resulting from the announced reduction of complement.

5. In situations where the operation of the displacement rights would result in multiple chain displacements to the point of causing an inappropriate level of dislocation for the employer, the employer may refer the issue of amending the displacement operation of Article 11 for the particular run in question to Martin Teplitsky for expedited arbitration.

6. The names of the employees who will be accepted for voluntary termination, placed, displaced, laid off and terminated shall be announced.

7. The "freeze" on filling vacancies ends at the time of the announcement. During the period after the announcement and prior to the date of termination set out in the initial notice of termination/layoff, the Company, pursuant to Article 10, will post vacancies which remain unfilled after the
displacement process and new vacancies as they arise. If vacancies remain unfilled after the Article 10 process, during the period prior to the layoff, fair and objective consideration for such vacancies will be given to applications from employees to be laid off.

8. The implementation of voluntary terminations, placements, displacements, layoffs and terminations pursuant to the Article 11 process will commence on the date of termination/layoff identified in the initial notices unless extended by the Company in accordance with the Employment Standards Act and regulations and subject to any “reversals” which may have occurred as a result of employee terminations.

11.2 Application

(a) There will be no displacements between Nuclear and Non-Nuclear positions.

(b) This procedure applies to regular full-time and regular part-time employees. The displacement and recall rights of probationary employees and regular-seasonal-A employees are limited to those contained in 11.13.

(c) The Company will supply the PWU with an accurate computerized seniority list (see note below) separated by Occupational Group Listings (OGL's) and sorted by province and locations on February 1st and August 1st and at the time the Company gives initial notice of termination/layoff under this Article.

The Company will also post a seniority list in each worksite on February 1 and August 1 and at the time that the Company gives initial notice of termination/layoff. The seniority list will be a single list of employees, which will include the following information (subject to revision after consultation with the Company and the PWU):

- Name/employee number
- PWU Seniority
- Band
- Base OGL
- Level
- OCC code
- Job Grouping/Job Title
- Building code
- Geographic location
- Status
- Business

In the absence of a challenge in writing by the union within thirty (30) calendar days of posting, or within seven (7) days of initial notice of termination layoff, whichever comes first, the seniority list, will be deemed to be accurate and the union will not subsequently be able to challenge the accuracy of the list. In the event of a challenge, the parties will try to resolve any differences. If there is no agreement, either party may refer the challenge to Arbitrator Teplitsky for expedited dispute resolution.
NOTE

The computerized seniority list provided to the PWU will contain the following data:

Last Name, Initials, PWU Seniority, Occupational Code, Job Grouping/Job Title, Base Occupational Group Number, Band, Location, Building Code, Payroll Number, Business Unit, Division, Department, Hours of Work, Date of Notice of Termination/Layoff, Date of Expiry of Recall, and End Rate of the Job Grouping.

(d) Medically Restricted at Work (MRAW) employees who have had a special position created for them cannot be displaced. In the event that there is a closure of a worksite or the special position is redundant, the MRAW employee will displace in accordance with this Article and where necessary be accommodated in accordance with applicable legislation. For purposes of Article 11 the MRAW employee will be deemed to be in the Job Grouping held immediately prior to being placed in the special position.

(e) Performance Limitations: When an individual has a verifiable physical or medical limitation and is not required to be accommodated under the Human Rights legislation and which prevents him/her from performing the essential functions of a job in his/her Occupational Group Listing (OGL) into which he/she may be displaced, and which is voluntarily identified in advance of determination of displacement rights following notice of layoff, the Company and the Union will meet to discuss this individual. It is understood that if there is no mutual agreement the Company may proceed to implement the layoff. Nothing in this Article is intended to require any employee to self-identify or to modify in any way the rights or obligations of the Company, Union or employee under the human rights legislation.

(f) Employees on pregnancy/parental leave, or assignment outside Ontario or approved leaves of absence, vacation, sick leave will be subject to this process and be required to participate as if they were in their regular position. Such employees will assume their new positions upon return and until such time the positions will be filled on a temporary basis if required by the Company.

The company will make reasonable efforts to contact personally employees on such leave but in any event such employees will be provided with written notification that the Company has initiated lay-off procedures and that their employment status may be affected. The Company can rely on the last address and telephone number provided by the employee.

(g) Employees on LTD including those in a LTD funded Rehabilitation and Re-Employment Program may not displace nor are they subject to displacement.

(h) Notwithstanding the provisions of this Article an employee who is within five years of normal retirement or within five years of eligibility for undiscounted pension when faced with displacement or layoff, with joint agreement may be given special consideration for worksite protection/preference.

(i) Notwithstanding the provisions of this Article, the parties may make special arrangements for employees who are disabled to the extent that alternative employment would be difficult to find.
11.3 Definitions

1. “Job Grouping” shall mean an employee’s job title as referenced in Article 8.4.3.

2. “Equal”: Means the employee’s current Job Grouping and other Job Groupings as identified in the employee’s OGL at the same level.

3. “Lower”: Job Groupings identified in an employee’s OGL at a lower level.

4. “Equal Vacancy”: A vacancy in the employee’s current Job Grouping or another Job Grouping as identified in the employee’s OGL at the same level.

5. "Worksite" is a place of operations as identified by building code(s) and identified in Appendix A. An employee's worksite will be their regular work headquarters as defined in Part A, Item 18.2.

6. "Work Centre" as identified in Appendix A.

7. "Location" means a geographic area which includes worksite(s) and/or work centres. Locations are identified in Appendix A.

8. "Occupational Group List (OGL)" means a jointly agreed to list of "Equal" and "Lower" Job Groupings into which an employee can exercise displacement rights. OGLs are equals and lowers within the appropriate job family which an employee can satisfactorily perform within a reasonable period of familiarization and orientation.

9. "Surplus Employee" is an employee who has been given notice of termination/layoff by the Company or an employee who may be displaced or who is displaced from his/her position.

10. (a) "Seniority" means the service credit as defined in Part A Item 5.0, except for the restrictions contained in Article 10.1.2.

    (b) Where employees have the same seniority the employee with the highest employee number is deemed to be the more senior employee.

    For purposes of determining displacements, layoffs and terminations, seniority will be calculated as of the date of the initial notice of termination/layoff. For all other purposes including subsequent layoffs, seniority will continue to accrue.

11. Nuclear ONLY

    "Job Family" is a collection of jobs or job classifications involved in the same general nature of work.

    It is recognized that some jobs straddle two (2) job families, e.g., technical-clerical. For these exceptions, jobs from both families may be included in the OGL.

    The family for those jobs which do not neatly fall into one of the below will be jointly determined as required.
There are five families as listed below:

Clerical: Involving gathering, analysing, processing, recording, disseminating information or data, and/or the operation of miscellaneous office machines or equipment.

Technical: Involving the choice, application and/or manipulation of formulae, principles, techniques or natural laws in practical, mechanical or industrial arts or applied sciences.

Drafting: Involving the drawing up or preparation of plans, drawings, bills of materials, etc.

Trades/Operators: Involving skilled labour in areas such as electrician, mechanic, labourer, operators, etc.

Security: Involving the protection of the Company assets, employees and the public. Security classifications will not be included in the Occupational Group Listing (OGL) of non-security classifications and vice versa.

11.4 Occupational Group Listings (OGLs)

1. For a job to be included in an OGL, it must be a job which can be satisfactorily performed by the average employee in the surplus Job Grouping within a reasonable period of familiarization and orientation. This period will vary depending on the complexity of the job.

2. All existing jobs are placed in OGLs. OGLs shall be part of this agreement but shall be published in a separate publication.

3. New OGLs shall be jointly developed for new jobs or for existing jobs which have materially changed or for jobs that have the wage rate adjusted. If the parties cannot agree on an OGL, the dispute will be resolved in accordance with Article 8.4.

4. For Stations/Sites in non-nuclear which have been Decontrolled under Article 17, the OGLS for the Security job groupings will be expanded to include other job groupings as agreed to by the parties.

11.4.1 Failure to Demonstrate Qualifications

Once an employee displaces into a different Job Grouping within an OGL, the employee must be able to demonstrate an acceptable level of performance within a reasonable period of training, familiarization and orientation. Failure to achieve an acceptable level of performance in this time will result in layoff with severance as per 11.15 and recall rights to their pre-displacement Job Grouping.
11.5 Notice of Termination/Layoff

1. The Company will give initial notice of termination/layoff to the most junior employees in a Job Grouping in a “worksite”. Notices listing those employees receiving initial notice of termination will be posted at all Company worksites/centres. Pursuant to the terms of this article, employees receiving such notice will be permitted to take another position in the Company as a result of which some other person either loses his/her position and is permitted to take another position or loses his/her employment. Such notice shall be deemed to be notice of termination to all affected employees including to those employees who may be displaced and to those employees whose employment is terminated or who are laid off.

2. Employees receiving initial notice of termination/layoff will be provided with two (2) months’ notice of termination/layoff. An employee who has been given notice of termination/layoff may be given temporary work following the date of termination in accordance with the Employment Standards Act and regulations.

3. When an employee is given notice of termination/layoff the Company will notify the Union office and Chief Stewards within three working days from the date the employee is notified. The Union will be responsible for keeping the Company advised of the names of all Chief Stewards.

11.6 Employee Elections*

1. All employees whose Job Groupings are in the OGL of the overcomplement position(s), will be required to supply the Company, by a date determined by the Company, information necessary to enable the Company to make decisions relating to employee displacements in Locations, and the Province. The information required is:
   a) Does the employee wish to voluntarily terminate if given the opportunity
   b) Is the employee willing to move
   c) Is the employee willing to change from Regular Full Time to Regular Part Time or vice versa.

2. The Company will be entitled to rely on this information for purposes of applying the provisions of Article 11.

3. Employees will have seven (7) days to provide their elections to his/her Human Resources Office.

11.7 Failure to Identify Elections

Any employee failing to supply the information requested on the forms (within the stipulated time), who receives initial notice of termination/layoff or is displaced, will be deemed to have chosen NO to each of the three questions outlined in 11.6.1, and therefore will be deemed to have selected only a position in their location. If there is no position in the location into which he/she can be placed/displaced, the employee will be laid off with recall or severance rights as per 11.15.

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* The parties will consult on a bi-lateral information package to be provided to employees at the time they are asked to make elections
11.8 Voluntary Termination

Voluntary Terminations are accepted on the basis of seniority.

Employees within two (2) years of normal retirement or un-discounted pension will be provided with relevant pension and benefit information to enable him/her to make an informed decision on or prior to the notice date.

Employees who are accepted for Voluntary Termination must resign and will receive severance pay as per article 11.15;

All acceptances to Voluntary Termination will be subject to Limitations to Turnover as outlined in this article and are contingent upon the overcomplement being reduced.

11.9 General

1. All employees work at a worksite or work centre in a Location.

2. Each employee shall have the responsibility to notify the Company of his/her current address and telephone number and any subsequent change. The Company shall be entitled to rely on the last address and telephone number furnished by the employee for all purposes.

3. Grievances under this agreement or a predecessor agreement which have not been resolved before the commencement of the freeze period, do not affect the Company's right to layoff pursuant to Article 11.

4. All vacancies, job challenges, OGL’s and other relevant proceedings before the Skills Broadening Implementation Committee will be frozen from notice date until the end of this process. The freeze on filling vacancies shall end when the results of the application of Article 11 are announced.

11.10 Placement to Vacancies and Positions Created through the Acceptance of Voluntary Termination.

11.10.1 Equal Within the Location

(a) An Employee will be placed into an equal vacancy in his/her location within his/her occupational group list. If no such vacancy is available then;

(b) Employee elections will be reviewed to determine if an employee in the location in an “Equal”, including the overcomplement employee, has elected to voluntarily terminate. If there is more than one employee who has so elected, the senior will be accepted. If the employee accepted for cashout is not the overcomplement employee, then the overcomplement employee will be placed into the spot left by the employee accepted for cashout. If no voluntary terminations are accepted then;

(c) Employees who have elected a willingness to move will go to Equal Within the Province (11.10.2), employees who have not elected a willingness to move will go to Displacements (11.11).
11.10.2 Equal Within the Province

(a) An employee will be placed into an equal vacancy within his/her occupational group list. If no vacancy is available then;

(b) Employee elections will be reviewed to determine if an employee in an “equal” Job Grouping, has elected to voluntarily terminate. If there is more than one employee who has so elected, the senior will be accepted. The employee will be placed into the spot left by the employee accepted for cashout. If no voluntary terminations are accepted then the employee will go to Displacements (11.11).

11.11 Displacements

(a) An employee can only displace another employee of less seniority in Job Groupings within his/her occupational group list, unless a more senior employee has elected to voluntarily terminate if given the opportunity. Voluntary terminations will be accepted on the basis of seniority.

Regular-Seasonal-A and Temporary positions and Agency employees are also displacement opportunities for regular employees in the absence of any regular positions.

(b) A regular full time employee may elect in advance to decline all available regular part time positions. A regular part time employee may elect in advance to decline all available full time regular positions.

(c) When an occupational group has more than one Equal Job Grouping, the least senior employee shall be the most junior among all of the Equal Job Groupings.

(d) A vacancy within an employee’s OGL is deemed to be the junior equal (see process in 11.11.1 below) or lower, (see process in 11.11.2 below) in all applications of the displacement process.

(e) Apprentices or Trainees are granted displacement rights into the Job Groupings listed in their OGL. An Apprentice or Trainee can displace a junior employee within his/her OGL including a Journeyperson. If an Apprentice or Trainee displaces a Journeyperson in the same Job Grouping, the Apprentice or Trainee will continue in the apprenticeship program and will be paid as per their progression schedule.

(f) A job share position where both job share partners are junior to the displacing employee will be deemed to be a regular full time opportunity.

(g) Seniority rights outside the Location are only exercisable in the Province by employees with seniority of two (2) years or more.
11.11.1 Equal Stream

1. At the location an employee must displace the least senior employee in an equal Job Grouping. Refusal to accept results in termination of employment. If no position is available, then;

2. Employees who have not elected a willingness to move, or who are not eligible for provincial displacements will move to the Lower Stream (11.11.2), otherwise;

3. The surplus employee who has elected a willingness to move must displace the most junior employee with less seniority in the Province. Refusal to accept results in termination of employment. If no position is available, then;

4. The employee will move to the "Lower Stream" (11.11.2).

11.11.2 Lower Stream

1. An employee who has elected to displace in the Lower Stream must displace:
   a) the most senior employee who has elected to voluntarily terminate if given the opportunity; or
   b) the least senior employee in an equal Job Grouping in the Location.

Refusal to accept results in termination of employment. If no position is available, then;

2. An employee who has elected to displace into a lower Job Grouping and an employee not placed in the Equal Stream must displace:
   a) the most senior employee who has elected to voluntarily terminate if given the opportunity; or
   b) the most junior employee with less seniority in next lower Job Grouping in his/her Location.

If no position is available, then the employee will go to lower Job Groupings in descending order in his/her Location until placed. Refusal to accept results in termination of employment. If no position is available, then;

3. An employee who has elected a willingness to move must displace the most junior employee with less seniority in next lower Job Grouping in the Province. If no position available then the employee will go to lower Job Groupings in the Province in descending order until placed. Refusal to accept results in termination of employment. If no position is available, then;

4. The employee is laid-off with recall rights.
11.12 Displacement Rights

Placement/Displacement Flowchart
(This chart shall be read in conjunction with the text of the Collective Agreement)

All Employees Elect:
1) Cashout if Available?
2) Willing to move?

Equal Vacancy or Cashout in Location

Equal Vacancy or Cashout in Province (Offered IF employee Willing to Move)

Displace Equal in Location

Displace Equal in Province (Only Offered IF employee Willing to Move)

Displace Lower in Location

Displace Lower in Province (Only Offered IF Employee Willing to Move)

Employee Terminated, Out of Options

Note that employees who are unwilling to move will skip steps where a provincial placement is sought and fall through to the next step.

Where there is a discrepancy between the chart and the language, the language will be deemed to be correct.
11.12.1 Displacement Rights for Nuclear Operator Family

For the purposes of Article 11, “Nuclear Operator Family” shall include the following:

- Authorized Nuclear Operators (ANOs)
- Supervising Nuclear Operators (SNOs)
- Nuclear Operators (NOs)
- Control Room Operators (CROs)

11.12.2

The displacement rights for Nuclear Operators will be as per Article 11, with limitations to turnover as indicated below and in 11.19(d.).

For all purposes other than 11.12.2(1) (Surplus ANOs displacing ANOITs) Stations and Streams are as follows:

<table>
<thead>
<tr>
<th>Station</th>
<th>Streams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pickering</td>
<td>Units A, Units B, Common Services, Fuel Handling A, Fuel Handling B, Dry Fuel Storage</td>
</tr>
<tr>
<td>Darlington</td>
<td>Units, Common Services, Fuel Handling, Tritium Removal Facility, Dry Fuel Storage</td>
</tr>
</tbody>
</table>

**NOTE**

Operators displaced from the ANOIT position will return to their former stream and position.

In addition to the displacement rights identified below, these classifications will have the remainder of the OGL for the Nuclear Operator Family. Before a person in one of those classifications is forced to leave the location, he/she may elect to opt for the normal Article 11 rights with respect to the remainder of that OGL. Total closure as referenced throughout 11.12 shall mean where electricity production has ceased on a permanent basis.

11.12.3 Surplus ANOs

1. Surplus ANO(s) may elect to displace any junior operator(s) in the Authorized Nuclear Operator in Training (ANOIT) position(s) and the Control Room Operator in Training (CROIT) position(s). Such displacement(s) will be on a senior choice basis. Any ANO who elects to displace an operator in an ANOIT position and does not obtain a CNSC authorization for that station (after being treated as any existing ANOIT would be) will be declared surplus under Article 11 with no further entitlement to displace operators in ANOIT position(s). Throughout a displacing ANO's tenure in an ANOIT position the ANO's base wages will be maintained. As set out in Mid-Term R-169 an Authorization Bonus will be paid each time they become Authorized as ANOs at a different Nuclear Station. This bonus will be equal to $5000. A one time bonus will be paid for successful completion of CNSC “Generals” pursuant to Mid-Term R-169.
For the above purposes the stations are:

Pickering A       Pickering B
Darlington

2. Limitations to Turnover - Authorized Nuclear Operator (ANO)

A. Station

If in stream displace 100% of SNO(s). If not in stream displace 15% of SNO(s).

Exception: If at Pickering displace 30% of SNO(s) in opposite Unit stream and Common Services.

Displace 100% of NO(s)

B. Location

Displace 15% of SNO(s)
Displace 30% of NO(s) at a station (less than total closure) providing no more than 35% of NO(s) displaced in any stream per station.
Displace 35% of NO(s) at a station (total closure) providing no more than 40% of NO(s) displaced in any stream per station.

C. Province

Displace 15% of SNO(s)
Displace 30% of NO(s) at a station (less than total closure) providing no more than 35% of NO(s) displaced in any stream per station.
Displace 35% of NO(s) at a station (total closure) providing no more than 40% of NO(s) displaced in any stream per station.

NOTE

For the purpose of determining turnover limitation upon plant closure Pickering will be deemed to be two (2) stations.

3. Displacement

(A) If 1. is not available or selected surplus ANO(s) must displace the junior Supervising Nuclear Operators (SNOs) at the station if available.

(B) If (A) above is not available, surplus ANO(s) must displace the junior SNO(s) in the Location (Appendix A).

(C) If (B) above is not available, surplus ANO(s) must displace the junior SNOs in the Province

(D) If (C) above is not available, surplus ANOs must displace the junior Nuclear Operator(s) (NOs) at the station.
(E) If (D) above is not available, surplus ANOs must displace the junior NOs in the location (Appendix A)

(F) If (E) above is not available, surplus ANOs must displace the junior NOs in the Province.
11.12.4 Surplus SNOs/CROs

1. Surplus SNOs / CROs will be identified, not withstanding the provisions of Article 11, by stream within a station.

2. Limitation to Turnover - Supervising Nuclear Operator – SNO / Control Room Operator - CRO

   (a) Station

   If not in stream displace 15% of SNO(s) / CRO(s)
   Displace 100% of NO(s)

   Exception: If at Pickering displace 30% of SNO(s) / CRO(s) across the following streams:
           Unit A to Unit B and vice versa
           Unit A/B to Common Services and vice versa
           FHA to FHB and vice versa
           FHA/B to Common Services

   (b) Location

   Displace 15% of SNO(s) / CRO(s)

   Displace 30% of NO(s) at a station (less than total closure) providing no more than 35% of NO(s) displaced in any stream per station.
   Displace 35% of NO(s) at a station (total closure) providing no more than 40% of NO(s) displaced in any stream per station.

   (c) Province

   Displace 15% of SNO(s) / CRO(s)

   Displace 30% of NO(s) at a station (less than total closure) providing no more than 35% of NO(s) displaced in any stream per station.
   Displace 35% of NO(s) at a station (total closure) providing no more than 40% of NO(s) displaced in any stream per station.

   NOTE

   For the purpose of determining turnover limitation upon plant closure Pickering will be deemed to be two (2) stations.

3. Displacement

   (A) Surplus SNO(s) / CRO(s) must displace the junior SNO / CRO at the station if available.

   (B) If (A) above is not available, SNO(s) / CRO(s) must displace the junior SNO(s) / CRO(s) in the Location (Appendix A).
(C) If (B) above is not available, surplus SNO(s) / CRO(s) must displace the junior SNO(s) / CRO(s) in the Province.

(D) If (C) above is not available, surplus SNO(s) / CRO(s) must displace the junior NO(s) at the station.

(E) If (D) above is not available, surplus SNO(s) / CRO(s) must displace the junior NO(s) at the Location (Appendix A).

(F) If (E) above is not available, surplus SNO(s) / CRO(s) must displace the junior NO(s) in the Province.
Surplus SNOs/ CROs

A
15% of SNOs/ CRO's at Station

15% of SNOs/ CROs at Location

C
15% of SNOs/ CROs in Province

D
100% of NOs at Station

E
30% of NOs at Location

F
30% of NOs per Station but no more than 35% per Stream per Station - Province Wide

G
OGLs

Severance or Recall

Note: For a total station closure ANOs may displace 35% of total number of NOs per station, providing no more than 40% of NOs are displaced in any given stream.

Note - OGLs Can go to OGL before having to displace outside of Location
11.2.5  **Surplus NOs**

1. Surplus NOs will be identified, notwithstanding the provisions of Article 11, by stream within a station.

2. Limitation to Turnover - Nuclear Operator (NO)
   
   (A) Station
   
   Displace junior NO(s)
   
   (B) Location
   
   Displace 30% of NO(s) at a station (less than total closure) providing no more than 35% of NO(s) displaced in any stream per station.
   
   Displace 35% of NO(s) at a station (total closure) providing no more than 40% of NOs displaced in any stream per station.
   
   (C) Province
   
   Displace 30% of NO(s) at a station (less than total closure) providing no more than 35% of NO(s) displaced in any stream per station.
   
   Displace 35% of NO(s) at a station (total closure) providing no more than 40% of NO's displaced in any stream per station.

   **NOTE**

   For the purpose of determining turnover limitation upon plant closure Pickering will be deemed to be two (2) stations.

3. Displacements
   
   (A) Surplus NO(s) must displace the junior NO(s) at the station if available.
   
   (B) If (A) above is not available NO(s) must displace the junior NO(s) in the Location (Appendix A).
   
   (C) If (B) above is not available surplus NO(s) must displace the junior NO(s) in the Province.
Surplus NO's

Junior NO's at Station

30% of NO's - But not MORE THAN 35% of NO's per Stream per Station at Location

30% of NOs per Station But not more than 35% per Stream per Station - Province Wide

OGLs

Severance or Recall

Note: For a total station closure ANOs may displace 35% of total number of NOs per station, providing no more than 40% of NOs are displaced in any given stream

Note - OGLs Can go to OGL before having to displace outside of Location
11.13 Displacement and Recall Rights

The following sets out in full, the displacement, recall and severance rights, if any, for Probationary, Regular-Seasonal-A and Regular-Seasonal-B.

11.13.1 Probationary Employees

1. A probationary employee will displace the junior employee of lesser seniority in the next lower Job Grouping in their OGL in descending order within his/her worksite/centre.

2. If 1. is not available, a probationary employee can displace a temporary employee in an equal or lower Job Grouping in his/her occupational group within his/her worksite/centre.

3. If 2. is not available, a probationary employee can displace an agency employee in an equal or lower Job Grouping in his/her occupational group within his/her line of business in head office or within his/her worksite/centre outside of head office.

4. If 3. is not possible, employment is terminated.

5. Probationary employees shall not be entitled to recall rights or severance pay.

11.13.2 Regular Seasonal-A

1. A Regular Seasonal-A employee can displace a temporary employee in an equal or lower Job Grouping in his/her occupational group within his/her worksite/centre.

2. If 1. above is not available, a regular seasonal-A employee can displace an agency employee in an equal or lower Job Grouping in his/her occupational group within his/her worksite/centre.

3. If 2. above is not available, employment is terminated.

4. Regular seasonal-A employees shall be entitled to recall to temporary positions for a period of three years from the date of last termination.

5. A regular seasonal-A employee shall be entitled to recall to their Location, provided they have at least 24 months accumulated service.

6. To be recalled the employee must have filed a written request with the Company prior to March 1 of each year.

7. A person who is recalled by the Company shall be personally contacted when possible. Failing this contact a recall notice shall be forwarded by registered mail addressed to the last known address that he/she has recorded with his/her human resources manager. They shall be obliged to advise his/her supervisor of his/her intention to return to work within three working days and shall be available for work within five working days after receipt of recall notice.

(a) Except in case of sickness, failure to be available for work within five days of issuance of the recall notice shall make him/her ineligible for any further recall.
(b) It shall be the person's sole responsibility to inform the Union and the personnel manager in writing of any change of address. The Union will be notified in writing when persons are recalled to vacancies.

8. The Company shall notify the employee in writing at time of termination of the recall procedure. If the employee is not considered suitable for recall they shall be notified in writing and a copy of this letter shall be given to the employee’s Chief Steward. Upon request the Company will provide the employee with the reasons why they are not considered suitable for recall.

9. The Company may hire a temporary employee for a period not exceeding one month without using this recall procedure.

10. Summer students both secondary and post secondary levels have no rights to this recall procedure.

11. A Recall List from each work Location for regular-seasonal-A employees shall be provided to the Chief Steward concerned.

12. Regular seasonal-A employees shall not be entitled to severance pay except in the case of permanent layoff. When permanently laid off severance pay will be calculated on actual time worked.

11.13.3 Regular-Seasonal-B

1. A Regular Seasonal-B employee can displace a temporary employee in an equal or lower Job Grouping in his/her occupational group within his/her worksite/centre.

2. If 1. above is not available, a regular seasonal-B employee can displace an agency employee in an equal or lower Job Grouping in his/her occupational group within his/her worksite/centre.

3. If 2. above is not available, employment is terminated.

11.14 Permanent Location Closings

There will be no permanent displacements or moves into a worksite/centre which has been identified as a worksite/centre to be closed permanently during the 18 month period following notice of layoff/termination.

11.15 Severance Pay

Severance payments satisfy all employer obligations for notice and severance pay under the provision of the Employment Standards Act and the regulations including those applicable to mass termination.

(a) An employee receiving severance pay waives any other rights under Article 11.

(b) An employee may direct all or a portion of his/her payment into an RRSP up to the amount permitted by law. The employee shall provide the Company with the TD2 Form directing the payment into his/her RRSP.
An employee entitled to severance pay under 11.15 may elect to take a lump sum severance payment, or severance may be divided into two (2) equal instalments, the first on the date of termination and the second on or about January 15 of the following year. Severance will be calculated in accordance with the following:

(i) For Employees who have elected to voluntarily terminate if given the opportunity, subject to statutory deductions:
   - five months base pay, plus;
   - 4 weeks base pay per year of service, (payments for incomplete years of service will be pro-rated)
   The combined total of the above not to exceed 104 weeks.

(ii) For Employee’s who have not elected to voluntarily terminate if given the opportunity, and who have not refused a position offered under 11.10 or 11.11, subject to statutory deductions an amount which is equal to:
   - 3 weeks’ base pay per year of service up to a maximum of 78 weeks' base pay
   (payments for incomplete years of service will be pro-rated).

(iii) Reduced severance on refusing a position. An employee who refuses to accept a position under Article 11.10 or 11.11 where the new Job Grouping is in the same band the employee will be terminated and shall have no recall rights under Article 11.18 and will not be eligible to delay their termination per 11.15(f). Severance, subject to statutory deductions, will be an amount which is equal to:
   - Two weeks' base pay per year of service up to a maximum of 52 weeks' base pay
   (payments for incomplete years of service will be pro-rated).

(iv) In cases where an employee refuses to accept a position in a lower band the employee will receive severance pay pursuant to 11.15(c) (ii).

(d) For purposes of clarification at any time during the three (3) year recall period, a laid off employee may opt for his/her full severance entitlement, once this election is made all recall rights will cease.

(e) For regular part-time employees severance payments shall be pro-rated.

(f) Employees who are accepted for severance will be terminated on the date of termination/layoff identified in the initial notice. The only exception to this are employees who will be allowed to delay their termination date for a period not to exceed five (5) months in order to achieve one of the following pension milestones:

- Twenty-Five (25) years service
- Rule of 82
- Or Age 65

Employees who avail themselves of this option will have their severance reduced by the amount of time elapsed between the date of termination/layoff identified in the initial notice and their actual termination date.
11.15.1 Benefit Continuance/Tuition/Outplacement Services

A surplus employee who takes severance pay and terminates his/her employment is entitled to:

i) coverage under the Company's Health and Dental Plan for a period of six (6) months from the date of termination of employment or until the commencement of alternate employment whichever occurs first;

ii) reimbursement for tuition fees and other associated expenses up to a maximum of $5000.00 upon production of receipts from an approved educational program within 12 months of his/her termination;

iii) outplacement services; the Company will determine the level of service and the service provider.

11.16 Failure to Report to Assigned Positions

In the event that an employee declines an assigned position and is terminated, or does not displace into a job occupied by another employee, or terminates after displacing another employee, the Company may reverse the displacement and leave the employee who would have been displaced in his/her job or return the displaced employee to his/her job. In all instances as described above the terminating employee will be entitled to severance pay in accordance with the appropriate sections of this Article.

Any vacancy which results from such a reversal will be filled by moving the previous incumbent back to his/her job. In other words, the chain of bumps (i.e., the displacement thread) caused by the initial reversal will be reversed except in circumstances set out below.

Where an employee has relied to his/her detriment on the announced relocation, and would be prejudiced by revocation of the displacement, the employee will not revert to his/her original position. Where the Company would be prejudiced, the employee will not revert to his/her original position even if the employee does not object.

The declining of an assignment will not require the Company to re-do the Article 11 process.

11.17 Selection to Vacancies

After the end of this freeze period all positions which remain unfilled and any new vacancies which arise shall be posted under Article 10. Applications from employees who are to be laid off shall be given fair and objective consideration for vacancies during the period before the layoff occurs in the event that the vacancy is not filled pursuant to the Article 10 process. Employees who, prior to being laid off, applied for vacancies continue to be entitled to fair and objective consideration for those vacancies after lay-off. If selected to a vacancy posted prior to the date of layoff, the employee is eligible for moving expenses under Article 11. Among successful applicants seniority shall govern selection where all other factors are relatively equal.

11.17.1 No person outside the Union's jurisdiction will be selected to a vacancy commencing with the issuance of the notice of termination/layoff pursuant to 11.5 until:

(i) All qualified PWU members are selected, includes persons on the recall list, and,

(ii) All PWU applicants entitled to fair and objective consideration are selected pursuant to 11.17.
11.18 Recall

1. Laid off employees who do not receive severance payments shall have recall rights.

2. Employees who are laid off will be entitled to recall to Job Groupings in their OGL for a period of three (3) years from the date of his/her layoff. Recall lists will be maintained province wide. This provision includes employees who are laid off from either of the former bargaining units.

If a person is recalled within one year of the date he/she was laid off, entitlement to vacation credit, seniority, and sick leave credits shall be the same entitlement as on the day of termination less any vacation allowance received at termination.

If a person is recalled during the second or third year after layoff, he/she shall be treated as a new employee for all purposes. Service credit will be restored in accordance with Part A, Item 5.3.

Reinstatement in the pension plan shall be in accordance with the pension regulations.

3. A person who is recalled shall be personally contacted by the Company where possible. Failing this contact, a recall notice shall be forwarded by registered mail addressed to the last known address that he/she has recorded with his/her Human Resources Manager. They shall be obliged to advise his/her supervisor of the intention to return to work within five (5) working days and shall be available for work within ten (10) working days after receipt of the recall notice.

NOTE

(i) It shall be the employee's sole responsibility to inform the Union and the Human Resources Manager in writing of any change of address. The Union will be notified in writing when employees are recalled to vacancies.

(ii) Except in the case of sickness, failure to be available for work within ten (10) days after the receipt of recall notice shall make him/her ineligible for any further recall.

4. If an employee refuses recall to a regular full time "Equal" Job Grouping at the location he/she will be removed from the recall list and be entitled to reduced severance pay in accordance with 11.15(c) (iii). In cases where an employee refuses to accept recall to a position where the new Job Grouping is at a lower band or at a different location the employee will remain on the recall list.

5. At any time during the three (3) year recall period, a laid off employee may opt for his/her full severance pay entitlement. Once this election is made all recall rights will cease.

6. If at the end of the three (3) year recall period an employee has not been recalled or has not elected to receive severance pay, he/she will automatically receive the full severance pay entitlement.

7. An employee who is laid off and does not elect to accept severance payment shall be entitled to receive:
i) coverage under the Company’s Health and Dental Plan for a period of six (6) months from the date of commencement of layoff or until the commencement of alternate employment whichever occurs first; and

ii) reimbursement for tuition fees and other associated expenses up to a maximum of $5000.00 upon production of receipts from an approved educational programme within 12 months of his/her layoff; and

iii) outplacement services; the Company will determine the level of service and the service provider.

8. Persons on the recall list will be recalled for vacancies contained in their OGL’s which are posted as per Article 10 and 11.17 prior to the selection of candidates to whom they are senior.

9. People on recall will have the first priority on a seniority basis for temporary positions in their OGL arising at their location which were not filled by any displacements. Where such a temporary position also represents a recall opportunity for a regular seasonal-A, the position will be offered on seniority.

11.19 Limitations to Turnover

(a) A maximum of 51 percent (51%) of employees in a Job Grouping in a worksite/centre may be displaced during any 12-month period. Where there is only one employee in the site/centre he/she may be displaced.

(b) The limitation to turnover (51%) will apply to all personnel within a Job Grouping within a worksite/centre regardless of assignment to day work or shift work.

(c) Notwithstanding the above, where the Job Grouping is found in more than one line of business in a work centre, not more than 75% in the Job Grouping in a line of business in a work centre may be displaced during any 12 month period.

(d) Where employees displace to vacant positions such vacancies will not be counted as part of the percentages applied to limitation to turnover.

(e) In the case of Nuclear Operators limitations to turnover will be as set out in 11.12.

NOTE

This section does not apply to security staff.
11.20 Wage Maintenance

When an employee displaces another employee and is reclassified to a lower position, or when an employee is selected to a “lower” vacancy pursuant to 11.17, or in situations in which the employee moves from a 40 hour position to one with less weekly hours, they will receive wage maintenance. His/her wage rate will be adjusted downward in accordance with the following:

Employees Whose Current Rate Exceeds the Top Step of the Lower Rated Position;

(i) Employees with two or more years' service will have their rate frozen for a period of three months at which time a two percent reduction in rate will take place. Subsequent reductions of two percent (2%) will take place annually thereafter until the maximum rate for the lower rated job is reached.

(ii) Employees with less than two years' service will have their rate frozen for a period of three months, after which time their rate will be adjusted to the maximum rate for the new job.

Employees Whose Current Rate Does Not Exceed the Top Step of the Lower Rated Position;

These employees will have their rates frozen until their next scheduled progression date (no new progression date established). At this time they will be moved to the closest step on the lower band that results in a wage increase.

11.21 Moving Expenses

Where an employee is entitled to receive moving expenses as a result of being placed in a position through the operation of this article, the amount of expenses will be in accordance with Part A, Item 23. Such moves will be treated as Company-initiated moves.

Except as is provided for in 11.17, the Company will not be required to pay moving costs of an employee who is recalled from layoff.

ARTICLE 12
PURCHASED SERVICES AGREEMENT

12.0 SCOPE

This Article has been developed jointly in a spirit of co-operation and trust. It is intended to provide a joint approach to making good business decisions, which involve the use of purchased services. Its application calls for these decisions to be made in the same spirit of co-operation and trust.

What follows is based upon the belief that there is a value and benefit to the employee, the co-operation and the customer if:

- There is a greater involvement by employees in the decision-making process.
There is an improved understanding as to why purchased services are used.

Employment security is enhanced by a productive, healthy, and cost effective organization.

Union and Management work together and act responsibility, balancing the interests of the customer, the company and the employee in decisions relating to the use of purchased services.

This is a way of deciding how work gets done. It is not intended to hinder getting work done.

### 12.1 ASSIGNMENT OF WORK

#### 12.1.1 Philosophy

It is the Company’s intent to use regular staff to perform most of its work of a continuing nature. Furthermore, the Company will strive to provide regular staff with stability of employment.

The parties agree that a consistent, managed and joint approach to the assignment of work within the Company is necessary to provide security for employees, a more effective, productive organization and an excellent product for the customer.

#### 12.1.2 Principles

The following principles apply to the relationship between the Company and the Union and the work performed by Union members.

(a) We will within the Company have all work conducted as effectively as possible.

(b) We will measure the effectiveness of all work by its impact on staff, on the business and by its ultimate impact on our customers.

(c) We will do most work of a continuing nature with Company employees.

(d) We will determine when work is to be done by non-PWU members through a joint decision making process and the results of these decisions will be a joint responsibility.

(e) We will ensure that the impact of these decisions on continuous employment is minimized.

(f) We will use a team and consensus approach when making decisions and any issues arising will be resolved internally where possible.

(g) We will consult and make timely decisions consistent with the need to get work done.

(h) We will develop, implement and continue a joint process of communications and education.

(i) We will achieve consistency through the use of these principles versus policy and procedure.
12.2 DECISION PROCESS

12.2.1 Responsibility for Decisions

The persons who are responsible for applying the decision process are the Company representative with the appropriate decision authority and the Union representative designated by the Union Executive. It is recognized that a given decision may require the involvement of more than these two persons.

Subject to 12.2.6 and 12.3.2(c) below, decisions to use purchased services will be made on a consensus basis. Both parties must consider all relevant criteria with the mutual goal of selecting the most effective option.

The decision makers are responsible for making timely decisions and for the decision itself.

12.2.2 Opportunity

The parties recognize that work may be done more effectively internally or externally. Opportunities for the application of this Article to new or existing work can be initiated by Management and/or the Union. It is intended that joint discussion should commence as soon as possible and before detailed definition of the need to have new or existing work done by purchased services.

12.2.3 Definition of Need

The parties will consider what work must be done and why and include such dimensions as when it must commence and the duration of the work; the quantity of resources required; the quality of the results; the skills required and their availability internally and externally; and safety requirements.

12.2.4 Alternatives

The parties will consider such alternatives as, do the work internally; do part of the work internally and part externally; do the work externally and agree to acquire capability to do the work internally in future; or do the work externally.

Compliance with Article 12.2.4 during an outage does not require the company to reassign, redeploy, step-up and/or upgrade employees actively employed in core maintenance work.

12.2.5 Evaluation

The parties will evaluate the alternatives considering the impact on the customer, employees and the business. Such criteria as reliability of service to the customer, customer responsiveness, community impact, Company relations impact, job continuity, ability to perform work, degree of overtime required for the work, availability of resources, cost, timeliness, quality, need for control over results, safety and impact on environment will be assessed.

The total effectiveness of the alternatives will be evaluated considering both the short and long-term impacts. In given situations, certain criteria may be given a greater or lesser degree of importance.
12.2.6 Establishment of Thresholds

The establishment of the threshold is designed to remove from the process on a case by case basis certain issues relating to purchased services. The threshold will operate in such a way as to allow flexibility in local decision making. Any decisions regarding what is below the threshold will be non-precedent setting.

If there is a dispute with the union on whether the proposed purchased service is permitted by the threshold and there is no consensus, and if it makes sense in the circumstances the dispute will be resolved before the purchased service occurs. Lack of agreement on obtaining an advance resolution will not preclude the work from being performed, neither will it preclude the matter from being resolved under the 12.2.7 process.

The guidelines to determine whether a purchased service is below the threshold are as follows:

- subject matter lacking in substance; or
- any consequences are relatively insignificant; or
- where the nature or consequences of the work which represents a purchased service is remote from work currently performed by the PWU on a continuing basis. For purposes of clarity, this does not mean geographically remote; or
- emergencies; or
- any work performed under a manufacturer’s warranty, except where the manufacturer authorized the Company to do the work; or
- Work being done for OPG by Hydro One, AMEC NSS, Kinectrics and NHSS at the point each company is spun off from OPG and work of the same nature done by these companies in the future, so long as the Union continues to represent the employees of these companies; or
- where a distinct work program or work package at a worksite identified in a PSA request(s) is 250 hours or less annually. The addition of the 250 hour threshold will expire on March 31st, 2015 and will not be automatically renewed in any subsequent Collective Agreement.

Except in the case of an emergency, failure by the Company to supply the Union with the following information by fax or as otherwise agreed will result in the work in question being deemed to be above threshold. (In the case of emergency such decisions to use purchased services will be subject to the same information requirements, review and dispute resolution as non-emergency cases).

The Company will notify the Union of the:

- Value of Work as reflected in Tender/Contract/Bid or Estimate Documents
- Scope of the Work
- Location of Work
- Estimated Date of Commencement and Duration of the Work

Except in the case of emergency, after receipt of the above information regarding the work the union shall have three (3) working days to request an opportunity to discuss the proposed purchased service, failing which the proposed purchased service will be deemed to be below threshold.

The parties will make themselves available for discussion within three (3) working days of the request for a discussion.
Upon request, once the work has been performed the Company will provide the Union with the details of the final contract costs.

(a) Threshold grievances will be completed by the Chief Steward responsible for the PSA and presented to the line management person responsible for the work in question.

(b) Line management must respond in writing to the grievance citing its position within 48 hours (as is required with all other grievances). Both parties should endeavour locally to complete a Record of Discussion form or an agreed statement of fact sheet.

(c) The PWU office will assign a grievance number. Copies of the completed grievance and associated fact sheets or Records of Discussion forms should be sent to the PWU office and Labour Relations - Corporate Human Resources.

(d) Grievances will be referred to Arbitration and scheduled through joint agreement between Labour Relations - Corporate Human Resources and the PWU office.

(e) If it makes sense to do so, local discussions may take place with a view to resolving the threshold grievance up to the arbitration date.

12.2.7 Dispute Resolution Process

(a) Mr. Teplitsky shall be appointed as Facilitator to assist the parties to resolve all issues of application and interpretation of this Article with the power and authority of an arbitrator under the Ontario Labour Relations Act but not subject to the Arbitrators’ Act.

(b) Any dispute between the parties relating to whether this Article applies to any decision to use purchased services or if a purchased service falls within the categories set out in 12.2.6 will be determined in an expedited manner by the facilitator whose decision shall be final and binding.

(c) The Union will not be prejudiced in any subsequent case by a particular purchase of services. Similarly, the Company will not be prejudiced by any decision not to purchase services. This applies to all cases including threshold cases.

12.3 JOINT RESOLUTION COMMITTEE

12.3.1 Purpose

The purpose of this Joint Committee is to resolve disagreements, on a consensus basis in a timely and expeditious manner, as to whether proposed purchased services which are above threshold above may proceed. In its deliberations, the committee will consider the factors in items 12.0, 12.1 and 12.2.

Prior to a meeting of the Joint Committee, the Company will provide the Union with the following information related to the proposed PSA:

- copies of the Tender or Request for Proposal documents, if there are any;
- an accurate description of the work which is the subject of the proposed PSA;
• accurate details on bids e.g., price, scope of the work as set forth in the bid;
• a full cost benefit analysis including incremental costs but excluding overhead costs which would be incurred.

12.3.2 Membership

The membership of the Joint Committee shall be as follows:

(a) The facilitator Mr. Teplitsky who shall act as Chairperson;

(b) One management and one union representative plus additional resources as required.

(c) In the event of the parties not being able to reach a consensus decision the facilitator will have the power to make decisions. Mr. Teplitsky will have the authority to make such orders as he deems appropriate to give full affect to his decision(s) and to deal with any consequences his decision(s) might have in the workplace.

(d) Where either party wishes to proceed with a Purchased Services discussion which is above threshold, the parties will endeavour to complete discussion within 10 days of notice to the union in the prescribed form and that full resolution, including review by the JRC, will occur within 30 days of notification.

12.4 APPLICATION OF THIS ARTICLE

12.4.1 The parties will jointly develop and maintain an operating plan consistent with the provisions of this Article. Such plans will be approved by the appropriate Company official and the Power Workers’ Union Vice President. Failure to jointly develop an operating plan will not adversely affect either party’s rights under the provisions of this Article.

These operational plans will include:

• An approach for the development and delivery of joint training of decision makers
• An identification of the type of contracts that are not subject to an in-depth review.
• A guideline for a time table on how often contracts of a recurring nature must be reviewed under this Article.
• A process for joint review of potential contracts, which involve work normally performed by PWU represented employees and other stakeholders.
• A process and a time frame for decision making.
• An internal process for dispute resolution.

12.4.2 Management and Union representatives may choose to jointly review the application of their operating plan and determine the need for changes at any time over the life of this agreement.

12.4.3 Until March 31st, 2015, Article 13, Article 14, Mid-Term Agreement PW-2 Contracting Out, PW-46-1, PW-46-1 Appendix A, and Mid-Term Agreement PW-12 Future Agency Employees are suspended. Item 12.1 of this Article will apply to decisions regarding the use of agency employees.
ARTICLE 12 – APPENDIX A

The provisions in this Appendix and Article 12.3.2 (c) are to be applied to those situations where employees are given surplus status as a result of a joint or arbitrated decision to use purchased services to do the work normally performed by the affected employees. The definitions contained in Articles 10 and 11 will also apply to this Appendix.

1.0 JOINT EMPLOYMENT SECURITY COMMITTEE

The function of the Joint Employment Security Committee is to resolve disputes regarding the appropriate application of this Appendix.

The committee will consist of six regular members, three representing the Union and three representing the Company. Two additional members from each party may be added from a work unit affected by the surplus situation under consideration. Meetings may be called by either party.

In all disputes referred to the committee for settlement, the committee’s decision will be final and binding on both parties.

In the event that the Joint Employment Security Committee is unable to resolve a dispute, it will be referred to Mr. Teplitsky. The intention of both parties is to have a speedy resolution of the dispute. Verbal decisions, which will be confirmed by a written decision will be acceptable and all decisions are final and binding on both parties.

2.0 EMPLOYMENT SECURITY

The provisions of this Appendix will apply to a regular employee with two (2) or more years' seniority who becomes surplus from his/her position as a result of contracting out the work normally performed by that employee. The effect of decisions to use purchased services on PWU members will be minimized by accommodating required staff reductions wherever possible by attrition, transfer to other jobs or retraining. Redeployment/career counselling will be made available to affected staff when they are notified of their surplus status. Training and career options will be discussed and incorporated into the redeployment plan. Reasonable training and educational leave will be applied as appropriate. The provisions of this Article will not apply to regular-seasonal employees.

The definitions contained in Articles 10 and 11 will also apply to this Appendix.

For the purposes of determining if the employee has sufficient seniority to qualify for this Appendix, his/her seniority will be counted up to the surplus date.

2.1 Surplus Identification

When a decision to contract out results in a surplus in a classification in any work site the least senior employee in that classification in the work site shall be identified as surplus. Such employees will be able to apply for vacancies as per Article 10.
2.1.2 If an employee with five (5) or more years seniority has not been selected to a vacancy within one (1) year after the surplus date, or an employee with two (2) years but less than five (5) years’ seniority has not been selected to a vacancy within sixteen (16) weeks after the surplus date, he/she will be given displacement rights as contained in Article 11 and all other terms and conditions of Article 11 will apply. At this time all other provisions of Appendix A will cease to apply.

2.1.3 The one (1) year period for employees with five or more years’ seniority and the sixteen week period for employees with two or more but less than five years’ seniority is designed to allow employees not selected to vacancies to avail themselves of the retraining and reskilling opportunities outlined in 2.0 prior to any displacement as per Article 11.

2.2 Wage and Salary Treatment

2.2.1 Seniority - Five Years or More

The employee’s grade and progression step shall be maintained and negotiated increases shall apply for one (1) year from the surplus date regardless of placement. If the employee accepts a vacancy in a lower-rated classification his/her dollar rate shall be frozen at the end of the one (1) year until the rate for the classification equals the employee’s dollar rate, at which time the normal wage and salary treatment shall apply.

2.2.2 Seniority - Two Years - Less than Five Years

The employee’s grade and progression step shall be maintained and negotiated increases shall apply for sixteen (16) weeks from the surplus date regardless of placement. If the employee accepts a vacancy in a lower-rated classification his/her dollar rate shall be frozen at the end of sixteen (16) weeks for a period of three (3) months at which time a four percent (4%) reduction in rate will take place. Subsequent reductions of four percent (4%) will take place annually thereafter until the maximum rate for the lower-rated job is reached.

2.3 General Conditions

2.3.1 Notwithstanding the provisions of this Article an employee who is within five years of normal retirement or within five years of eligibility for undiscounted pension when faced with displacement or layoff, with joint agreement may be given special consideration for work site protection/preference.

Notwithstanding the provisions of this Article, the parties may make special arrangements for employees who are disabled to the extent that alternative employment would be difficult to find.

2.4 Moving Expenses

Prior to Article 11 applying, an employee who is identified as surplus as per this Appendix and is required to relocate his/her residence shall receive moving expenses in accordance with the provisions of Part A, Item 23. Such moves will be treated as Company-initiated moves.
ARTICLE 13
EMPLOYMENT SECURITY PLAN

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13.0 PURCHASED SERVICES

During the term of this Collective Agreement, no regular employee will be declared surplus in his/her position as a result of the use of purchased services to perform the work normally performed by that employee.

13.1 Employment Security

Numerous factors may affect the nature and methods of accomplishing work. Changes in work patterns cannot be prevented but the effect of such changes on regular employees should be minimized as much as possible. The effect of such changes on PWU members will be minimized by accommodating required staff reductions wherever possible by attrition, transfer to other jobs or retraining rather than layoff.

The provisions of this Article will apply to a regular employee with five or more years’ seniority who becomes surplus from his/her position as a result of contracting out the work normally performed by that employee. The provisions of this Article will not apply to regular-seasonal employees.

Employees who become surplus for reasons other than contracting out will be entitled to Article 11 as applicable.

The definitions contained in Articles 10 and 11 will also apply to this Article.

For the purpose of determining if the employee has sufficient seniority to qualify for Article 13, his/her seniority will be counted up to the surplus date.

13.2 Joint Employment Security Committee

The function of the Joint Employment Security Committee is to resolve disputes regarding the appropriate application of Article 13 versus Article 11.

The committee will consist of six regular members, three representing the Union and three representing the Company. Two additional members from each party may be added from a work unit affected by the surplus situation under consideration. Meetings may be called by either party.

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7 This Article is suspended for the term of this agreement.
In all disputes referred to the committee for settlement, the committee's decision will be final and binding on both parties.

In the event that the Joint Employment Security Committee is unable to resolve a dispute, it will be referred to an expedited arbitration process. The intention of both parties is to have a speedy resolution of the dispute. A list of arbitrators will be agreed upon who are prepared to meet on short notice (within seven days) and to render a decision within 14 days. Verbal decisions will be acceptable and all decisions are final and binding on both parties.

13.3 Application

When a surplus is identified in a classification in any location, the least senior employee in the surplus classification in the location shall be declared surplus.

Employees will be notified, in writing, a minimum of three months in advance of their surplus date. A copy of the notice shall be sent to the PWU office and the Chief Steward.

13.4 Selection

The criteria for selection of qualified applicants will be in accordance with Article 11.4 (2) and are repeated here for ease of application.

The following selection criteria apply to vacancies in equal- and lower-rated classifications:

1. For non-supervisory vacancies, the senior qualified surplus regular employee applicant will be selected.

2. Selections to supervisory positions will continue to be governed by Article 10.1.3A except when the vacancy is in the same classification as the surplus employee in which case the senior surplus applicant shall be selected.

3. If a surplus applicant is selected to a vacancy he/she must render his/her decision within three working days of the offer being made. Failure to do so will be considered a rejection of the offer and will not affect his/her further treatment under this article.

When there are no qualified surplus applicants, management will assess the capability of the surplus applicants to become qualified in a reasonable period of time. Management will select from among those assessed to be qualifiable in a reasonable period of time.

Employees covered by this plan will be given surplus priority consideration from the date of notification until eleven months after the surplus date. The selection priority will be the same as detailed in Article 11.4.3, which are repeated here for ease of application.

The following applies for equal and lower rated vacancies.

Each category will be considered independently and in the order indicated.
1. Surplus employees represented by the PWU and surplus managerial services employees.

2. Employees who were required to displace someone in a lower classification as a result of being surplus and who were previously in the classification that is now vacant.

3. Persons on the recall list whose occupational group contains the vacant classification.

4. As per Article 10.

13.5 Wage and Salary Treatment

The employee's grade and progression step shall be maintained and negotiated increases shall apply for one year from the surplus date or until the date the employee accepts a vacancy whichever comes first.

If the employee accepts a vacancy in a lower-rated classification, his/her dollar rate shall be frozen until the rate for the classification equals the employee's dollar rate, at which time the normal wage and salary treatment shall apply.

13.6 Displacement

If the employee has not been selected to a vacancy/placement opportunity within one year after the surplus date he/she will be given displacement opportunities available in Article 11 and all other terms and conditions of Article 11 will apply, except for Article 11.4.

All other provisions of Article 13 will cease to apply.

13.7 General Conditions

An employee who is within five years of normal retirement or within five years of eligibility for undiscounted pension or an employee who is disabled to the extent that alternate employment will be difficult to obtain, may by agreement between the Company and the Union, be given special consideration when faced with displacement.

One year's additional seniority shall be allowed stewards and chief stewards for the determination of which employees are surplus within the electoral unit of the chief steward.

An employee who is assigned temporary duties or who accepts a vacancy will assume the working conditions of the position.

A surplus employee who is required to relocate his residence, shall receive moving expenses in accordance with the provisions of Part A, Item 23.0. Such moves will be treated as the Company initiated moves.

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8 Managerial services employees in this context means employees paid from salary schedule 16 with the following exceptions: security guards, fire and safety inspectors, first aid attendants, and project medical attendants.
ARTICLE 14
EMPLOYMENT SECURITY AND WORK ASSIGNMENT

14.0 It is the Company's intent to use regular staff to perform most of its work of a continuing nature. Furthermore, the Company will strive to provide regular staff with stability of employment.

The Working Paper on Staffing and Employment dated March 15th, 1985 states Management's intentions with regard to continuity of employment for regular staff and proportions of work expected to be undertaken by regular staff. For at least the term of this Collective Agreement, the Company will not reduce the stated proportions of work to be done by regular staff.

At the end of each six-month period commencing January 1987, the Company will prepare a statement showing the proportions of work done by regular staff and make this information available to the PWU.

It is understood that the Working Paper on Staffing and Employment, as distinct from the terms of the above provisions, does not form part of the Collective Agreement and is not subject to the grievance and arbitration process.

14.1 Work Assignment

1. It is understood that the assignment of work to purchased services does not convey a right to such work in the future, nor does it create any precedent with respect to future assignment of such work to purchased service employees by the employer.

2. It is agreed between the parties that no more than 450 the Company tradespersons will be assigned by the Company at any one time under the EPSCA Maintenance Assist agreement to perform work for the Company. The Company agrees to inform the Union of the number of Company tradespersons assigned under the EPSCA Maintenance Assist agreement on a monthly basis.

ARTICLE 15
SUCCESSOR RIGHTS

The Company agrees that it will not directly or indirectly request government to exempt the Company or the Union from the successor rights provisions of the applicable labour relations legislation.

The successor rights provisions of the applicable labour relations statute shall be incorporated by reference into this collective agreement. No board of arbitration established pursuant to the grievance and arbitration provisions of this contract has jurisdiction to make any decision within the jurisdiction of the Labour Relations Board and nothing herein is intended to affect the jurisdiction of the Labour Board to resolve disputes related to the application of the provisions of the statute. For purposes of s.48 of the Ontario Labour Relations Act and s.57 of the Canada Labour Code, the Ontario Labour Relations Board or the Canada Labour Relations Board shall be deemed to be a Board of Arbitration for the resolution of disputes related to the interpretation,
application, administration or alleged violation of this provision of the collective agreement. The remedial powers of the Labour Board shall be as set out in the relevant statutory provisions governing successor rights.

Should the Company sell, lease, or otherwise transfer property to another entity for the purposes of establishing a new generating facility, it undertakes to discuss voluntary recognition of the PWU as the exclusive bargaining agent with the prospective owner. Where possible the Company will establish a meeting between the prospective owner and the PWU for this purpose.

ARTICLE 16
DURATION OF THE AGREEMENT

This agreement shall come into effect as of the 1st day of April 2012, and shall remain in effect until the 31st day of March 2015, and thereafter from year to year unless terminated by written notice given by one of the parties to the other within a period of not more than two months, but not less than one month prior to the anniversary date.

In the event that either party desires to amend the Agreement but not to terminate the same, either party may, by notice in writing not more than 90 days and not less than 30 days before the anniversary date, serve notice of the proposed amendments and both parties shall thereupon commence to negotiate in good faith with a view to arriving at an agreement on the proposed amendments and all provisions of the Agreement, other than those proposed to be amended, shall continue in full force and effect.

ARTICLE 17
Decontrol

1. In this Article, decontrol shall mean any sale, lease, transfer or any other transaction between the Company and any other entity, by virtue of which the control over any part of the Company’s business or assets becomes held by such other entity and the Company’s employees become employees of a new employer.

2. The Company recognizes the importance of securing for employees opportunity for continuing employment with successful bidders and are committed to securing such opportunity for employees in a facility to be decontrolled.

The PWU and the Company will, prior to a new employer commencing operations, ask employees employed at the station to state their intention to continue employment with the new employer.

The Company and the Union agree that issues may arise with respect to employees who refuse on-going employment opportunity with the new employer.

Therefore, the parties agree as follows:

1. At a time selected by the employer, in consultation with the Union, but not later than 60 days before the new employer commences operating the business, employees at the station will be asked to state in writing their intention to accept continuing employment with the new employer.
2. The Union and the Company will attempt to resolve all issues, which arise upon the refusal of any employee to accept continuity of work with the new employer.

3. If there is no agreement on issues relating to employees who decline continuing employment with the new employer, the issues will be submitted to an expedited mediation/arbitration process. Martin Teplitsky Q.C. will be the mediator/arbitrator. The mediator/arbitrator will have complete and unfettered discretion to make any award, which he considers fair and reasonable in all of the circumstances.

3. The Company agrees that it shall provide in writing to the Union at the earliest possible time after selection of the successful bidder but in any event prior to the time period in paragraph one (1) above, all available information relating to the new employer that is relevant to employees and that is not confidential.

4. Effective on the date the Company officially announced that a station is to be decontrolled (hereinafter called “the station”) or the date of any agreement with a successful bidder to decontrol, whichever occurs first, the following will apply:
   
i. OPGI employees located outside of the station shall not be entitled to displace any employee in the station.

   ii. Subject to (iii), an employee who successfully applies for a vacancy at the station shall thereafter exercise seniority rights within the station and will have no seniority rights enforceable outside the station notwithstanding any other provision of the collective agreement.

   iii. Employees at the station may apply for vacancies outside the station in accordance with the applicable provisions of the collective agreement up to 60 days prior to scheduled date for closing of transaction but not thereafter.

   iv. An employee in the station who is declared overcomplement by the Company prior to the date of closing shall have full rights under Article 11.

   v. An employee at the station who is eligible for retirement under the Rule of 82 on or before the date of closing of the transaction to decontrol may make an irrevocable election within 60 days prior to the closing date that they wish to retire effective on the closing date. Should an employee make a decision to retire they will retire effective on the date of the closing and receive a lump sum payment equal to one year’s base salary. This amount will be paid as a retirement allowance. The employee may direct all or a portion of this payment into an RRSP up to the amount permitted by law. The employee shall provide the Company with the TD2 form directing the payment into his/her RRSP.

   Note: This section applies to those employees at the station who are on either extended sick leave, Long Term Disability or WSIB and who are not allocated to be transferred to the new employer solely because they are on sick leave, LTD or WSIB and are not expected to return to work within two years. Part A, Item 15.2
“Retirement While ill” limits the ability of employees on sick leave to retire. This provision is waived for employees covered by Article 17.4(v).

vi. If, within twenty four months of the closing, the successful bidder reduces the total complement of employees at the station which results in the permanent layoff of former OPGI employee(s) who had continued employment, the employee(s) permanently laid off will be entitled to a one time lump sum payment of one week per year of service with OPGI and the successful bidder. The obligation to pay the laid off employee is contingent upon the employee being severed from employment without recall rights with the successful bidder.

The additional payment of one week per year of service will not apply where the permanent layoff is due to:

- Strike
- Lockout
- Accident or catastrophic event
- Force Majeure/natural disaster
- Temporary Plant shutdown

The obligation to make the payment of one week per year of service will not apply if any employee has successfully challenged the layoff for any reason and has filed a grievance successfully seeking reinstatement.

vii. An employee who is not afforded the opportunity for continuing employment by the new employer shall have full rights under Article 11.
Signed
Ontario Power Generation Inc.

[Vice President
Employee & Labour Relations]

[Senior Vice President
People & Culture and Chief Ethics Officer]

Signed
Power Workers' Union
Canadian Union of Public Employees – Local 1000

[Vice President – Sector 1]

[Vice President – Sector 2]

Duly appointed to execute this Agreement on behalf of the Union
PART A

GENERAL ITEMS

(Note:
Items Related to Construction Technical
are as Specified in Part E)
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GENERAL ITEMS

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PART A

GENERAL ITEMS

1.0 EMPLOYEE CATEGORIES

All employees fall into one or the other of four principal categories as outlined below.

1.1 Probationary

This category describes persons taken on strength on a probationary basis with the prospect, if their services are found satisfactory, of a change of category to Regular full-time or Regular part-time (Item 1.2, following).

1.2 Regular

Regular employees are those employees who, having satisfactorily met the job requirements, are judged medically fit by the Health and Safety Division for positions which are part of the continuing organization of the Company. They must have served the required time in a probationary category which is part of the Company’s continuing organization, or in a temporary category which becomes part of the Company’s continuing organization.

1.2.1 Regular Full-Time

Regular full-time employees work the regular hours of the classification into which they are hired.

1.2.2 Regular Part-Time

The establishment of a regular part-time position is a joint decision of local management and the chief steward made in a spirit of trust and co-operation. The parties will ensure that regular part-time positions are appropriately used to maintain corporate effectiveness, not to split a regular full-time position.

Regular part-time employees are regularly employed on an average of 24 hours or less per week calculated on a monthly basis. They are employed for a minimum of 16 hours per month. Regular part-time employees are treated as regular employees except where noted otherwise.

Pro-Ration Formula: The regular part-time employee benefit pro-ration formula is calculated based on the hours worked by the regular part-time employee expressed as a percentage of the normal scheduled number of hours for the classification. Where the number of regular part-time hours vary in a week it will be necessary to calculate this percentage over a jointly agreed upon extended period to get an accurate figure.

1.2.3 Regular - Job Share

Regular full time employees interested in job sharing arrangements shall find an appropriate partner from the same work location with similar skills and the same or lower terminal rates. These employees must establish an acceptable arrangement between themselves before approaching Management with the request.

Upon attaining agreement between Management and the employees, the job share arrangement will operate for a trial 6 month period. Following the 6 month trial period, the arrangement will:
(a) be considered a temporary arrangement and be extended by a maximum of six (6) months at which time the arrangement will end,

OR

(b) be considered a permanent job share arrangement. At this time the vacated position will be posted and filled in accordance with Part A, Item 17.0. In the case of the permanent job share arrangement, the incumbents are required to remain in their arrangement until one partner permanently leaves the job share. At that time, the other partner is required to assume responsibility for the full-time position on 30 days’ notice.

Employees engaged in a job share work arrangement are regular part-time employees for the purposes of benefits administration. Employees in job share arrangements will revert to regular full-time status for the purposes of application of Article 10, and Article 11.

Service credit for time spent in job sharing arrangements will be calculated on a pro-rata basis.

1.3.1 Regular-Seasonal “A”

Regular-seasonal “A” employees are those judged medically fit by Health Services for the position involved, who have attained one year’s accumulative service, and who are steadily employed through the year, except for short term layoffs. In addition, temporary employees engaged in work which is not of a continuing nature, shall be afforded regular-seasonal status upon attaining 12 months’ accumulated service.

Regular Seasonal “B”

As one of a number of efforts to deal with overcomplement staff and also to improve the efficiency of outage execution, it is proposed to increase the use of Regular Seasonal “B” staff.

The general conditions for these Regular Seasonal “B” employees are as follows:

a) To enter this classification you must:

Sever under Article 11 and move into the Regular Seasonal “B” employee category based on seniority until the category is staffed to complement. If not enough people apply then management can direct hire from the street.

A regular employee is required to sever his/her employment as a regular and be re-employed as a Regular Seasonal “B”. Management will ensure a letter of offer to a regular seasonal B position is in the employees’ hands prior to his/her severance request.

b) A Regular Seasonal “B” employee will be notified by November 30th and May 31st of the approximate timing and duration of their work assignment for the period starting the following January 1 and July 1. Employees will be notified at least one (1) week before the start of their work assignment. These work assignments shall aggregate at least 20 weeks or 800 hours in duration. They will occur in not more than four (4) occasions. Each occasion is to be four (4) weeks or 160
hours, or greater. Failure to accept will remove their name from future Regular Seasonal “B” assignments unless joint agreement is reached for extenuating circumstances e.g., death in the family or illness.

c) A Regular Seasonal “B” employee can be requested to work at other times for a minimum of two (2) weeks. Failure to accept has no consequence.

d) Floaters are earned at the rate of one (1) per seven (7) weeks (280 hours) and can be taken as mutually agreeable. Any unused floaters will be paid out at the conclusion of the assignment.

e) Vacation is earned at the rate appropriate to service as outlined in Part A, Item 6.3 and is paid out at the end of the assignment.

f) A Regular Seasonal “B” employee shall accumulate sick leave as per temporary employees (0.5 days per month – Part A, Item 16.2.4).

g) Overtime shall be paid as per the collective agreement.

h) A Regular Seasonal “B” employee will be paid 15% in lieu of benefits, including pension.

i) A Regular Seasonal “B” employee will not have rights under Article 11. Their displacement rights are outlined below.

Note: Part A – Item 1 will be amended to accommodate this classification.

j) Management will determine the size and composition of the regular seasonal crew.

The crew size will not exceed 20% of the total work force of each trade at that location.

**Displacement - Regular Seasonal “B”**

1. A Regular Seasonal “B” employee can displace a temporary employee in an equal or lower classification in his/her occupational group within his/her worksite/centre.

2. If 1. above is not available, a Regular Seasonal “B” employee can displace an agency employee in an equal or lower classification in his/her occupational group within his/her worksite/centre.

3. If 2. above is not available, employment is terminated.

**1.4 Temporary**

Temporary employees are hired to perform work that is expected to last for a short period of time or to perform work in place of a regular employee who is absent from his/her position.

For temporary full-time and temporary part-time employees, accumulated service shall mean the period of employment during which there has been no break in employment exceeding five months. Note that for pay purposes only, for temporary full time and temporary part-time employees, accumulated service shall mean the total of all periods of employment.
Benefits for temporary employees will be as outlined in Part A, Item 16.0.

1.4.1 Temporary Full-Time

Temporary full-time employees work the regular hours of the classification into which they are hired and may be engaged for up to 12 months of accumulated service.

1.4.2 Temporary Part-Time

Temporary part-time employees are employed for a period of up to 12 accumulated months on an average of 24 hours or less per week (calculated on a monthly basis). Temporary part-time employees are treated as temporary employees except where noted otherwise. Benefits are pro-rated the same as regular part-time employees.

To ensure that temporary part-time employees are properly classified as temporary, an assessment is to be made as to the regular or temporary status of the position whenever the temporary part-time employee is employed for twelve continuous calendar months. This assessment is subject to the grievance procedure.

This assessment is made based on the definition of a regular part-time position, i.e. the work is of a continuing nature with a minimum of 16 hours in a calendar month. If the position is determined to be temporary this will be conveyed to the Chief Steward (the employee should be given an end date and will remain temporary).

If the position is determined to be regular part-time, a joint discussion must take place as per the Regular Part-time provisions in the agreement prior to the position being posted. If the incumbent's employment exceeds 12 continuous months the incumbent will be given regular part-time status and the incumbent's seniority will be calculated on a pro-rated basis.

If as a result of the assessment above, the position is still temporary part-time at the 12 month accumulated service mark one of the following options must be selected:

1) The job is posted as a regular part-time. This decision is a joint decision as per regular part-time provisions in the agreement.

2) The Chief Steward agrees to an extension of the temporary part-timer's service for a specific period and the employee retains temporary status.

3) The temporary part-timer is terminated.

Accumulated service applies to temporary employees. Such employees do not have either seniority or service credit.

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1 If an employee commences on January 20th and works any portion of a calendar month for 12 continuous months, they will have 12 continuous calendar months service on January 20th of the following year.
2.0 REGULAR STATUS

Appointment to regular status is contingent on satisfactorily meeting the Company’s medical requirements.

1. Probationary employees must serve a minimum of three months on probation. If service is satisfactory, they may be accorded regular status at that time. A period of not more than three more months can be used as a further period of probation if it is needed. At the end of this further period, employees must either be made regular, transferred to another position or dismissed. Regular part-time probationary employees must serve up to six calendar months on probation.

2. Temporary employees engaged in work of a continuing nature, shall be afforded regular status upon attaining 12 months accumulated service. In such circumstances the employee’s position will be considered to be a vacancy. If the former temporary employee is not selected to this vacancy he/she will be declared surplus in accordance with Article 11.

3. Temporary employees engaged in work which is not of a continuing nature, shall be afforded regular seasonal “A“ status upon attaining 12 months accumulated service.

3.0 ANNIVERSARY PROGRESSION

Progression dates shall be calculated from the date of appointment or promotion to the position. Subsequent salary adjustments shall be on anniversary dates except as otherwise specified in Article 8 and Part A, Item 43.0.

NOTE

(a) The progression date for a regular part-time employee who works on average 50% or more of the base hours of the full time classification for the year will be at the completion of one and one third years of service.

(b) The progression date for a regular part-time employee who works on average less than 50% of the base hours of the full time classification for the year will be at the completion of two years service.

(c) Successful applicants to positions in the same or lower band will not have their anniversary progression date reset.

As a regular practice employees shall automatically progress from minimum to maximum as indicated in the respective wage schedules subject to the following:

3.1 Withholding Progression (Unsatisfactory Performance)

If an employee fails to make satisfactory progress his/her progression may be withheld for a period of six months. (8 months for a regular part-time employee working 50% or more of the base hours; 12 months for regular part-time employee working less than 50% of the base hours.)
If an employee’s progression is withheld s/he will remain at their current step until the employee successfully meets the identified performance and/ or training requirements. The Union may grieve on behalf of any employee whose progression is withheld.

In taking this action the Company shall provide the employee with one month's notice and the reason for the withholding.

The performance of an employee whose progression has been withheld as above will be reviewed within seven months (nine months for a regular part-time employee working 50% or more of the base hours of the classification and fourteen months for regular part-time employee working less than 50% of the base hours of the classification). If progress and general performance are found to be satisfactory, progression shall be granted. If not, the employee shall be either transferred or dismissed.

If at the time of this review the employee's progress and general performance were found satisfactory and if six months after the review his/her performance has continued to be satisfactory, he/she may be granted the next step in his/her progression.

This will then re-establish his/her original progression status.

If an employee in a recognized training program (band III Apprentices/Trainees/Operator Trainees) has not reached the acceptable level of performance his/her progression may again be withheld in accordance with the above. Progression to the journeyperson or job rate will not be delayed by more than six months.

3.2 Deferral of Progression (Absences from Work)

When an employee has been absent from work for a period in excess of three months, excluding approved vacation, his/her progression may be deferred without prior notice for a period of time not to exceed the length of the absence. Subsequent progression dates may be adjusted accordingly.

4.0 RETROGRESSION POLICY

The term 'retrogression' is used to indicate a gradual reduction in pay to predetermined adjusted rate.

4.1 Where Applicable

1. Retrogression shall apply where a regular employee becomes unable to perform the duties of a job for which he/she is receiving the standard rate and is transferred to a lower-rated job because of:

(a) A disability caused by accident or illness.

(b) Inability to cope with increased responsibility due to change in job content.

(c) Where the unsatisfactory performance is due to faulty selection and the employee has served in the position for a period of at least one year.
Any retrogression for medical reasons is subject to ratification by the Chief Physician/Manager Health Services.

2. Retrogression shall not apply where:

(a) An employee has less than ten years' established service credit.

(b) The change to the lower-rated job is made at the request of the employee to escape heavy work or responsibility or for personal reasons.

(c) The change to the lower-rated job is made necessary for unsatisfactory job performance due to causes other than in Item 4.1(1.).

NOTE

Where retrogression does not apply, the employee will receive the job rate for the new job effective at the time of transfer to the new job.

4.2 How Applied

The Company will endeavour to provide an employee to whom Section 4.1 (1) applies with work he/she is capable of performing. His/her rate of pay shall be calculated as follows:

1. A new rate for the employee will be calculated at the time the employee is retrogressed. This is calculated by adding to the base rate of the new classification an additional two and one-half percent (2.5%) (except as specified below) of the differential between the base for the new job and the base rate for the employee's former job for each year by which his/her continuous service exceeds ten years at the time of transfer. For regular part-time employees, the new rate is calculated on an hourly basis. For employees with 25 or more years of service, where the reason for retrogression is one of 4.1(1)(a) or (b), five percent (5%) is used in the calculation instead of two and one-half percent (2.5%).

The calculation determines the rate to which the employee's pay will be reduced.

2. The reduction in rate will take place in steps each amounting to but not exceeding approximately four percent (4%) of his/her former base rate. (Hourly rate for regular part-time employees.) The first step shall occur three months after he/she has been transferred to the new job. The subsequent steps shall occur at six-month intervals until the rate determined in 4.2(1.) has been reached.

3. Where the retrogressed employee is unable to do the job to which he/she has been retrogressed and demotion to another job is necessary, the rate for this new job shall be based on the differential between the base rate of the original job from which he/she has been retrogressed and the base rate of his/her new job.

4. While retrogression is in progress and after retrogression is completed, increases in pay that occur will be applied only to the base rate for the new job and the retrogressed employee will only receive a benefit when the base rate for the new job exceeds his/her adjusted rate.
5. It shall be the responsibility of each Human Resources Manager/Officer to advise the Union in writing when any employees are placed on retrogression. This information will be provided to the Union as soon as possible but in any case before the reduction in rate specified in 4.2(2.) takes place.

4.3 Special Provisions

1. Retrogressed employees who are within 10 years of being eligible to retire without discount or who are within 15 years of normal retirement, shall have their rate frozen until the rate for the job being performed catches up to the frozen rate.

2. An employee with 20 years' service who is retrogressed for medical reasons related to the working conditions and job environment during a significant portion of his/her employment with the Company, will have his/her wages maintained until he/she is eligible for an undiscounted pension. The wage rate will be frozen thereafter.

   The medical reasons will be reviewed and assessed by the LTD Review Committee.

3. If, in the opinion of the LTD Review Committee, an employee is retrogressed because of a serious injury that resulted from an on-the-job accident with the Company, he/she will have his/her wages maintained until he/she is eligible for an undiscounted pension. This provision will apply to all regular employees regardless of service.

4. An employee with ten years' service who is retrogressed because of a muscular-skeletal repetitive strain injury or injury arising therefrom, which is deemed compensable by the WSIB and relates to his/her working conditions with the Company will have his/her wages maintained until eligible for an undiscounted pension. The wage rate will be frozen thereafter.

   The medical reasons will be reviewed and assessed by the LTD Review Committee.

4.4 Nothing in this regulation will override special commitments that have been made by the Company that in certain instances rates of pay will be maintained.

5.0 SERVICE CREDIT

5.1 Introduction

This item defines service credit and describes the basis for calculating service credit for all purposes except those of the Pension and Insurance Plans, which are covered in the Ontario Power Generation Inc. Pension Plan and Insurance Plan Rules.

The application of such service credit to vacations, LTD, sick leave and other benefits will continue to be governed by the appropriate instructions.
5.2 Service Credit Calculation

In most cases the service credit of a regular employee is that employee’s seniority. The exception to this can be found in Article 10.1.2.

Seniority applies to regular, regular-seasonal, and probationary employees only.

Temporary employees have accumulated service only.

Service credit will not be granted for absences without pay of greater than 15 days with the exception of:

1. Normal and Extended Pregnancy/Parental/Adoptive leave.
2. Elected Union officials absent on Union business.
3. Medical leave of absence.
4. Time off in lieu of overtime worked.

5.2.1 Regular Employees

Service credit shall be the period of employment with the Company and any service restored as per Part A, Item 5.3.

5.2.2 Temporary Full-Time and Part-Time Employees When Granted Regular Status

When temporary employees are granted regular or regular-seasonal status, service credit shall be granted for all previous full-time service and on a pro-rata basis for all part-time service.

5.3 Restoration of Service Credit

Regular employees who terminate and are re-employed to a continuing position shall have their service credit restored. Proof of past service must be provided by the employee in the first 60 days of re-employment unless the Company is capable of providing the proof within the first 60 days of re-employment. They shall not be required to serve a further probationary period. No service credit will be allowed for the period between termination and re-employment. Regular employees who were formerly employees of Ontario Hydro shall have their service credit restored.

Former regular employees who are rehired for temporary full-time or temporary part-time assignments will not be granted regular status upon rehire. Former regular-seasonal “A” employees will retain regular-seasonal “A” status when rehired for a temporary assignment, within one year of their last termination date.
6.0 VACATIONS

6.1 General Policy

Whenever possible, vacations will be granted at dates requested by the employees, but in view of the Company’s role in providing a vital service at all times, the Company reserves the right to determine the dates when vacations may be taken. The company will respond to vacation requests in a timely manner. Local agreements will be used to achieve this.

6.2 Relationship between Vacation Year and Calendar Year

For the purpose of calculating vacation allowances, the vacation year commences July 1st of the previous year and ends June 30th of the calendar year in which the vacation is to be taken.

<table>
<thead>
<tr>
<th>Vacation Year</th>
<th>Calendar Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>(established credits)</td>
<td>(to be taken)</td>
</tr>
<tr>
<td>July 1st</td>
<td>Jan 1st</td>
</tr>
<tr>
<td></td>
<td>Dec 31st</td>
</tr>
<tr>
<td></td>
<td>June 30th</td>
</tr>
</tbody>
</table>

6.3 Vacation Entitlement

Definition: The Employment Standards Act states that every employer shall give to each employee a vacation with pay of at least two weeks upon the completion of each 12 months of employment. The amount of pay for such vacation shall not be less than an amount equal to four percent (4%) of the wages of the employee in the 12 months of employment for which the vacation is given.

Wages are defined as any monetary remuneration payable by an employer to an employee under the terms of a contract of employment as well as any payment under the Employment Standards Act except vacation pay. Included in wages are termination pay, overtime pay, holiday pay, sick pay, equal pay adjustments, shift differentials, premiums for weekend or holidays, on-call and standby.

Wages do not include vacation pay previously paid in the 12-month period, supplementary unemployment benefits, tips or other gratuities, gifts and bonuses that are dependent on the discretion of the employer and are not related to hours, production or efficiency. Also excluded are travelling allowances or expenses, contributions made by an employer to pension funds, unemployment insurance, death grants, disability plans, accident plans, sickness plans, medical plans, nursing plans or dental plans.

Where an employee receives a greater benefit for vacation or vacation pay, that benefit will prevail over the conditions set out in the Employment Standards Act.

The amount of pay for a vacation shall be not less than an amount equal to four percent (4%) of the accumulated wages of the employee in the 12 months of employment for which the vacation is given and in calculating wages no account shall be taken of any vacation pay previously paid.
Regular Employees

A regular employee shall be eligible for a vacation of:

Less than One Year's Service by June 30th: One working day for each full month of service completed between June 30th of the previous year and July 1 of the current year up to a maximum of two weeks (10 working days).

The employee shall be paid four percent (4%) of the accumulated wages in the year for which the vacation is given.

For One Year and Less Than Three Years' Service: 10 working days (two weeks) annually. Vacation pay shall equal 10 days' base earnings or four percent (4%) of accumulated wages, whichever is greater.

For Three to Seven Years of Service: 15 working days (three weeks) annually when an employee has completed from three to seven years of service by the end of any calendar year. Vacation pay shall equal 15 days' base earnings or four percent (4%) of accumulated wages whichever is greater.

For Eight to Fifteen Years of Service: 20 working days (four weeks) annually when an employee has completed 8 to 15 years of service by the end of any calendar year. Vacation pay shall equal 20 days' base earnings.

For Sixteen to Twenty-Four Years of Service: 25 working days annually when an employee has completed 16 to 24 years of service by the end of a calendar year. Vacation pay shall equal 25 days' base earnings.

In the year in which the employee is first eligible for 25 working days' vacation, he/she shall be granted it in one continuous period if he/she so requests.

NOTE

Employees hired on the first working day of January shall be deemed to have completed a calendar year on December 31st of the same year.

For Twenty-Five or More Years of Service: 30 working days' vacation in the calendar year in which he/she completes 25 years of service, and in each succeeding year.

Vacation Bonus

In the calendar year in which a regular employee completes:

- 26 years' service - 1 day's base pay
- 27 years' service - 2 days' base pay
- 28 years' service - 3 days' base pay
- 29 years' service - 4 days' base pay
- 30 years' service - 5 days' base pay
- 31 years' service - 6 days' base pay
- 32 years' service - 7 days' base pay
33 years' service - 8 days' base pay
34 years' service - 9 days' base pay
35 years' service - 10 days' base pay and beyond

The vacation bonus shall be calculated on the employee's base rate of pay as of July 1st of the year in which the bonus is payable. These bonuses are payable on the closest payday to July 1st of each year.

Regular Part-Time Employees

Regular part-time employees are eligible for paid vacation time off. The entitlement is based on calendar years of service and payment for time off is calculated on a pro-rata basis. (Ref. Part A, Item 1.2.2).

Probationary Employees

A probationary employee shall be entitled to a vacation of one working day for each full month of service completed between June 30th of the previous year and July 1st of the current year up to maximum of two weeks (10 working days).

Four percent (4%) of the total pay of the employee shall be paid in the year for which the vacation is given - whichever is greater.

Temporary Employees Made Regular

On attaining regular status, temporary employees will receive vacation entitlement for all service as defined in Part A, Item 5.2.2.

Temporary Employees

For less than one year's accumulated service: Entitled to a cash vacation allowance of four percent (4%) of all accumulated wages.

6.4 Special Provisions and Allowances

6.4.1 Deferment or Interruptions of Vacations

Reimbursement will be made for out-of-pocket expenses incurred by an employee who, at the request of the Company, either defers an approved vacation or returns before the vacation has expired.

When an employee is called back from vacation or when an employee's vacation is cancelled at the request of the Company, the employee shall receive premium rates of pay for all normal hours worked on cancelled vacation days for which seven calendar days' notice has not been given up to a maximum of seven calendar days.

NOTE

In the above cases, the deferred or interrupted vacation days are to be rescheduled at a later date subject to Items 6.1 and 6.5.
6.4.2 Statutory Holidays and Vacations

If statutory holidays, to which an employee is entitled with pay, occur within his or her vacation period, the employee shall be granted an additional day's vacation for each in lieu thereof.

6.4.3 New Employees

An employee joining the staff between January 1st and June 30th and taking a vacation before July 1st, shall receive only the days allowed for service to the date of commencing the vacation. Any remaining days credited for service between the vacation commencement date and June 30th shall be taken between July 1st and December 31st.

An employee joining the staff between January 1st and June 30th and taking his vacation after July 1st, shall receive only the days allowed for service to June 30th.

If an employee joins the staff between July 1st and December 31st, no vacation allowance can be used until after December 31st.

6.4.4 Re-engaged Employees

An employee whose employment is terminated and who is re-engaged within 12 months of termination shall be granted a vacation allowance based on the employee's re-established service credit (see Part A, Item 5.0). However, the initial vacation allowance, while prorated on the same basis as above, must be taken as outlined in Item 6.4.3.

6.5 Postponed Vacations

6.5.1 With the exception of new employees as outlined in Item 6.4.3, vacations appropriate to the particular calendar year may be granted at any time but normally must be completed by the end of that year. Carry-over or postponement of vacations beyond the end of that year shall be in accordance with the following:

1. Where it is mutually agreeable, the employee may carry-over a maximum of two week's vacation to the following year (to be taken by April 30th of that following year). Request for carry-over must be made prior to September 1st.

2. Under special extenuating circumstances (as identified in Subsections 6.4.1, 6.5.2 and 6.5.4), application for postponement or carry-over of more than two week's vacation may be made to the respective director, or official of equivalent rank, but the vacation must be completed by April 30th of the next year.

3. Upon eligibility of 25 working days (5 weeks) of annual vacation, employees may defer and accumulate any vacation entitlement beyond 15 days per year. A maximum of 30 weeks' vacation may be banked. Banked vacation may be taken at a later date, subject to the supervisor's approval, or may be taken as a cash payment upon retirement.
6.5.2 An employee who is on sick leave shall not be granted a vacation until judged fit to return to work. If still disabled when sick leave credits expire, however, the employee may be placed on earned vacation.

6.5.3 An employee who becomes ill while on vacation shall not be placed on sick leave until after termination of the vacation. Under exceptional circumstances in case of very serious illness, sick leave may be granted at the discretion of the Chief Physician/Manager Health Services. The employee would then be entitled to the unused portion of his/her vacation after recovery from the illness.

Minor illnesses and injuries may cause some degree of discomfort or disability to an employee while on vacation. Yet for the most part, these do not necessitate complete removal from the vacation setting or loss of the beneficial effects of the holiday. However, when an employee on vacation becomes seriously ill or injured and as a result must be removed from vacation setting entirely, he or she should be entitled to sick leave.

The decision as to when an illness or non-occupational injury is sufficiently severe to justify transfer from vacation to sick leave should be made on medical grounds and rests with the Health and Safety Division. Normally hospitalization or complete confinement to bed in the home under regular physician's care have been the criteria used to judge severity, often after consultation with the attending doctor. "Exceptional circumstances" may include a number of things such as hospitalization, the need to be flown home from a trip abroad, becoming seriously ill on the first day of vacation, etc.

The decision to transfer from vacation to sick leave must be based on reliable medical evidence and made by a physician in the Health and Safety Division. All cases of requests for such consideration should be referred to the Health and Safety Division without exception.

6.5.4 Where an employee is on sick leave or workers' compensation and thereby is unable to use his or her vacation credit during the current year such vacations may be carried over to the following year in accordance with Items 6.1 and 6.5.1. Any outstanding vacation credit that has not been approved for carry over into the next year shall be paid out by Dec. 31st of the current year.

6.6 Vacation Payment on Termination

An employee whose service is terminated by the Company or by resignation shall be entitled to a cash payment in lieu of an outstanding vacation allowance, calculated proportionately from July 1st marking the beginning of the 12-month period in which the vacation entitlement applies. Upon the death of an employee, his or her estate shall be entitled to the same payment.

The payment will be based on:

1. Four percent (4%) of accumulated wages for an employee entitled to the prorated amount of 10 working days annually.
NOTE

In each of the following subsections, the minimum amount to be paid must be at least four percent (4%) of accumulated wages (see Definition, Item 6.3) of the employee in the year for which the vacation is earned.

2. Six percent (6%) of base earnings to date for an employee entitled to 15 working days annually.

3. Eight percent (8%) of base earnings to date for an employee entitled to 20 working days annually.

4. Ten percent (10%) of base earnings to date for an employee entitled to 25 working days annually.

5. Twelve percent (12%) of base earnings to date for an employee entitled to 30 working days annually.

The value of the vacation bonus will be based on the employee’s base rate at the time of termination. The vacation bonus for the incomplete year of service is pro-rated for the number of completed months from the employee’s ECD to the date the employee terminates.

Vacation allowance regulations for employees whose service is terminated owing to retirement on early, normal, disability or postponed pension are in accordance with the above.

6.7 Retirement Bank

An employee may defer vacation equivalent to the banked time earned in Part A, Item 30 into the Retirement Bank to a maximum of their annual vacation entitlement but at no time greater than 141 hours annually.

The deferred vacation in the Retirement Bank may only be taken after the employee has become eligible for an undiscounted pension. The employee may utilize the Retirement Bank by:

- Taking the time off immediately prior to retirement; or
- Cash out the full amount upon retirement or termination; or
- A combination of time taken immediately prior to retirement and cash out upon retirement.

When the employee takes deferred vacation from their Retirement Bank in the form of time off, they will receive their base pay and accrue pensionable service. Once these deferred vacation weeks are taken the employee must retire.

If an employee retires or terminates with time in the Retirement Bank such time will be paid out.

For further clarity when the employee takes time from the Retirement Bank, such time must be taken by the employee in one consecutive period after they become eligible for an undiscounted pension and immediately preceding their retirement.

The Retirement Bank may not exceed 2080 hours (52 weeks).
The Company shall contribute 7 hours for every 40 hour block of time that a shift worker, contributes to the Retirement Bank, up to a maximum Company contribution of 21 hours per calendar year.

This clause is only applicable to shift workers who are scheduled to work the majority of a 12 month (calendar year) schedule consisting of twelve (12) or eight (8) hour rotating shifts required for continuous 24-hour operations.

Should any employee who utilizes this provision and fails, by their choice, to work the majority of the year on shift, the Company will recoup their contribution from the employee’s retirement bank.

The Company will not recoup any contribution from an employee where they are assigned off shift, preventing them from working the majority of the year.

7.0 STATUTORY HOLIDAYS

7.1 Recognized

The days listed below will be recognized by the Company as statutory holidays, regardless of any conflict between these holidays and those declared as statutory holidays by municipal, provincial or federal statutes.

<table>
<thead>
<tr>
<th>New Year’s Day</th>
<th>Civic Holiday</th>
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<tbody>
<tr>
<td>Family Day</td>
<td>Labour Day</td>
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<tr>
<td>Good Friday</td>
<td>Thanksgiving Day</td>
</tr>
<tr>
<td>Easter Monday</td>
<td>Christmas Day</td>
</tr>
<tr>
<td>Victoria Day</td>
<td>Boxing Day</td>
</tr>
<tr>
<td>Canada Day</td>
<td></td>
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</tbody>
</table>

When Canada Day falls on a Saturday or a Sunday it shall be observed on the following Monday.

In the event that Boxing Day or New Year’s Day falls on a Sunday, it shall be observed on Monday. Similarly, if Christmas Day falls on a Sunday, it shall be observed on Monday and Boxing Day on Tuesday.

When Christmas falls on Tuesday, Boxing Day shall be observed on Monday.

All regular and probationary employees shall be paid for statutory holidays.

A statutory holiday falling within an employee’s vacation period shall not be counted as part of his/her vacation but shall be taken as an extra day of holiday.

Regular part-time employees will be entitled to statutory holiday pay as identified in the Collective Agreement consistent with the Employment Standards Act.

Payment for such statutory holidays will be the amount the employee would normally earn on a scheduled day of work.
7.2 Sick Leave Credits

If an employee is not scheduled to work on a statutory holiday and falls sick, his/her pay for that day will not be charged against his/her sick leave credits and he/she will receive payment at 100 percent (100%) of his/her normal daily base earnings.

If an employee is scheduled to work on a statutory holiday and falls sick, that day is treated as a normal sick day and the employee would receive a lieu day at a later date.

8.0 FLOATING HOLIDAYS

Regular, regular-seasonal and probationary employees who have accumulated 20 weeks' continuous service in any calendar year will be entitled to three floating holidays subject to the following:

1. Floating holidays may be taken on such days as the employee and his/her supervisor mutually agree upon, following reasonable advance notice on the part of the employee.

2. Floating holidays shall not be carried over into the following year unless work considerations prevent the employee from taking the floater(s) in the year of entitlement.

3. Where the employee is unable to reach mutual agreement with his/her supervisor to take his/her floating holiday(s) before year-end because of absence due to illness (except when exhausting sick leave prior to LTD) unused floating holidays will be assigned on the last working day(s) of the year.

4. Where an employee falls sick on his/her scheduled floating holiday, that day will not be charged against his/her sick leave credits, but shall be treated as a floating holiday for pay purposes.

5. Regular and probationary employees may take their floating holiday(s) before accumulating 20 weeks' service in a calendar year.

6. Regular part-time employees are entitled to three (3) floating holidays upon completing 20 weeks of service. Pay treatment for the three (3) days is on a pro-rata basis. (Ref. Part A, Item 1.2.2)

7. Entitlement on Termination: If the employee terminates after having accumulated 20 weeks' service in the calendar year, the Company will make a cash payment in lieu of any unused floating holiday credit.

If the employee terminates prior to accumulating 20 weeks' service in the calendar year, entitlement will be as follows:

(a) If the employee has not qualified for entitlement in the previous year, he/she will have no entitlement in the current year. If he/she was granted a floating holiday under 5. above, the Company will recover one day's pay for each floating holiday taken.

(b) If the employee has qualified for entitlement in the previous year, his/her entitlement will be prorated based on the number of weeks' accumulated service in the year of
termination. For example, an employee who terminates after accumulating five weeks’ service in the year would be entitled to 5/20ths of three days.

The Company will either make a cash payment in lieu of any unused floating holiday credit or recover the value of the unearned portion of floating holidays taken under 5. above.

In no case will an employee be entitled to more than three floating holidays or floating holiday credit in a calendar year.

9.0 SPECIAL TIME OFF

9.1 Additional Time Off at Christmas and New Year’s Holidays

When Christmas falls on Friday and Boxing Day on Saturday, an additional half holiday will be granted employees on the preceding Thursday.

When Christmas falls on Saturday and Boxing Day on Monday, an additional half holiday will be granted employees on the preceding Friday.

When Christmas falls on Wednesday, the Friday following Boxing Day shall be granted as an additional holiday.

When New Year’s Day falls on a Saturday, an additional holiday shall be granted on either the preceding Friday or the following Monday.

Those regular part-time employees whose regular scheduled day of work falls on the holidays referenced above shall be granted the time off and compensated at a rate equal to their normal daily earnings.

9.2 Payment for Time in 9.1

Eligible employees required to work during the days in 9.1 shall be paid as follows:

1. If employees are normally scheduled to work and are required to work on such a day, they shall be paid straight time for such work within normal scheduled hours and given equivalent time off with pay, up to a maximum of normal scheduled hours, within the following six months.

2. If employees are not normally scheduled to work on such a day and are required to work, they shall be paid at the rate normally paid for overtime work.

3. Eligible shift employees on a seven-day coverage basis whose normal scheduled day off falls at such designated time, shall be allowed equivalent time off with pay, within the following six months.
9.3 Remembrance Day

The following employees will be eligible for time off and/or payments as described in 9.4.

1. Those employees who are serving or have served in the Canadian Forces including those who are currently active in the reserve component, or who were deployed as part of the Canadian Forces.

9.4 Remembrance Day Payment and Time Off Provisions

If on Remembrance Day eligible employees as described in 9.3 are:

1. Normally scheduled to work, eligible employees shall be allowed time off with pay, at straight time for scheduled hours as far as work schedules will permit.

2. Scheduled to work and they are required to work, they shall be paid at the rate that normally applies for that day and given equivalent time off with pay, at straight time up to a maximum of normal scheduled hours, within the following six months.

3. Not normally scheduled to work and they are required to work, they shall be paid at the rate normally received for overtime work.

4. Shift workers on a seven-day coverage who are on a regular day off, shall be allowed equivalent time off with pay within the following six months.

9.5 Treatment for Vacation

Special time off, as noted in 9.1 and 9.3, falling within eligible employees' vacation period shall not be counted as part of their vacation but shall be taken as additional time off.

9.6 Sick Leave Credit

When special time off, as noted in 9.1 and 9.3 occurs while eligible employees are on sick leave credit, their pay will not be charged against sick leave credits and they will receive 100% payment at their base rate for normal scheduled hours.

10.0 LEAVE OF ABSENCE

10.1 With Pay

Occasionally, an employee will be in a situation where there is no reasonable alternative to being absent from work for personal reasons. Sometimes the employee will, at the same time, be committed to considerable additional expense. Provision is made so that the Company may ameliorate the hardship to the employee, which may result.
10.1.1 General

When in the Company’s judgment the circumstances warrant such action, leave of absence with pay will normally be granted.

This leave is based upon reasons of personal emergency, such as severe illness in the immediate family which would necessitate remaining home until adequate arrangements could be made for outside help, or being in close attendance at a hospital. Also, in cases where an employee is faced with the effects of a severe storm, fire or flood.

10.1.2 Funerals

A regular employee may be released from duty for a period up to three days without reducing base earnings in the event of the death of a member of the immediate family including parent, parent-in-law, brother, brother-in-law, sister, sister-in-law, spouse, son, son-in-law, daughter, daughter-in-law, grand-parents, grandparents-in-law and grandchildren.

In the event of the death of a fellow employee, a regular employee may be allowed time off with pay to attend the funeral. Usually the time required is less than one-half day. Regular part-time employees shall be granted the time off with pay if scheduled to work.

NOTE

Item 10.1.2 is a guide applicable under ordinary circumstances, on the distinct understanding that it does not set rigid limits either maximum or minimum.

10.1.3 Service with Reserve Components of the Canadian Forces

A regular employee who serves with the Reserve Component of the Canadian Forces and can be released from work may be granted a leave of absence in order to attend annual training or a forced call out.

Top up for Annual Training

For the period of time the employee attends annual training the employee will be paid the difference between the gross amount received from the Department of National Defence for the full training period and base earnings for the period of absence. The employee will be required to furnish his/her supervisor with a statement from the commanding officer or Finance Department of the reserve unit, showing the amount received from the Department of National Defence for the training period.

10.1.4 Legal Hearings

Base earnings will be maintained when an employee is called for jury duty or is subpoenaed to appear in court as a witness except in cases involving inter-union jurisdictional disputes.
10.2 Equivalent Time Off Without Pay

Employees who have worked overtime may be granted one hour off for each hour worked, without pay, in increments of not less than one-half day, provided the employee requests the time off and the workload permits.

10.3 Family Care

A regular employee is entitled to take up to five (5) days per calendar year for the purpose of providing family care to an immediate family member. The employee must pay this time back at a time mutually agreed to by his/her supervisor within three months of taking the absence or by taking time off without pay. The time taken shall be worked back on an hour for hour basis.

11.0 PREGNANCY/ ADOPTION/PARENTAL LEAVES

11.1 General Provisions

To be eligible the employee must have worked for the Company for a period of at least 13 weeks preceding the estimated delivery date or have been employed by the Company for 13 weeks by the date on which the child comes into the custody, care and control of the parent for the first time.

These leave provisions are available to all categories of employees. In addition, regular employees including regular part-time employees eligible for pregnancy leave or adoption leave are entitled to supplementary unemployment benefits (Ref. 11.4).

Pregnant employees are entitled to pregnancy leave including those women whose pregnancies are terminated by still-birth or miscarriage within 17 weeks of the expected birth date (Ref. 11.2). Following the birth of the child, the employee is also eligible for parental leave. (Ref. 11.5)

Adoption leave is available to the parent who is designated as the primary caregiver (Ref. 11.3). Parental leave is also available to such an employee (Ref. 11.5).

Parental leave is also available to employees not eligible for pregnancy or adoption leave but who have become the parent of a child (e.g. an employee whose spouse has given birth to a child or the adoptive parent who is not the primary caregiver. Ref. 11.5).

A leave extension is available to employees who take a pregnancy leave followed by a parental leave (Ref. 11.6).

Service credit will be granted for the full duration of such leaves.

Two weeks' notice is required for such a leave, except as noted in 11.2.2. The commencement date can be advanced or delayed upon the giving of a further two weeks notice. Similarly, the termination date can be advanced or delayed upon giving four weeks notice.
Eligibility for such leave does not necessarily mean the employee is entitled to EI benefits. However, EI benefits may be available in the case of such a leave and employees should be referred to the nearest EI office to check their entitlement.

The Company will continue for the duration of any such leave to pay the same share of the premiums for OHIP, EHB, Dental Plan, Life Insurance and Pension Plan that it would normally pay for the employee. This will not apply with respect to any benefit plan where the employee is normally required to make an employee contribution and he/she has given the Company written notice that he/she does not intend to pay such contributions.

An employee going on such a leave may prepay his/her pension contributions prior to taking the leave or make up contributions on return to work to establish pensionable service for the period of absence. Prior to the leave, he/she must sign the appropriate forms indicating whether or not he/she wishes to prepay the pension plan contributions.

Positions temporarily vacated as a result of a pregnancy/adoption or parental leave will be filled on a temporary basis only until the employee on leave returns.

Provided the employee returns to work no later than the expiration of his/her leave entitlement, he/she will be offered:

(a) The position most recently held if it still exists at a rate of pay not less than his/her wages at the commencement of the leave or if greater the wages that the employee would be earning had the employee worked throughout the leave.

(b) Should the position most recently held not exist as a result of a surplus in the unit in accordance with Article 11 he/she will be offered a comparable position at the location he/she was previously working at a rate of pay not less than his/her wages at the commencement of the leave or if greater the wages that the employee would be earning had the employee worked throughout the leave.

(c) Should (a) or (b) not exist he/she will be declared surplus in accordance with Article 11.

The granting of extensions to the normal 90-day acting period for positions vacated by an employee on pregnancy/adoption/parental leave shall be automatic. The Union chief steward shall be advised of all cases where this subsection applies.

11.2 Pregnancy Leave - General

Prior to commencing pregnancy leave, the female employee must indicate in writing her desire to return to work following her pregnancy.

The Canadian Human Rights Act requires the employer to accommodate the needs of pregnant employees in the workplace, unless to do so would cause undue hardship to the business. If a pregnant employee is unable to work in her regular work location because of the possible radioactivity level, her normal base rate of pay will be maintained during the period of relocation.
11.2.1 Duration of Leave

An eligible female employee may apply for pregnancy leave, to commence after the 22nd week of pregnancy for a duration of up to 17 weeks.

The pregnancy leave of an employee who is not entitled to take parental leave ends on the later of the day that is seventeen weeks after the pregnancy leave began or the day that is six weeks after the birth, still-birth or miscarriage.

NOTE

Female employees who are the parent of a child are entitled to parental leave in addition to pregnancy leave. Parental leave is described in 11.5. Unless otherwise mutually agreed, parental leave must immediately follow the pregnancy leave unless the child has not come into the custody, care and control of the parent for the first time.

11.2.2 Physician's Certificate

When a female employee applies for pregnancy leave she must provide her supervisor with a certificate from her physician stating that she is pregnant and giving the estimated date of delivery at least two weeks prior to the date she plans to commence the leave.

In the case of a female employee who stops working prior to the commencement of her scheduled leave because of a birth, still-birth or miscarriage that happens earlier than the employee was expected to give birth, that employee must, within two weeks of stopping work, give her supervisor:

(a) written notice of the date the pregnancy leave began or is to begin, and

(b) a certificate from a legally qualified medical practitioner that,

(i) states the date of the birth, still-birth or miscarriage and the date the employee was expected to give birth.

When a female employee resigns without notifying her supervisor that she is pregnant and she has not applied for pregnancy leave, but within two weeks following her resignation, provides her supervisor with a certificate from her physician stating she was unable to perform her job duties because of a medical condition arising from her pregnancy and giving the estimated or actual delivery date, she shall be entitled to pregnancy leave if it is requested.

NOTE

The supervisor should obtain the advice and assistance of Health Services Division if clarification is required.
11.2.3 Pregnancy and the Sick Leave Plan

Normal pregnancy leading to confinement is not an illness under the terms of the Sick Leave Plan. However, absences due to pregnancy-related illnesses or complications shall be considered as sick leave under the terms of the sick leave plan.

11.3 Legal Adoptions -- Primary Care-Giver

In cases of legal adoption where the child is raised in the home the following will apply after receipt of the child.

1. Where the child is less than elementary school age, the primary caregiver will be granted leave of up to 17 weeks.

2. Where the child is elementary school age or older and the primary caregiver requests leave, the duration will be based on the recommendation of the adoption agency with the final decision being made by the Company’s Chief Physician.

3. The primary caregiver is also entitled to parental leave (Ref 11.5).

11.4 Benefits Under the Supplementary Unemployment Benefit Plan for Regular Employees

Provided they qualify for EI payments regular employees who are eligible for pregnancy leave or parental leave shall be paid a benefit in accordance with the Supplementary Unemployment Benefit Plan. In order to receive this benefit, the employee must provide the Company with proof that he/she has applied for and is eligible to receive unemployment insurance benefits pursuant to the Employment Insurance Act. The grant payment may only be paid upon receipt of proof that the employee is eligible for EI benefits. The simplest "proof of eligibility" is the counterfoil from the employee’s first EI cheque.

According to the Supplementary Unemployment Benefit Plan payment will consist of:

1. For those on pregnancy leave, two weeks at 93 percent (93%) of the employee's base pay.

2. For those on pregnancy leave, up to fifteen additional weekly payments dependent on the length of his/her EI entitlement, equivalent to the difference between the unemployment insurance benefits the employee is eligible to receive and 93 percent (93%) of the employee's base pay.

3. For those on parental leave, the equivalent of 93% of the employee's base pay for three weeks.

4. Other earnings received by the employee will be considered so that the total combination of SUB, EI benefit and other earnings will not exceed 93 percent of the employee's base pay.

These payments will only be made if the employee signs an agreement with the Company, providing:

(a) that he/she will return to work and remain in the Company’s employ for a period of six months from the date of return to work;

(b) that he/she will return to work on the date of the expiry of her pregnancy leave or his/her adoption, or parental leave, unless the employee is entitled to another leave provided for in this agreement;
that the employee recognizes that he/she is indebted to the Company for the payments received if he/she fails to return to work as per the provisions of subsections (a) and (b).

11.5 PARENTAL LEAVE

11.5.1 General

Employees who have been employed by the Company (including service with Ontario Hydro) for a period of at least 13 weeks by the date on which the child is born or comes into the custody, care and control of the parent for the first time are eligible for an unpaid parental leave. A parent includes a person with whom a child is placed for adoption and a person who is in a relationship of some permanence with a parent of a child and who intends to treat the child as his or her own.

11.5.2 Duration of Leave

Employees eligible for parental leave may take this leave beginning not later than 52 weeks of the child being born or coming into care. Unless otherwise mutually agreed females on pregnancy leave wishing to take a parental leave must commence parental leave immediately following the end of the pregnancy leave unless the child has not come into custody, care and control of the parent for the first time. The duration of this leave is up to 35 weeks. Those employees who do not take pregnancy leave and all other new parents can take up to 37 weeks of parental leave.

Employees who wish to take this leave must give the Company two weeks' notice in writing prior to the date the leave would begin and four weeks notice of the date the leave will end if they wish to terminate the leave prior to 35 or 37 weeks following the date the leave commenced.

An employee, who takes a pregnancy leave followed by a parental leave as per Item 11.2 and 11.5 may elect to have the total leave extended up to 56 weeks. This constitutes an extension of up to 4 weeks.

11.6 Service Credit

Employees who were granted pregnancy/adoption/parental leave from the Company or its predecessor, Ontario Hydro, on or after November 18th, 1990 will be eligible for service credit for the full duration.

11.7 Restoration of Previous Service

11.7.1 Female employees of the Company or its predecessor, Ontario Hydro, who were granted maternity leave will be eligible for service credit as follows:

(a) those employees who took normal maternity leaves will be eligible for service credit up to a maximum of 17 weeks.

(b) those employees who took extended maternity leaves on or after April 1st, 1977 will be eligible for service credit for the full duration.
12.0 DISABILITY BENEFITS AND INCOME PROTECTION

12.1 Sick Leave Plan

The benefits of the Company’s Sick Leave Plan shall be considered as part of this Agreement. However, it is recognized that its provisions are not an automatic right of an employee and the administration of this plan and all decisions regarding the appropriateness or degree of its application shall be vested solely in the Company.

The Company’s Sick Leave Plan will provide that probationary and regular employees will commence with a credit of eight days at 100 percent (100%) and 15 days at 75 percent (75%) pay, payable from the first day of sickness. This credit will continue to be available until the employee attains his/her first annual accumulation date as a regular employee. At the time of this accumulation date and each subsequent accumulation date he/she will acquire additional credits of eight days at 100 percent (100%) pay and 15 days at 75 percent (75%) pay. The accumulation of credits will be subject to the provisions of the Company’s Sick Leave Plan.

Regular part-time employees shall receive a pro-rated number of sick days. When a regular part-time employee is absent due to illness on a scheduled day of work, they shall be paid for the hours of work scheduled for that day provided sick leave credits are available.

Normally employees will be expected to arrange routine medical or dental appointments during non-working hours. Where such appointments cannot be arranged during non-working hours and the employee can be released from his/her duties, then the time shall be charged against an employee’s sick leave time except in the case of medical appointments of less than half a day where normal earnings will be maintained.

Employees who are on sick leave for 30 days or more may be eligible to participate in a vocational rehabilitation program in accordance with the Company’s policy.

All major medical absence forms will be completed for any absence of four (4) continuous days/shifts or more or when requested by management. The Company will compensate the employee for the cost associated with completing these forms up to a maximum of $30.00. Additionally, the company will compensate the employee for the full cost of all medical notes, medical forms or medical information required to support LTD or other Wellness programs. This provision applies to Doctor’s notes requested by Line Management as part of the administration of the sick leave plan.

Employees will be required to submit all forms required by management through their personal physician.

Sick Leave benefits are conditional upon receipt of these forms and it is the responsibility of the employee to ensure that the employer receives these forms within a reasonable period of time.

Any discipline related to sick leave that is imposed and grieved by the union will be referred directly to Martin Teplitsky for resolution.
12.2 Long Term Disability

12.2.1 General Provisions of LTD Plan

The Long Term Disability (LTD) Plan provides financial security and rehabilitative employment features to regular employees during their absence from work due to extended sickness or injury. LTD benefits commence upon completion of the qualifying period, which is defined below. Regular employees who are approved for the provisions of the LTD Plan will be subject to the following contractual provisions.

All employees who are in receipt of LTD benefits will be eligible to participate in the Rehabilitation and Re-employment Programme dependent upon their medical suitability and procedural requirements.

DEFINITIONS:

LTD Qualifying Period - The qualifying period is defined as the period six calendar months from the starting date of the employee's continuous absence due to disability; or a total of six months in accumulative authorized medical absences in the year prior to the date sick leave expires due to the same progressively deteriorating disability; or the expiration of sick leave whichever is longer.

Disability Period - The period in which an employee cannot continuously perform the essential duties of any position available in accordance with the priority placement criteria of the Rehabilitation and Re-Employment Procedure.

Benefit Level - The Company agrees to assume the full cost of a LTD Plan for all regular employees. The Plan would provide for a monthly income during the disability period equal to the lesser of:

1. Sixty-five percent (65%) of base earnings at the end of the qualifying period for LTD benefits, or
2. Seventy-five percent (75%) of base earnings at the end of the qualifying period for LTD benefits less any compensation awards from the Workplace Safety and Insurance Board (WSIB) (excluding the Non-Economic Loss award) and/or the Canada Pension Plan, excluding benefits for dependents.

NOTE

Regular part-time employees shall be eligible for pro-rated income benefits.

Miscellaneous Provisions - A person who runs out of sick leave credits will be granted a leave of absence without pay until such time as the LTD qualifying period elapses. The employee will continue to receive service credit during this period and have coverage maintained in but will not be required to contribute to the Company’s Pension Plan, Health and Dental benefits, and the Company’s Group Life Insurance Plan.

Where an employee has been retrogressed to a lower-rated job for medical reasons and within two years (not including the LTD qualifying period) begins receiving a monthly income under the LTD Plan for reasons directly related to the original medical condition, the base earnings used to compute the LTD monthly income payment shall be the current rate of the employee’s original classification.

Exceptions and Limitations to the LTD Plan

LTD benefits will not be made available for claims resulting from:
1. A disability for which the person is not under continuing medical supervision and treatment considered satisfactory by the Insurance Carrier and the Company.

2. A disability caused by intentional self-inflicted injuries or illness while sane.

3. A disability from bodily injury resulting directly or indirectly from insurrection, war, service in the armed forces of any country, or participation in a riot.

4. Normal pregnancy leading to confinement.

5. Disability from occupational injuries for which the employee is receiving Total Temporary Disability Benefits or during the first 24 months of a Future Economic Loss Award or during the first 24 months from the date of Loss of Earning (LOE) Award from the Workplace Safety and Insurance Board.

No amount of LTD benefit will be payable with respect to the disability of an employee during any of the following periods:

1. If the disability is due to mental disorder, any period while the employee is not under the continuing care of a certified psychiatrist or other care authorized by the employee’s psychiatrist.

2. If the disability is due to substance abuse, alcoholism and/or drug addiction any period in which the employee is not certified as being actively supervised by and receiving continuing treatment from a rehabilitation centre or a provincially designated institution.

3. The period during which the employee is on leave of absence, including Pregnancy Leave of Absence. The LTD qualify period begins on the date the employee is expected to return to work from that leave of absence.

12.2.2 Benefits While on LTD

1. Service Credit: Service credit shall not continue while the employee is in receipt of LTD benefits. Upon return to work, service credit shall be applied as per Item 12.2.4.

2. Vacation Credit: Any outstanding vacation entitlement for a person going on LTD will be paid in cash upon expiry of sick leave. The cash payment will be calculated on the base earnings at the expiration of sick leave for the prorated days of vacation entitlement, any outstanding lieu days, any outstanding floating statutory holidays, and banked time for 40-hour per week employees. No vacation entitlement, floating holidays, or banked time for 40-hour per week employees accrues while a member is in receipt of LTD benefits.

3. Vacation Credit During Rehabilitation Employment: Vacation credits will be earned based on the hours worked and the employee’s vacation entitlement multiplied by the corresponding percentage listed below. These credits will be paid in cash in the last pay period of the year if not used by December 31, or upon return to regular employment, or upon termination.
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<td>10%</td>
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<td>30 working days annually</td>
<td>12%</td>
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4. The Company health and dental coverage premiums continue to be maintained by the Company.

5. The Company Pension Plan: The employee’s membership in the plan continues. Upon expiry of sick leave, the requirement for employee contributions is waived. An employee is not required to make contributions to the plan while he/she is receiving LTD benefits. The retirement pension continues to accumulate. Years of service continue to accumulate for entitlement to rights and benefits under the Pension Plan.

6. The Company Group Life Insurance Plan: Commencing the first day of the month following the end of the qualifying period for LTD benefits, an employee will continue receiving the same insurance option during receipt of LTD benefits as that in force prior to such receipt. An employee who is in receipt of LTD benefits is not required to make contributions to the Group Life Insurance plan.

7. Sick Leave Entitlement: Upon receipt of the memorandum from the Chief Physician recommending that the employee should make application for LTD benefits, entitlement to accumulate or restore sick leave credits shall cease on the day following the next accumulation date provided that it falls within the qualifying period.

8. Union Dues: Upon expiry of sick leave an employee’s Union dues shall cease.

9. Employee status will continue with respect to maintaining redress rights to contractual provisions.

12.2.3 Recurring Disability After Return to Regular Work

If, on return to regular employment after receiving disability benefits, a subsequent period of disability recurs within six months and is related to the cause of the previous disability, the following shall apply:

Entitlement to existing sick leave credits shall cease, the qualifying period shall be waived, and the employee shall immediately receive LTD benefits as if there had been no return to work.

12.2.4 Individual Returns to Regular Employment

1. Service Credit: Service Credit continues to accrue while on LTD.

2. Vacation Credit: The employee will start earning vacation credit based on total service credit.
3. The Company Health and Dental Coverage: Premiums continue to be maintained by the Company.


6. Sick Leave Entitlement: Eight days at 100 percent (100%) and 15 days at 75 percent (75%) pay shall be immediately credited. On the first accumulation date, restoration of sick leave credits will take place based on the total service credit. It is recognized that this provision is subject to the provisions of recurring disability as defined in Section 12.2.3.


12.2.5 Termination of LTD Benefits

The LTD benefit ceases when any of the following events occur:

1. The date the individual ceases to be totally disabled or engages in any occupation for wage or profit except as permitted by the Rehabilitative Employment Clause.

2. The date the individual reaches age 65.

3. The date the individual fails unreasonably to furnish proof of the continuance of such total disability, or fails to submit to an examination requested by the Plan's medical advisors. At that point all LTD benefits will cease and the employee will be terminated.

When an employee does not comply with the above requirements the Union will be informed and act as the employee's advocate prior to such termination.

4. The date the individual dies.

5. The date the individual receives pension under the Company Pension Plan.

12.2.6 Indexation

1. LTD Benefits: Individuals who are in receipt of LTD benefits will have their LTD benefit level indexed by the same amount that pensions are indexed.

2. Pension Calculation - Base Earnings: For the purposes of calculating the pension benefit for LTD recipients the base earnings at the end of the qualifying period will be increased by the amount of the indexation increase granted in 1. above.

3. Insurance Benefit - Base Earnings: It is agreed that for purposes of calculating the group life insurance benefit for LTD recipients, the base earnings at the end of the qualifying period will be increased by the amount of the indexation increase granted in 1. above.
12.3 Rehabilitation and Re-employment

Rehabilitative employment is an important feature of the Plan, which provides an employee with additional financial incentive and assistance to re-enter the work force. It is defined as any employment within the Company and remains in effect until the employee is offered regular employment.

If during the disability period, an employee becomes capable of working, the Company shall endeavour to provide an (disabled) employee with work he/she is capable of performing. It is recognized that an employee must be prepared to attempt rehabilitative employment. In the event the employee refuses reasonable rehabilitative or regular employment, he/she shall be terminated and forfeit all rights to LTD benefits.

During rehabilitative employment, remuneration will be prorated based on the hours worked and the hourly rate of the current base rate of the rehabilitative position. Employees will continue to receive approved LTD/Sick Leave benefits, however, the benefit level will be adjusted so that the total of the rehabilitative earnings and these benefits shall not exceed the current base rate of the position occupied prior to disablement.

After the employee has successfully completed his/her rehabilitative employment and has been placed in a regular job on a continuing capacity, he/she will be paid at the normal rate of the job in which he/she has been placed, subject to any applicable retrogression policy.

12.4 Workplace Safety and Insurance Board Payments

The Workplace Safety and Insurance Board (WSIB) is responsible for administering the Workplace Safety and Insurance Act, and payments will be made according to the provisions set out within that Act. Any future legislative or regulatory changes may necessitate further discussion on the part of both parties.

Pending the decision of the WSIB regarding entitlement to awards, an employee's normal earnings will be maintained at his/her current level of sick leave (i.e. 100%, 75%, 0%).

12.5 Supplementary Grant

12.5.1 Definition of Supplementary Grant

The supplementary grant is an amount equal to the difference between the WSIB award and the employee's normal earnings after income tax deductions.

NOTE

WSIB award for this section excludes permanent impairment awards granted for accident dates prior to January 1st, 1990, Non-Economic Loss Awards or Older Worker Supplements.

The employee's earnings for the purpose of calculating the supplementary grant will include only regular scheduled hours for a normal week.

The supplementary grant will be such an amount as to maintain the employee's normal net pay.
NOTE

Such a grant will not include payments for shift bonus, relief pay, overtime or premium hours or other payments which are not applicable when the employee is absent from and not available for work.

12.5. 2 Who Receives the Supplementary Grant

The supplementary grant will be made only to probationary and regular employees.

Employees who are receiving Workplace Safety and Insurance Board benefits for claims or injuries suffered while in the employ of an employer other than the Company are required to notify the Company of being in receipt of those benefits in order to qualify for the supplementary grant. These employees will not be eligible for sick leave while receiving Workplace Safety and Insurance Board benefits that qualify for the supplementary grant.

12.5. 3 Responsibility for Payment

The responsibility for payment will be in accordance with The Standard Authorities - Payroll Documents.

12.5. 4 Withholding the Grant

The award of the supplementary grant should not be withheld unless there is strong evidence of gross negligence or obvious misconduct on the part of the injured employee. The supplementary grant will be withheld if the employee is not co-operating in the Early and Safe Return to Work Process or a Labour Market Re-entry Plan or refuses a medically suitable position.

Authority for withholding the grant is vested in directors or construction managers in consultation with Human Resources and Compensation and Benefits.

12.5. 5 Payment While in Receipt of WSIB Award

An employee in receipt of Total Temporary Disability (TTD) benefits will receive the supplementary grant for the entire period. Upon notification of the amount of the FEL award and/or LOE award the Company agrees to pay supplementary grant monthly on the FEL award and/or Loss of Earning (LOE) award for a maximum of 24 months. Any workers’ compensation payments in excess of the FEL award and/or LOE award, excluding the Non-Economic Loss (NEL) award, shall be considered part of the FEL award and/or LOE award for purposes of calculating the supplementary grant. Upon request, the employee shall be paid out any outstanding vacation entitlement while payments are being processed.

For employees on rehabilitative employment the total compensation of FEL and/or WSIB Award plus rehabilitative earnings plus the Company supplementary grant shall not exceed 100% of the current rate of the pre-disability job.

If after 24 months in receipt of supplementary grant and a FEL award and/or LOE award the employee is still unable to return to work, he/she shall be placed on sick leave. The employee will continue to draw from his/her sick leave bank on a daily basis at the rate of half a day if the amount equal to the supplementary grant is equal to, or less than 4 hours, and a full day if the amount equal to the supplementary grant is greater than 4...
hours per day. While on approved sick leave, however, the benefit level will be adjusted so that the total of any WSIB award and the sick leave benefit shall not exceed the employee's current base rate. Upon expiry of sick leave, if the employee is still unable to return to work, he/she shall qualify for LTD less any award, pension entitlement and/or any supplement from the Workplace Safety and Insurance Board (excluding NEL award) and/or the Canada Pension Plan.

12.6 **Waiver of Posting or Selection**

If at any time an individual who is in receipt of LTD or Workplace Safety and Insurance Board benefits is capable of returning to any further service with the Company or if a medically suitable position becomes available for an employee who is medically restricted while at work or on sick leave, the Company will request, and the Union shall normally grant a waiver of posting or selection after considering all medically restricted employees eligible under the Rehabilitation and Re-Employment Policy.

12.0A **DISABILITY BENEFITS AND INCOME PROTECTION**

These Changes will take effect for new hires on January 1st, 2001

12.1A **Sick Leave Plan**

The benefits of the Company’s Sick Leave Plan shall be considered as part of this Agreement. However, it is recognized that its provisions are not an automatic right of an employee and the administration of this plan and all decisions regarding the appropriateness or degree of its application shall be vested solely in the Company.

The Company’s Sick Leave Plan will provide probationary and regular employees with substantial income protection regardless of their seniority. Probationary and Regular Employees will accumulate 8 sick leave credits (a credit equals 8 hours, 7.5 or 7 hours, whichever applies to the employee) per year of service at 100% of the employee’s base pay.

When employees have exhausted their sick leave credits, they will be paid at 75% of their base rate for a period of up to 6 months.

Employees who are on continuous sick leave for 6 months and who qualify will be placed on Long Term Disability (LTD).

In the event of denial of the LTD benefits the employee will have their wages maintained at 75% of base wages until completion of an LTD appeal process.

All major medical absence forms will be completed for any absence of **four (4) continuous days/shifts** or more or when requested by management. The Company will compensate the employee for the cost associated with completing these forms up to a maximum of $30.00. Additionally, the company will compensate the employee for the full cost of all medical notes, medical forms or medical information required to support LTD or other Wellness programs. This provision **applies** to Doctor’s notes requested by Line Management as part of the administration of the sick leave plan.

Employees will be required to submit all forms required by management through their personal physician.
Sick Leave benefits are conditional upon receipt of these forms, and it is the responsibility of the employee to ensure that the employer receives these forms within a reasonable period of time.

Any discipline related to sick leave that is imposed and grieved by the union will be referred directly to Martin Teplitsky for resolution.

Regular part-time employees shall receive a pro-rated number of sick leave credits. When a regular part-time employee is absent due to illness on a scheduled day of work, they shall be paid for the hours of work scheduled for that day provided sick leave credits are available.

Normally employees will be expected to arrange routine medical or dental appointments during non-working hours. Where such appointments cannot be arranged during non-working hours and the employee can be released from his/her duties, then the time shall be charged against an employee's sick leave time except in the case of medical appointments of less than half a day where normal earnings will be maintained.

Employees who are on sick leave for 30 days or more may be eligible to participate in a vocational rehabilitation program in accordance with the Company’s policy.

### 12.2A Long Term Disability

#### 12.2.1A General Provisions of LTD Plan

The Long Term Disability (LTD) Plan provides financial security and rehabilitative employment features to regular employees during their absence from work due to extended sickness or injury. LTD benefits commence upon completion of the qualifying period, which is defined below. Regular employees who are approved for the provisions of the LTD Plan will be subject to the following contractual provisions.

All employees who are in receipt of LTD benefits will be eligible to participate in the Rehabilitation and Re-employment Programme dependent upon their medical suitability and procedural requirements.

**DEFINITIONS:**

LTD Qualifying Period - The qualifying period is defined as the period six calendar months from the starting date of the employee's continuous absence due to disability; or a total of six months in accumulative authorized medical absences in the year prior to the date sick leave expires due to the same progressively deteriorating disability.

Disability Period - The period in which an employee cannot continuously perform the essential duties of any position available in accordance with the priority placement criteria of the Rehabilitation and Re-Employment Procedure.

Benefit Level - The Company agrees to assume the full cost of an LTD Plan for all regular employees. The Plan would provide for a monthly income during the disability period equal to the lesser of:

1. Sixty-five percent (65%) of base earnings at the end of the qualifying period for LTD benefits, or

2. Seventy-five percent (75%) of base earnings at the end of the qualifying period for LTD benefits less any compensation awards from the Workplace Safety and Insurance Board (WSIB)
(excluding the Non-Economic Loss award) and/or the Canada Pension Plan, excluding benefits for dependents.

NOTE

Regular part-time employees shall be eligible for pro-rated income benefits.

Miscellaneous Provisions - A person who runs out of sick leave credits will be placed on 75% of their base pay until the LTD qualifying period elapses. The employee will continue to receive service credit during this period and have coverage maintained in but will not be required to contribute to the Company’s Pension Plan, Health and Dental benefits, and the Company’s Group Life Insurance Plan.

Where an employee has been retrogressed to a lower-rated job for medical reasons and within two years (not including the LTD qualifying period) begins receiving a monthly income under the LTD Plan for reasons directly related to the original medical condition, the base earnings used to compute the LTD monthly income payment shall be the current rate of the employee’s original classification.

Exceptions and Limitations to the LTD Plan

LTD benefits will not be made available for claims resulting from:

1. A disability for which the person is not under continuing medical supervision and treatment considered satisfactory by the Insurance Carrier and the Company.
2. A disability caused by intentional self-inflicted injuries or illness while sane.
3. A disability from bodily injury resulting directly or indirectly from insurrection, war, service in the armed forces of any country, or participation in a riot.
4. Normal pregnancy leading to confinement.
5. Disability from occupational injuries for which the employee is receiving Total Temporary Disability Benefits or during the first 24 months of a Future Economic Loss Award or during the first 24 months from the date of Loss of Earning (LOE) Award from the Workplace Safety and Insurance Board.

No amount of LTD benefit will be payable with respect to the disability of an employee during any of the following periods:

1. If the disability is due to mental disorder, any period while the employee is not under the continuing care of a certified psychiatrist or other care authorized by the employee’s psychiatrist.
2. If the disability is due to substance abuse, alcoholism and/or drug addiction any period in which the employee is not certified as being actively supervised by and receiving continuing treatment from a rehabilitation centre or a provincially designated institution.
3. The period during which the employee is on leave of absence, including Pregnancy Leave of Absence. The LTD qualify period begins on the date the employee is expected to return to work from that leave of absence.

12.2.2A Benefits While on LTD

1. Service Credit: Service credit shall not continue while the employee is in receipt of LTD benefits. Upon return to work, service credit shall be applied as per Item 12.2.4A.

2. Vacation Credit: Any outstanding vacation entitlement for a person going on LTD will be paid in cash upon expiry of sick leave. The cash payment will be calculated on the base earnings at the expiration of sick leave for the prorated days of vacation entitlement, any outstanding lieu days, any outstanding floating statutory holidays, and banked time for 40-hour per week employees. No vacation entitlement, floating holidays, or banked time for 40-hour per week employees accrues while a member is in receipt of LTD benefits.

3. Vacation Credit During Rehabilitation Employment: Vacation credits will be earned based on the hours worked and the employee's vacation entitlement multiplied by the corresponding percentage listed below. These credits will be paid in cash in the last pay period of the year if not used by December 31st, or upon return to regular employment, or upon termination.

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</table>

4. The Company health and dental coverage premiums continue to be maintained by the Company.

5. The Company Pension Plan: The employee's membership in the plan continues. An employee is not required to make contributions to the plan while he/she is receiving LTD benefits. The retirement pension continues to accumulate. Years of service continue to accumulate for entitlement to rights and benefits under the Pension Plan.

6. The Company Group Life Insurance Plan: Commencing the first day of the month following the end of the qualifying period for LTD benefits, an employee will continue receiving the same insurance option during receipt of LTD benefits as that in force prior to such receipt. An employee who is in receipt of LTD benefits is not required to make contributions to the Group Life Insurance plan.

7. Sick Leave Entitlement: Upon receipt of the memorandum from the Chief Physician recommending that the employee should make application for LTD benefits, entitlement to accumulate or restore sick leave credits shall cease on the day following the next accumulation date provided that it falls within the qualifying period.
8. Union Dues: Upon expiry of sick leave an employee's Union dues shall cease.

9. Employee status will continue with respect to maintaining redress rights to contractual provisions.

**12.2.3A Recurring Disability After Return to Regular Work**

If, on return to regular employment after receiving disability benefits, a subsequent period of disability recurs within six months and is related to the cause of the previous disability, the following shall apply:

Entitlement to existing sick leave credits shall cease, the qualifying period shall be waived, and the employee shall immediately receive LTD benefits as if there had been no return to work.

**12.2.4A Individual Returns to Regular Employment**

1. Service Credit: Service Credit continues to accrue while on LTD.

2. Vacation Credit: The employee will start earning vacation credit based on total service credit.

3. The Company Health and Dental Coverage: Premiums continue to be maintained by the Company.


6. Sick Leave Entitlement: Eight sick leave credits shall be immediately credited.


**12.2.5A Termination of LTD Benefits**

The LTD benefit ceases when any of the following events occur:

1. The date the individual ceases to be totally disabled or engages in any occupation for wage or profit except as permitted by the Rehabilitative Employment Clause.

2. The date the individual reaches age 65.

3. The date the individual fails unreasonably to furnish proof of the continuance of such total disability, or fails to submit to an examination requested by the Plan's medical advisors. At that point all LTD benefits will cease and the employee will be terminated.

When an employee does not comply with the above requirements the Union will be informed and act as the employee's advocate prior to such termination.

4. The date the individual dies.

5. The date the individual receives pension under the Company Pension Plan.
12.2.6A Indexation

1. LTD Benefits: Individuals who are in receipt of LTD benefits will have their LTD benefit level indexed by the same amount that pensions are indexed.

2. Pension Calculation - Base Earnings: For the purposes of calculating the pension benefit for LTD recipients the base earnings at the end of the qualifying period will be increased by the amount of the indexation increase granted in 1. above.

3. Insurance Benefit - Base Earnings: It is agreed that for purposes of calculating the group life insurance benefit for LTD recipients, the base earnings at the end of the qualifying period will be increased by the amount of the indexation increase granted in 1. above.

12.3A Rehabilitation and Re-employment

Rehabilitative employment is an important feature of the Plan, which provides an employee with additional financial incentive and assistance to re-enter the work force. It is defined as any employment within the Company and remains in effect until the employee is offered regular employment.

If during the disability period, an employee becomes capable of working, the Company shall endeavour to provide an (disabled) employee with work he/she is capable of performing. It is recognized that an employee must be prepared to attempt rehabilitative employment. In the event the employee refuses reasonable rehabilitative or regular employment, he/she shall be terminated and forfeit all rights to LTD benefits.

During rehabilitative employment, remuneration will be prorated based on the hours worked and the hourly rate of the current base rate of the rehabilitative position. Employees will continue to receive approved LTD/Sick Leave benefits, however, the benefit level will be adjusted so that the total of the rehabilitative earnings and these benefits shall not exceed the current base rate of the position occupied prior to disablement.

After the employee has successfully completed his/her rehabilitative employment and has been placed in a regular job on a continuing capacity, he/she will be paid at the normal rate of the job in which he/she has been placed, subject to any applicable retrogression policy.

12.4A Workplace Safety and Insurance Board Payments

The Workplace Safety and Insurance Board (WSIB) is responsible for administering the Workplace Safety and Insurance Act, and payments will be made according to the provisions set out within that Act. Any future legislative or regulatory changes may necessitate further discussion on the part of both parties.

Pending the decision of the WSIB regarding entitlement to awards, an employee's normal earnings will be maintained at his/her current level of sick leave (i.e. 100%, 75%, 0%).
12.5A Supplementary Grant

12.5. 1A Definition of Supplementary Grant

The supplementary grant is an amount equal to the difference between the WSIB award and the employee's normal earnings after income tax deductions.

NOTE

WSIB award for this section excludes permanent impairment awards granted for accident dates prior to January 1st, 1990, Non-Economic Loss Awards or Older Worker Supplements.

The employee's earnings for the purpose of calculating the supplementary grant will include only regular scheduled hours for a normal week.

The supplementary grant will be such an amount as to maintain the employee's normal net pay.

NOTE

Such a grant will not include payments for shift bonus, relief pay, overtime or premium hours or other payments which are not applicable when the employee is absent from and not available for work.

12.5. 2A Who Receives the Supplementary Grant

The supplementary grant will be made only to probationary and regular employees.

Employees who are receiving Workplace Safety and Insurance Board benefits for claims or injuries suffered while in the employ of an employer other than the Company are required to notify the Company of being in receipt of those benefits in order to qualify for the supplementary grant. These employees will not be eligible for sick leave while receiving Workplace Safety and Insurance Board benefits that qualify for the supplementary grant.

12.5. 3A Responsibility for Payment

The responsibility for payment will be in accordance with The Standard Authorities - Payroll Documents.

12.5. 4A Withholding the Grant

The award of the supplementary grant should not be withheld unless there is strong evidence of gross negligence or obvious misconduct on the part of the injured employee. The supplementary grant will be withheld if the employee is not co-operating in the Early and Safe Return to Work Process or a Labour Market Re-entry Plan or refuses a medically suitable position.

Authority for withholding the grant is vested in directors or construction managers in consultation with Human Resources and Compensation and Benefits.
12.5A Payment While in Receipt of WSIB Award

An employee in receipt of Total Temporary Disability (TTD) benefits will receive the supplementary grant for the entire period. Upon notification of the amount of the FEL award and/or LOE award the Company agrees to pay supplementary grant monthly on the FEL award and/or Loss of Earning (LOE) award for a maximum of 24 months. Any workers' compensation payments in excess of the FEL award and/or LOE award, excluding the Non-Economic Loss (NEL) award, shall be considered part of the FEL award and/or LOE award for purposes of calculating the supplementary grant. Upon request, the employee shall be paid out any outstanding vacation entitlement while payments are being processed.

For employees on rehabilitative employment the total compensation of FEL and/or WSIB Award plus rehabilitative earnings plus the Company supplementary grant shall not exceed 100% of the current rate of the pre-disability job.

If after 24 months in receipt of supplementary grant and a FEL award and/or LOE award the employee is still unable to return to work, he/she shall be placed on sick leave. The employee will continue to draw from his/her sick leave bank on a daily basis at the rate of half a day if the amount equal to the supplementary grant is equal to, or less than 4 hours, and a full day if the amount equal to the supplementary grant is greater than 4 hours per day. While on approved sick leave, however, the benefit level will be adjusted so that the total of any WSIB award and the sick leave benefit shall not exceed the employee's current base rate. Upon expiry of sick leave, if the employee is still unable to return to work, he/she shall qualify for LTD less any award, pension entitlement and/or any supplement from the Workplace Safety and Insurance Board (excluding NEL award) and/or the Canada Pension Plan.

12.6A Waiver of Posting or Selection

If at any time an individual who is in receipt of LTD or Workplace Safety and Insurance Board benefits is capable of returning to any further service with the Company or if a medically suitable position becomes available for an employee who is medically restricted while at work or on sick leave, the Company will request, and the Union shall normally grant a waiver of posting or selection after considering all medically restricted employees eligible under the Rehabilitation and Re-Employment Policy.

13.0 HEALTH INSURANCE PLANS

13.1 Regular Employees, Pensioners and Regular Employees Receiving Workplace Safety and Insurance Board Payments

Subject to the condition that employees enroll their spouse and dependent children, the Company agrees to pay 100 percent (100%) of the premiums for:

Exception: Regular part-time employees shall be eligible for Health Insurance Plan coverage. Such employees will be required to pay costs of premiums (except OHIP) based on hours not worked divided by the regular hours of the classification. If he/she elects not to pay, coverage will not be provided.

1. OHIP - Covers medical and standard ward hospital services.
2. Supplementary Plan - Covers semi-private hospital services.

3. Ontario Power Generation Extended Health Benefit Plan - Coverage details are contained in the current brochure entitled "Power Workers' Union Employees, Pensioners and Dependents Health and Dental Benefits Understanding Your Plan."

4. Ontario Power Generation Group Dental Insurance Plan - Coverage details are contained in the current brochure entitled "Power Workers' Union Employees, Pensioners and Dependents Health and Dental Benefits Understanding Your Plan."

An employee may voluntarily discontinue coverage in plans 2., 3. and 4. Upon re-entry, and depending upon the terms of each plan, a waiting period must be satisfied before services will be covered. This would not apply to changes relating to marital/dependents status.

Effective January 1st of each year of the Collective Agreement, dentist fees will be paid up to the amounts shown in the current ODA Fee Guide.

13.2 Probationary Employees

The Company will pay 100 percent (100%) of all claims and fees for all probationary and regular employees who are covered by the Semi-Private Hospital Accommodation Plan, and Power Workers' Union Employees, Pensioners and Dependents Health and Dental Benefits Understanding Your Plan. Coverage will commence on the employee’s Established Commencement Date and will cease on the employee’s termination date.

The Company will pay 100 percent (100%) of OHIP premiums commencing the second month of employment.

14. PENSION AND INSURANCE

14.1 Pension Plan

As soon as is practicable following ratification, the parties agree to form a joint team to discuss the advantages of introducing a defined contribution pension plan as an option for employees who wish to be members of such a plan.

Effective April 1st, 2002, the rules of the pension plan will be amended to allow employees to retire/start any day of the month.

Effective April 1st, 2002, the pension plan will be amended to provide for the reduction of the CPP integration adjustment factor from .625% to .500%. At the same time the plan will be amended to provide for employees’ contribution to increase by .5% when the assets fall below 106% of the liabilities based upon a solvency valuation.

14.1.1 The OPGI Pension Plan forms part of this Collective Agreement and is generally described in the current brochure "Your Pension Plan".

Changes to the plan affecting employees within the jurisdiction of the Union shall be subject to the following:
1. Changes other than legislative changes shall be made only upon mutual consent.

2. Ontario Power Generation shall not request legislation or Order-in-Council approval for proposed regulations or make rules which would change employee benefits unless upon mutual consent. Moreover, Ontario Power Generation will not unilaterally seek legislation to change access to surplus unless upon mutual consent.

3. In the event of the enactment of any general* pension legislation applicable to the employees of Ontario Power Generation, amongst others, Ontario Power Generation may, after notification to the Union, effect amendment of the Plan provided that the combination of benefits resulting from the Plan as so amended and such legislation will not be less in the aggregate than the benefits now provided.

*As opposed to legislation initiated by the Company as in Item 14.1.1(2.).

14.1.2 Pension items will be submitted at the time that regular amendments to the Collective Agreement are submitted and will be negotiated at the time of regular bargaining.

14.1.3 The interest rate on contributions returned to terminated employees will be calculated as set out in the OPGI Pension Plan.

14.1.4 Integration with Other Benefits: Pension disability to be discontinued upon implementation of LTD Plan. Those presently on pension disability to continue under the existing provisions.

14.1.5 In recognition of proposed benefit improvements the Union agrees that the value of any EI rebate shall accrue to Ontario Power Generation.

14.1.6 Early Retirement - Without Discount

1. Rule of 82

Effective July 1st, 2000, any member who on the date of retirement is represented by the Power Workers Union may, on or after the first day of the month in which the sum of the member's age in years and years of continuous employment is equal to or greater than eighty two, receive a pension that is 100 percent of the member's earned pension computed in accordance with the rules of the pension plan, in particular, rule 15.

2. Employees who do not qualify for an unreduced early retirement pension under 14.1.7(1) or 14.1.7 (2) may retire without discount after completing 35 years of continuous service.
Early Retirement Discounts

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**NOTE**

The above factors apply to employees who do not otherwise qualify for undiscounted early retirement pension.

14.1.7 Early Retirement - With Discount

1. The early retirement discount factors shown in Table 1 are for employees with 25 or more years' continuous service who do not qualify for undiscounted early retirement pension.

2. All employees who terminate and vest their pension will be entitled to the same early retirement discount as set out under 1. above provided they had completed 25 years' continuous service by the date of their termination.

3. The early retirement discount factors shown in Table 2 apply to all employees who have 15 or more but less than 25 years' continuous service.

14.1.8 Transfer of Pension Credits Between Reciprocal Employers and Ontario Power Generation

Providing the reciprocal employers agree, the pension credits may be transferred to and from the reciprocal employer and Ontario Power Generation if the affected employees have fully vested their pension credits with the former employer and were hired by Ontario Power Generation/reciprocal employer within three months of the termination date. This provision allows retroactive application.
14.1.9 Indexing

Pension benefits for Pension Plan members who immediately prior to termination of employment were members of the Power Workers’ Union, will be increased on January 1st of each year by 100 percent of the increase in the Consumer Price Index, up to a maximum of 8 percent per year. In the event that the increase in the CPI exceeds 8 percent, the increase shall be carried forward to future years. In the event that the CPI decreases, the percentage decrease shall be applied in determining subsequent increases in pension benefits. A decrease in the CPI shall not reduce pension benefits in payment.

14.1.10 Survivor Benefits

Effective July 1st, 2000, pensions of survivors of retirees who were members of the PWU on the day that he/she retired, shall be based on 66 2/3 percent of the member’s pension.

14.1.11 Continued Contributions

Effective July 1st, 2000, employees may elect to continue to contribute to the pension plan beyond 35 years of service.

14.2 Group Life Insurance

The OPGI Insurance Plan forms part of the Collective Agreement and is generally described in the current brochure “Your Group Life Insurance.”

Insurance items will be submitted at the time that regular amendments to the Collective Agreement are submitted and will be negotiated at the time of regular bargaining.

14.2.1 Employees will have the option to purchase more units of life insurance (4x or 5x base pay) at no cost to the Employer. Medical information will be required to determine eligibility.

14.2.2 At the time permanent wage adjustments to base annual earnings (as defined in the insurance plan) are implemented, adjustments will also be made in insurance coverage as follows:

1. If the change is effective on or between the first calendar and the first fiscal day of the month, eligibility is established for the given month.
2. If the change is effective on any other day of the month, eligibility is established for the next month.

14.2.3 Life insurance coverage of $20,000.00 will be provided for employees who are required to work or travel in helicopters or aircraft. This coverage shall be in addition to the Group Life Insurance Plan.

14.2.4 Spousal Life Insurance

Effective July 1st, 1994, eligibility under the Spousal Life Insurance Program in place as of April 1st, 1994 will be extended to PWU represented employees.
15.0 RETIREMENT

15.1 Bonus and Outstanding Vacation Payments on Retirement

1. An employee, who has completed 10 years of continuous employment, shall be given, on retirement, a cash bonus equal to one month's pay. (In the case of a regular part-time employee, the one month's pay will be pro-rated as per Part A, Item 1.2.2.)

2. The employee on retirement shall also be given a cash payment for any outstanding vacation credits. The cash payment will be on the same basis as outlined in Part A, Item 6.6 - Vacation Payment on Termination.

3. If required by the Company to postpone his/her vacation for the year immediately prior to retirement, he/she shall receive a cash payment for that period. No payment shall be made for unused vacation for any other years.

15.2 Retirement While Ill

An employee who falls ill and is not able to return to work prior to the approved normal or early retirement date, shall, subject to approval by the Chief Physician, continue to be carried on the payroll as follows:

15.2.1 Sick Leave Grant Extends to or Beyond Retirement Date

If the sick leave grant carries the employee to or beyond the approved retirement date, the employee shall be retired upon being declared fit to return to work, or upon expiration of the sick leave grant, whichever comes first. The employee shall be given a cash payment in lieu of any outstanding vacation entitlement up to normal retirement date [see Subsection 15.1(2.) preceding], plus a bonus of one month's pay [if applicable, see Subsection 15.1(1.)].

15.2.2 Vacation Credit and Bonus Extends to or Beyond Retirement Date

If the sick leave grant expires prior to the approved retirement date, but part or all of the outstanding vacation credit (Part A, Item 6.6 - Vacation Payment on Termination) and bonus of one month's pay [if applicable, see Subsection 15.1(1.) preceding] carries to or beyond the approved retirement date, the employee shall be given a cash payment in lieu of any unused portion of:

1. The vacation credit accumulated up to the expiry of the sick leave; and/or

2. The month's bonus.

15.2.3 Sick Leave Grant, Vacation Credit and Bonus Expires Before Retirement Date

If the sick leave grant together with any outstanding vacation credit and month's bonus [where applicable, see the preceding Subsection 15.1(1.)] does not carry to the approved date, the case shall be referred to the Director of Health and Safety for a determination of the employee’s eligibility for LTD.
15.2.4 Unused Vacation Credit for Preceding Year

An employee on sick leave grant which extends over the beginning of a calendar year may be allowed credit for any unused vacation for the preceding year, subject to the approval of the director, or official of equivalent or higher status with the concurrence of the Director of Health and Safety.

16.0 TEMPORARY EMPLOYEES

16.1 Definitions

See Section 1.0 for the definition of temporary employee and accumulated service.

16.2 Benefits

The following are the benefit provisions that apply to temporary employees.

16.2.1 Vacations

Entitled to a cash vacation allowance of four percent (4%) of accumulated wages.

16.2.2 Statutory Holidays

Temporary employees will be entitled to statutory holiday pay as identified in the Collective Agreement consistent with the Employment Standards Act.

Payment for such statutory holidays will be the amount the employee would normally earn on a scheduled day of work.

16.2.3 Floating Holidays

Temporary employees who have accumulated 20 weeks' service in a calendar year will be entitled to three floating holidays subject to the following:

1. Floating holidays may be taken on such days as the employee and his/her supervisor mutually agree upon, following reasonable advance notice on the part of the employee.

2. Floating holidays shall not be carried over into the following year unless work considerations prevent the employee from taking the floater(s) in the year of entitlement.

3. Where the employee is unable to reach mutual agreement with his/her supervisor to take his/her floating holiday(s) before year-end because of absence due to illness, unused floating holidays will be assigned on the last working day(s) of the year.

4. Where an employee falls sick on his/her scheduled floating holiday, that day will not be charged against his/her sick leave credits, but shall be treated as a floating holiday for pay purposes.
5. **Entitlement on Termination:** If the employee terminates after having accumulated 20 weeks' service in the calendar year, the Company will make a cash payment in lieu of any unused floating holiday credit.

If the employee terminates prior to accumulating 20 weeks' service in the calendar year, entitlement will be as follows:

(a) If the employee has not qualified for entitlement in the previous year, he/she will have no entitlement in the current year. If he/she was granted a floating holiday under 4. above, the Company will recover one day's pay for each floating holiday taken.

(b) If the employee has qualified for entitlement in the previous year, his/her entitlement will be prorated based on the number of weeks' accumulated service in the year of termination. For example, an employee who terminates after accumulating five weeks' service in the year would be entitled to 5/20ths of three days.

The Company will either make a cash payment in lieu of any unused floating holiday credit or recover the value of the unearned portion of floating holidays taken under 4. above.

In no case will an employee be entitled to more than three floating holidays or floating holiday credit in a calendar year.

6. **Temporary part-time employees shall receive pro-rated payment. (Ref. Part A, Item 1.4.2)**

16.2.4 **Sick Leave Entitlement**

Temporary employees shall earn sick leave credit of one-half day at 100 percent (100%) pay for each month of accumulated service.

16.2.5 **Health Insurance Plan**

(Excluding Summer Students Regardless of Wage Schedule Paid From)

These employees shall be considered as a group in order that they may apply to participate in the Supplementary Plan and the Extended Health Benefit Plan at group rates. One hundred percent (100%) of all premiums will be paid by the employees.

The Company will pay one hundred percent (100%) of the Ontario Health Insurance Plan premium for temporary employees who have four months' accumulated service.

16.3 **Notice of Termination**

When the employment of a temporary employee is terminated for other than cause, he/she is entitled to one week's notice in writing if his/her period of employment is three months or more.
17.0 POSTING OF VACANCIES AND TRANSFER UPON APPOINTMENT

17.1 Post and Transfer - General

All regular full-time and regular part-time positions within or one level above the Union’s jurisdiction will be advertised province-wide when they become vacant. Selection to be made or the vacancy cancelled within four months after the posting date of the advertisement. Transfers of successful applicants to be made or rate for the new position paid in accordance with the Promotion Rule as identified in Article 8.9, 60 days from the date of selection for the position.

Management will provide the Union Office with an electronic copy of the vacancy and an electronic list of all applicants for the job postings within two (2) weeks after the closing date for applications.

17.2 Notification to Applicants

1. If the decision has been made within five weeks of the closing date of the advertisement, then at that time, the supervisor with the vacancy or his/her personnel manager will be responsible for:

   Advising all applicants who have been interviewed of the decision in writing.
   
   Supplying Human Resources with the list of successful applicants for publication. The published list will be considered appropriate notification for those applicants who were not interviewed.

2. If the decision has not been made within five weeks of the closing date of the advertisement, then at that time, the supervisor with the vacancy or his/her personnel manager will be responsible for:

   Ensuring that all applicants who do not possess the necessary qualifications are notified that their applications have been considered and they were not successful.
   
   Ensuring that all remaining applicants are informed of the delay, the status of their application and when a decision is likely to be made.

3. When a final decision has been made, the supervisor or his/her Human Resources Manager will ensure that:

   The unsuccessful applicants not yet informed are notified of the final decision as soon as possible. The name of the successful applicant should be given as well as being provided to the PWU office.
   
   The successful applicant and his/her supervisor is notified.
   
   Notify Human Resources of the name of the successful applicant for publication.

17.3 Similar Vacancies

When a similar vacancy occurs beyond four months following the posting date of the advertisement, it must be reposted and considered separately.
17.4.1 Instructors and Training Technicians (Nuclear)

Advertised vacancies for instructors and training technicians may be filled on a temporary basis. The time period shall not exceed 18 months after which the incumbent will revert to his/her regular classification and location. The position(s) will be advertised each time with the provision that an employee will not be selected for two consecutive terms. The employee will be compensated at the appropriate Training Technician rate. While he/she is retained in the Training Technician position, progression in his/her original classification will not be delayed because of such a temporary assignment. The number of positions in a department filled on a temporary basis will not exceed 50% of the positions filled on a regular basis. Exceptions to this clause may be jointly agreed to between the Sector Vice-President or delegate and Management.

17.4.2 Instructors (Non-Nuclear)

Advertised vacancies for instructors may be filled on a temporary basis. The time period shall not exceed 18 months after which the incumbent will revert to his/her regular classification and location. The position(s) will be advertised each time with the provision that an employee will not be selected for two consecutive terms. The employee will be compensated as per Article 8 for the position while he/she is retained in it and his/her progression in his/her original classification will not be delayed because of such a temporary assignment. The number of positions in a department filled on a temporary basis will not exceed 50% of the positions filled on a regular basis. Exceptions to this clause may be jointly agreed to between the Sector Vice-President or delegate and Management.

17.5 Internal Temporary Rotational Opportunity

Internal temporary rotational opportunities required for greater than twelve months will be posted at the location. Selection criteria will be per Article 10 Selection Rules.

18.0 HEADQUARTERS

18.1 General

Two classes of headquarters are established by the Company: work headquarters and residence headquarters.

18.2 Definitions

Work Headquarters - Regular: That location to which the employee normally reports in order to receive his/her daily work assignment or to perform his/her regular duties.

Work Headquarters - Temporary: The centre from which an employee is directed to work when carrying out all or part of his/her duties away from his/her regular work headquarters.

Residence Headquarters: The residence headquarters is that location within which or adjacent to which he/she is expected to reside or is assumed by the Company to reside for purposes of payment of allowances.
NOTE

The residence headquarters may or may not be the same location as the work headquarters.

Householder: Householder is defined as a person who maintains a complete dwelling.

18.3 Establishment of Headquarters

18.3.1 Work Headquarters

The Company may, at its discretion, establish work headquarters in any location for effective administration.

Notice Period - Overnight Absence at Temporary Work Headquarters: In the event an employee is assigned to temporary work headquarters and overnight absence is required, seven (7) days' notice will be given. For unplanned water management operations in Hydro Electric, three (3) days’ notice will be given. Notice will not be required where emergent conditions exist.

NOTE

For Non-Nuclear such notice will be personal notice as defined in the Collective Agreement.

Penalty: Failure to provide notice as above will require payment of premium\(^2\) rates for work performed from the temporary work headquarters until the notice period has expired.

18.3.2 Residence Headquarters

The establishment of residence headquarters will be dependent upon the presence of adequate living facilities at that location.

Residence headquarters for employees with no spouse or dependents may be any location where there are boarding facilities either Company or privately owned.

Residence headquarters for employees with a spouse and/or dependents may be any location where there is housing accommodation whether it be Company or privately owned.

NOTE

Such accommodation must be one at which it is reasonable for the employee to reside.

Establishment of New Residence Headquarters: When a residence headquarters is established in a location which was not previously so designated, the human resources manager shall advise Labour Relations who, in turn, shall advise the Union.

\(^2\) Two times base rate
NOTE

The Union need not be advised on individual moves from one established residence headquarters to another.

18.4 Change of Headquarters Upon Transfer

18.4.1 Advice of Headquarters

An employee shall be advised, when employed or transferred, of the location of his/her residence and work headquarters.

18.4.2 Notice of Transfer

When employees with more than one month's service are transferred and a change of residence headquarters is involved, a minimum of one month's written notice shall be given. This shall not apply in the case of an employee being transferred as a result of an advertised vacancy or as a result of the Worksite/Location Redeployment clause of Article 11.0.

18.4.3 Duration of Stay in New Residence Headquarters

Householder: A change in residence headquarters will not be made for a householder unless it would appear that he/she will be located at the new residence headquarters for a period of at least six months.

Living in Trailers: For those employees living in household trailers, moves for lesser periods than six months may be authorized at the discretion of the division or region concerned, bearing in mind the distance and economics involved.

19.0 TRAVELLING TIME OUTSIDE NORMAL WORKING HOURS

When a supervisor directs employees to travel between one work centre and another work centre, they shall be entitled in any calendar day to payment for travelling at the appropriate premium rate in accordance with conditions governing overtime up to a maximum of the number of hours which constitute a normal work day subject to the following:

1. Overtime will be paid when employees are required to drive a Company vehicle outside normal working hours unless being used exclusively for their own personal transportation.

2. When travelling by public transportation, travelling time shall be considered to include waiting periods beyond the employee's control up to a maximum of five hours; both preceding, during and subsequent to the travelling period, but excluding meal periods (one hour each) occurring during the waiting period.

3. When a berth or overnight accommodation is allowed and available, compensation shall not be made between 2300 hours and 0800 hours, nor shall the time spent for noon and evening meals (one hour each) be subject to compensation.
4. Travel time outside of normal working hours associated with selection interviews, attendance at training courses of five days or more or attendance at conventions (where it is part of the employee’s normal function) will be compensated at straight time up to a maximum of a normal day's basic pay for each day involved.

5. No compensation for travelling time outside the normal working hours shall be made in the following circumstances:

   (a) When a change of residence headquarters and related transfer is involved, the employee will normally travel during normal working hours without any loss of base pay. If the employee is required to travel on a regular day off, payment for travelling time will be made at straight time up to a maximum of the number of hours, which constitute a normal work day.

   (b) On periodic return to residence headquarters resulting from a permanent transfer, as outlined in Item 24.0.

   (c) For a new employee reporting to some administrative centre or station for instruction or training before reporting for work at his/her new location.

6. Where the Company normally provides transportation facilities between residence headquarters and work headquarters for normal daily hours an employee required to work extension overtime will be provided free transportation to the residence headquarters.

   **NOTE**

   Equivalent time off without pay may be granted on the basis of an hour off for each hour spent travelling provided the workload permits.

**20.0 Compensation for Travelling Expense**

Employees required to work at a temporary work headquarters will be paid a travel expense equivalent to the return road kilometres between the temporary work headquarters and the regular work headquarters subject to the conditions below:

1. Employees who travel 5 kilometres or less in one day between a temporary work headquarters and the regular work headquarters do not qualify for benefits under this provision.

2. The company will provide a rental vehicle/company vehicle when it is in the company’s interest to do so. The company will not pay for a rental vehicle unless the employee has obtained prior approval.

3. No travel expense payments shall be made to a passenger in a vehicle.

4. No travel expense payments shall be made to an employees travelling in a Company paid rental vehicle or company vehicle.
5. When it is reasonable to do so the employee may remain at the temporary work headquarters rather than commuting daily.

6. It is the responsibility of the employee to report to the temporary work headquarters at their normal starting time and remain until their normal quitting time, unless directed otherwise.

In addition to the travel expense those employees at the temporary work headquarters shall be paid:

For time spent travelling on the first trip when the work headquarters is changed and the last trip when he/she returns to his/her regular headquarters;

Entitled once every two weeks to payment for actual time spent travelling at straight time up to a maximum of three hours each way between temporary headquarters and regular work headquarters.

21.0 TRANSPORTATION TO OUTLYING STATIONS (Nuclear ONLY)

Transportation to outlying stations shall be in accordance with Mid-Term Agreement PW-8.

Employees at the Bruce Site who avail themselves of the bus service shall be charged a standard fare of $1.00 each way and $2.00 per round trip.

The kilometre rates applicable under Mid-Term Agreement PW-8 shall be two-thirds of the current Company kilometre rate.

22.0 KILOMETRE RATES

Kilometre rates paid to employees using their automobiles on Company business shall be as follows:

1. The rate paid per kilometre is related to changes in the Private Transportation Index component of the Consumer Price Index of Canada.

2. The rate of .53 cents per kilometre will take effect on April 1st, 2012.

3. Future increases of one cent per kilometre will occur with each additional ten percent (10%) point increase from the base figure of 31.5 (1992 CPI = 100) in accordance with the formula described in a letter of agreement between Ontario Hydro and the Union dated May 25th, 1983.

4. Conversion factor is 1 mile = 1.6 km.

5. A decline in the index below the level of a previously surpassed trigger point for two or more consecutive months will result in a reduction in the paid rate to the appropriate amount.

6. The effective date for any new kilometre rate triggered by this indexing formula will be the first of the month following the month in which the index is published.
7. The additional payment for hauling household trailers will be nine cents per kilometre. The payment for hauling smaller trailers (camper, ski-doo, boat, etc.) will be three cents per kilometre.

8. The above rates will apply on a province-wide basis.

As a condition of employment, the Company does not require anyone to own a car. When transportation is required, the employee may, with the Company’s approval elect to use his/her own car at the approved kilometre rate but if he/she does not elect to use his/her own car or if he/she does not own a car, the Company will, if necessary, provide alternative transportation appropriate to the occasion. However, ownership of an appropriate driver’s license may be a condition of employment in some situations.

23.0 TRANSPORTATION AND MOVING EXPENSES

23.1 General

Method of Transportation: The method of transportation and all expenses chargeable to the Company in moves of employees are subject to the control and approval of the Company.

Packing and Shipping Furniture: In view of the Company’s willingness to pay for packing furniture, as well as transportation, employees usually will not be allowed time or travelling expenses to return from point of work in order to look after packing and shipping of furniture, subject to Subsection 23.5, Time Off For Move.

23.2 Notice of Transfer

Refer to Item 18.4.2.

23.3 Transfer of Temporary Employees

The Company will only pay necessary travelling expenses of temporary employees when they are moved from one location to another at the Company’s request.

NOTE

The transportation of families and/or furniture of such employees will not be paid.

23.4 Appointment of New Probationary Employees

A new employee hired for a regular position in a location other than the point of hire will not ordinarily be recompensed for moving expenses.

NOTE

In exceptional cases, as part of the employment agreement, a director may pay all or part of the moving expenses of the employee and household to the location where the employee will be employed.

This rule applies to a new operator-in-training or a new apprentice who is being assigned to the first location.
Costs of transporting the family of an operator-in-training or of an apprentice to a new location during the training period will be paid, but costs of moving the household effects of an operator-in-training or of an apprentice who is a householder will only be paid when they have attained two years' service or on the final move to a regular position.

23.5 Transfer of Regular Employees

The following instructions will apply to all regular employees subject to the following limitations: An operator-in-training, or an apprentice will be eligible when progressing satisfactorily with the training course, after the attainment of two years' service. In the case of regular part-time positions, expenses for employees will be prorated based on the hours of the position into which they are moving except for moves governed by Article 11.21 in which case Part A, Item 23.0 applies in whole.

Householders: When the work headquarters of a regular employee who is a householder is changed he/she will be entitled to the moving expenses outlined below if:

1. His/her current residence is not within a reasonable commute* of the new work headquarters; and
2. His/her new residence is within a reasonable commute* of the new work headquarters.

*reasonable commutes are reviewed independent of one another

A householder is defined as a person who maintains a complete dwelling.

1. Transporting the employee and family.

2. The packing, freight or truck charges on household effects, among which will be included boats and second automobiles which are part of the personal effects of the employee.

Items of this kind which are used for business farming or commercial purposes, as well as large boats such as houseboats which would require special transportation would not be included in moving expenses paid by the Company.

3. The cost of board and lodging for the employee's family while furniture is in transit.

Board and Lodging: The Company will also pay the expenses or board and lodging allowance for the employee as applicable under Part A, Item 25.0.

Part E Employees: Moving expenses will only be paid when there is a minimum of six months' work available at an established work headquarters or on a special project for these employees who are householders.
NOTE

For regular employees living in household trailers, moves for lesser periods of time than six months may be authorized by the department head or construction manager concerned. In this connection the distances and economics must be carefully considered.

Incidental Out-of-Pocket Moving Expenses: Employees may claim a $5,500 allowance for miscellaneous out-of-pocket expenses required by the move. The requirement for supporting receipts and taxability of the allowance will be governed by Accounting Service Procedures.

Lease Termination: The Company will pay up to the maximum of two months rent towards the actual cost in terminating a lease.

Time off for Move: If regular employees who are householders are required to move their household to new residence headquarters on a regular scheduled day of work, they shall be granted one day off with pay to assist in the move.

NOTE

Extension of this time off with pay will be at the discretion of the director concerned.

Non-householders: When the residence headquarters of a regular employee who is a non-householder is changed, the cost of transporting the employee will be paid. A director, at his/her discretion, may authorize actual moving expenses to a maximum of $1000.00 or a lump sum payment of $1000.00 towards the cost of moving personal effects, including furniture. No reimbursement will be made for incidental out-of-pocket expenses.

NOTE

This section does not apply to operators-in-training nor to indentured apprentices with less than two years' service.

Kilometre: All employees described under the Householders and Non-householders sections may be allowed the regular kilometre rate for driving the employee's car to the new location provided that such cost is not more than it would otherwise cost for transportation of the employee's family and for freight on shipment of the automobile.

NOTE

When the Company considers a preliminary trip to the new location is necessary for interview or for the employee to seek a house, the time, board and lodging and travelling expenses of the employee may be paid.

Legal and Real Estate Brokerage Fees: In addition to the provisions of the Householders and Kilometre sections, with the exception of employees and circumstances listed in Exceptions subsection below, regular employees who are householders, required by the Company to move their principal residence, shall be entitled to the following:
1. The Company will reimburse the employee up to $18,000.00 for standard brokerage fees related to the sale of the old principal residence and legal fees and disbursements actually incurred in selling the old residence and/or buying the new principal residence, (legal fees will be in accordance with a standard recognized scale and could include such items as land transfer tax, survey and legal fees associated with arranging or discharging a first mortgage and mortgage appraisal fees).

2. To qualify for payment of expenses involved in purchasing a new residence, the employee must give written notice at the time of his/her transfer that he/she intends to buy a residence.

3. If an employee sells a mobile home [i.e., a trailer designed and used exclusively as a residence which exceeds 2.6 metres (8.5 feet) in width or 10.67 metres (35 feet) in length], he/she is considered to have sold his/her residence.

Exceptions: Any transaction, which is not commenced within one year of the date of the employee’s transfer. Extension of this time period shall be at the discretion of a director.

Moves resulting from a demotion for cause.

23.6 Housing Assistance Plan

Eligibility for the Housing Assistance Plan is conditional on the employee abiding by all the requirements of the Housing Assistance Plan as listed below:

23.6.1 Application

23.6.1.1 The housing assistance plan applies to regular employees eligible under Item 23.5 who are subject to a forced transfer or who have received a written declaration that they are surplus.

23.6.1.2 The provisions of this policy are only applicable to the principal residence of the employee, but do not cover other commercial (income producing) properties, cottages which are not the principal residence, farms, commercial real estate holdings, tenanted properties (e.g. duplex or triplex), mobile homes on leased land, or residences with urea formaldehyde foam insulation (UFFI) or properties as defined in Item 23.6.1.3.

23.6.1.3 It will be the prerogative of the Company to reject an employee’s application for Housing Assistance if the property is not an acceptable risk, with free and clear title.

23.6.2 Purchase Guarantee

23.6.2.1 The Company will provide a purchase guarantee based on an appraisal of the property’s current worth by a group of up to three appraisers, to be selected by mutual agreement between Corporate Real Estate and the employee. The appraisals will be done at a time that is convenient to the employee and his/her family. Individual appraisals provided to the Company by the realtors/appraisers will not be disclosed to ensure objectivity for current and future appraisals.
23.6.2.2 The Company will not request appraisals until the employee is ready to list his or her house in the marketplace, providing this is within one year of the employee's transfer to the new work location, and the employee is prepared to abide by Subsection 23.6.2.4 and Subsection 23.6.3.1.

23.6.2.3 The employee must accept or reject the Company's Purchase Guarantee within ten working days of its receipt. If the employee rejects the Purchase Guarantee, the Company has no further responsibility with regard to Housing Assistance or the Purchase Guarantee, however, the employee will still be entitled to the other relocation assistance benefits including 23.6.5.3.

23.6.2.4 If the employee wishes to participate in the Housing Assistance Plan, the employee must not list the property for sale until the Purchase Guarantee has been accepted.

23.6.3 Listing of Property

23.6.3.1 If an employee chooses to participate in the Housing Assistance Plan, by accepting the Purchase Guarantee, the employee will immediately list the property for 90 days on MLS (where such service is available) at a price not exceeding 107% of the guaranteed price.

23.6.3.2 Under the Housing Assistance Plan, the Company purchases an employee's principal residence in the former location at market value, if the employee is unable to sell it within 90 days. The house may be purchased by or turned over to the Company after 30 days if the house is vacant and the employee agrees with this action. The employee must put in writing that no real estate fees will be paid if the property is purchased by the Company.

23.6.3.3 The employee will retain the right to sell to a third party until such time as the property is purchased by or turned over to the Company for resale.

23.6.3.4 In order to assist the employee to dispose of the property expeditiously and at a fair market value, the employee must notify the Employee Relocation Administrator of all offers to purchase during the listing period. The Company may ask the employee to accept an offer, which is lower than the Purchase Guarantee, whereupon the employee will be compensated for the difference between the Company's Purchase Guarantee and the amount of the offer. The employee's acceptance of any offer less than the Company's Purchase Guarantee is not mandatory and the employee will retain control of the sale of the residence throughout the listing period. All offers to purchase will be held in confidence by the Employee Relocation Administrator.

23.6.4 Sale of Property by the Company

23.6.4.1 The employee must be prepared to sign power of attorney authorizing the Company to sell property on the employee's behalf on the first day following the 90 day listing period. If the employee will be unable to vacate the premises at that time, the Employee Relocation Administrator must be notified.

23.6.4.2 The Company will pay to the employee the difference between the value of the property to the Company (Purchase Guarantee) and all existing encumbrances, including the advance of equity when the house is turned over to the Company or at the end of the 90 day listing period, whichever comes first.
23.6.4.3 When an employee applies for assistance under this procedure, he or she must declare under oath, if required by the Company, all encumbrances of any nature or kind whatsoever, including executions, chattel mortgages, and notices of conditional sales contracts which the employee is obliged to pay.

23.6.4.4 In consideration of the payment to the employee of the amount established in Subsection 23.6.4.2, the employee will complete a deed of sale of the property, conveying the same by good and marketable title, but subject to all existing encumbrances, to the Company or its nominee.

23.6.5 **Advance of Equity**

23.6.5.1 In order to provide the employee with funds for a deposit or down payment on a residence at the new location, an advance of up to 100% of the employee's equity (Purchase Guarantee minus encumbrances) in the employee's principal residence at the former location may be loaned to the employee by the Company.

23.6.5.2 If the employee accepts the Company purchase guarantee and sells his/her principal residence during the 90 day listing period, he/she is responsible for repaying the Advance of Equity to the Company within five working days of the closing date of the sale of the former residence. Failure to do so will activate the appropriate interest charges to the employee based on the Bank of Canada's weekly 5-year mortgage rate (employee housing loan five-year term) in effect on the closing date of sale. It is the employee's responsibility to repay the Advance of Equity to the Company within five days of the sale of the former residence, or within 90 days from the date of issue of the Advance, whichever comes first.

23.6.5.3 An employee who rejects the Company's Purchase Guarantee, may take advantage of the Advance of Equity option. If the former principal residence is not sold within 90 days of the date of issue, the employee must pay interest to the Company at his/her own expense commencing on the 91st day. The interest rate will be based on the Bank of Canada's weekly 5-year mortgage rate (employee housing loan five-year term) upon the expiration of the 90-day period. It is the employee's responsibility to repay the Advance of Equity to the Company when the former residence is sold, or within 180 days (six months) from date of issue of the Advance, whichever comes first.

23.6.6 **House Evaluation and Guarantee Plan**

Upon subsequent transfer within the Company, an employee will be guaranteed his/her purchase price up to a maximum of four times his/her base salary at the time of the transfer (plus or minus $3,000 for improvements or damages to the property). This guarantee will be for a period of ten years from the date of purchase. Improvements must be verified by receipts and do not include normal painting, decorating and maintenance costs. An employee may not sell his/her house for less than the guaranteed amount without the consent of the Company.

If an employee contracts to have a house built in the new location, the Employee Relocation Administrator, Corporate Real Estate, must arrange for an appraisal of the new principal residence upon completion to establish the "guarantee amount".
If an employee who is eligible for the House Evaluation and Guarantee Plan rejects, or does not qualify for, the Company’s Housing Assistance Plan, the following stipulation will apply. The employee must not sell to a third party for a price less than the employee’s original purchase price, unless the sale price is approved by the Employee Relocation Administrator, Corporate Real Estate.

The price level guaranteed by the House Evaluation and Guarantee Plan will be modified downwards in the event of a significant reduction in the level of real estate prices throughout Ontario.

23.7 Transfer of Regular Employees - Staff Reduction and Recall Procedure- PWU Agreement - Article 11

No moving expenses will be paid for an employee being recalled to a vacancy.

Recall shall include employees who are reclassified from a lower classification to their original classification as well as employees who have terminated employment and are recalled.

23.8 Allocation of Moving Expenses

When an employee is moved from one location to another, the expenses involved shall be charged to the location to which the employee is moved except in the case of a move of a retiring employee occupying a Company-owned house. In this instance the expenses shall be charged to the residence headquarters at the time of retirement.

23.9 Change of Residence Headquarters

On a change of residence headquarters the employee shall be entitled to actual expenses for a period of up to one month. He/she shall be entitled to an allowance of $75.00 each day he/she is eligible thereafter.

23.10 Terminations and Retirements Following Relocation

The Company is not required to provide moving expenses to an employee who is entitled to moving expenses as per Part A, Item 23 unless the employee signs an agreement with the Company providing:

(a) that the employee agrees that in the event he/she voluntarily terminates from OPG less than three years from the date of relocation they will be obligated to repay a prorated portion of the relocation benefits discounted at a rate 50% in year one and 25% in each year two and in year three.

NOTE: The above provision does not apply to employees who are moved as a result of a forced transfer or in the case of an employee who has a dramatic and serious change in circumstances.
24.0  RETURN TO RESIDENCE HEADQUARTERS

24.1  General

It is often necessary for Company employees including those on transfer to work at temporary work headquarters, which are at points distant from their residence headquarters.

Having due regard to the nature, importance, and length of the job and when practicable, the Company shall, within reasonable limits, reimburse the employee for expenses incurred in returning to his/her residence headquarters once each week. If an employee chooses to remain at the temporary work headquarters, the Company will pay the lesser of the cost of meals and accommodation or the cost of the return trip to his/her regular work headquarters.

24.2  Return to Residence Headquarters on Permanent Transfer

An employee permanently transferred to a new residence headquarters will be reimbursed for expenses incurred in returning to his/her old residence headquarters once each week until he/she moves his/her family to the new location. The maximum period of entitlement will be four months from the date of transfer to the new residence headquarters unless extension is authorized by the appropriate director.

Entitlement shall cease when the employee moves his/her family to the new location.

All travel time associated with the return to residence headquarters will be outside the employee's scheduled hours of work.

The employee will not be entitled to claim payment for travel time.

24.3  Return to Residence Headquarters When Transferred to a Temporary Work Headquarters

Entitlement will be for the duration of the transfer (subject to postponement as per 24.5.2 below).

All travel time associated with return to regular headquarters will be outside the employee's scheduled hours of work. The employee will be entitled to payment for actual time spent travelling at straight time to a maximum of eight hours each way.

24.4  Assignments to Training Courses

Employees assigned to temporary work headquarters for training courses of five days or more will be compensated for expenses incurred in returning to his/her residence headquarters once each week.

Payment for travelling time each way will be at straight time rates up to a maximum of a normal day's basic pay.

24.5  Qualifications to Above Policy

The return trips mentioned in Item 24.1, will be granted subject to the following conditions:
24.5.1 Scheduling of Trips

Return trips to residence headquarters shall be made at times when service or apparatus will not be jeopardized thereby except in case of emergency such as illness in the family or other matters highly important to an employee.

The Company will schedule the trip to meet the needs of the majority concerned or by mutual agreement where the work of some employees is dependent on the assistance or presence of other employees.

24.5.2 Postponement of Return to Residence Headquarters

If, at the end of a week, when a return to residence headquarters would normally take place, it appears that the job will be completed on or before Wednesday of the following week, the return trip may be postponed until the job has been completed. If work is not planned on the weekend, the employee will have the option of remaining at the temporary headquarters or claiming the equivalent cost of staying at the temporary work headquarters and make his/her own arrangements.

24.5.3 Use of Company Vehicles

The round trip to residence headquarters must be made within the scheduled non-working period. It must be made in a Company vehicle whenever the services of a suitable vehicle are available.

When a suitable Company vehicle is available, employees who do not avail themselves of these facilities will not be reimbursed for transportation expenses. Those who remain at the temporary work headquarters will be treated as if they were at residence headquarters.

When transportation by Company vehicle is not provided, the equivalent of public transportation costs or the standard kilometre allowance, whichever is lesser, will be authorized by his/her supervisor for an employee who chooses to use his/her own car instead of public transportation for himself/herself alone or for carrying other employees as passengers.

24.5.4 Isolated Locations

In special cases when a temporary work headquarters is remote from public transportation, employees will be allowed to accumulate or "bank" overtime at straight time rates to a maximum of 40 hours in order to have extra time away from the job. Such permission shall only be granted when the majority of the affected employees agree.

NOTE

Each special case is subject to agreement between the PWU Executive Committee and Labour Relations.

24.6 Alternative to Return to Residence Headquarters

The Company will consider paying travelling costs up to a maximum of the costs to residence headquarters when an employee wishes to go to some other location for personal reasons such as to join his/her family who are vacationing.
25.0 BOARD AND LODGING

25.1 General

The payment or nonpayment of board and lodging (or living-out allowance in lieu thereof) shall be predicated on separation or non-separation from the employee’s Residence Headquarters as defined in Part ‘A’ Item 18.0.

NOTE

No free board and lodging shall be given to employees while they are located in their residence headquarters except where camp facilities are provided.

When Applicable: Board and lodging allowance is only applicable when the employee is absent from residence headquarters for more than one month.

For periods of time up to one month, the employee is entitled to submit an expense report for actual expense incurred.

25.2 Rate of Allowance

The board and lodging allowance shall be $75.00 per day.

Statutory Holidays and Vacation: Board and lodging will be allowed for statutory holidays.

During annual vacation period, lodging expenses only will be allowed, whenever it is necessary for the employee to retain this lodging for use after vacation, and approval has been obtained from the department head.

NOTE

If, under certain circumstances and local conditions, the standard rate is considered inadequate, and it would result in undue hardship to the employee, a higher weekly limit, commensurate with existing conditions, may be set with the approval of the vice-president or the general manager concerned. In this case, the request must be supported by vouchers.

The standard rates for board and lodging in Company boarding houses shall be $4.60 per day. The rates for OITs, apprentices, junior clerks and summer students earning the equivalent of salary range 54 or lower shall be $23.00 per week.

25.3 Absence from Residence Headquarters

The Company shall assume, within reasonable limits, the cost associated with meals, travel and lodging while an employee is assigned to a temporary headquarters. Where possible, single room accommodation will be provided.

Board and lodging shall be supplied without charge if the employee is living in Company-operated quarters.
When employees are required to work away from their normal headquarters for three consecutive days or more in a week, they shall be entitled to claim $30.00 in compensation for laundry and long distance telephone calls home. The provisions of this item shall also apply to employees who are in receipt of actual expenses or board and lodging allowance due to change in residence headquarters in accordance with Section 25.4.

25.4 Change of Headquarters

25.4.1 Regular Employees - Householders

A regular employee shall be paid expenses up to a maximum period of four months as follows:

Actual expenses for up to one month from the date of actual transfer to the new location, and thereafter for a maximum of three months, the standard board and lodging allowance until the time the household is occupied in the new location.

NOTE

Such an employee must be a householder and entitled to the payment of expenses as outlined in Part A, Item 23.0.

Extension of Allowance: Payment of any allowance beyond the period of four months must be authorized by the appropriate director.

Eligible Employees: Payment of this allowance will be made only to an employee who indicates an intention to move to the new location.

If the employee fails to move within the time limit, any cash allowance paid in lieu of board allowance shall be recovered by the Company unless the reasons for not moving were beyond the control of the employee and/or the employee actually did board in the new location during this period.

25.4.2 Non-householders

On transfer to Company-operated quarters, an employee who is a non-householder shall pay for board and lodging immediately on transfer.

If not living in Company-operated quarters, an employee who is a non-householder shall be permitted actual expenses to a maximum of up to one month, after which no allowance will be made.

25.4.3 Apprentices

If transferred to a new headquarters upon completion of the training course, the apprentice shall receive allowances as provided for a non-householder in Item 25.4.2.

25.4.4 Attendance at Company-Operated Training Courses

Board and lodging shall be provided or board and lodging allowance shall be paid to all employees when attending a Company-operated training course.
26.0  JOINT COMMITTEES

26.1  Joint Pension and Insurance Committee

Note:

Nomenclature and participation on this Committee are subject to change pending the implementation of amendments to the Ontario Power Generation Pension Plan. The parties agree to revise this item as necessary for the next printing of the Collective Agreement.

1. Scope: To monitor the administration and the financial status of the OPGI Pension and Insurance Plans covering all plan members and to recommend changes as set out below:

2. Personnel: The "Joint Pension and Insurance Committee" shall meet at least twice a year or as requested by either party and shall consist of the following members:

- three PWU members
- three Ontario Power Generation management members

Each party will have the right to have a reasonable number of resource personnel attend the meeting. The chair will rotate between Ontario Power Generation and PWU, one meeting each.

- every effort will be made to reach unanimous decisions. In the event that a unanimous decision cannot be reached, decisions will be by a vote of a majority of members representing both PWU and Ontario Power Generation.

3. Function: In an advisory capacity with access to the necessary information: (This is limited in that it does not apply in respect of information as to the service, salary, pension benefits or other personal information related to any specific person without that person's prior consent.)

Pensions

(a) Monitor Ontario Power Generation's administration of the Pension Plan in accordance with the Pension Benefits Act, associated regulations and rules, and other applicable legislation.

(b) Make recommendations respecting the administration of the Pension Plan.

(c) Promote awareness and understanding of the Pension Plan on the part of Plan members.

(d) Review the Ontario Power Generation's approved annual financial statements and investment performance.

(e) Review the Ontario Power Generation's approved Actuarial Valuations of the Pension Plan and discuss the need for assumption changes.
(f) Identify potential benefit changes and discuss cost and other implications. Committee recommendations for benefit level changes will be subject to ratification of the respective parent bodies.

(g) The Committee will have the role of making recommendations generally with respect to the notational account.

Life Insurance

(a) Review the financial position, premiums and taxable benefits of the OPG Life Insurance Plan.

(b) Identify potential benefit changes and discuss cost and other implications. Committee recommendations for benefit level changes will be subject to ratification of the respective parent bodies.

26.2 Joint Health and Safety Consultation

The parties will consult regularly on corporate level employee health and safety matters. The following two joint committees will be established to facilitate this consultation.

26.2.1 Joint Policy Committee on Health and Safety

1. Goal

To participate in the formation of health and safety strategy and policy by providing information and opinion from the Union to the Company’s executive on employee health and safety.

2. Personnel

(a) Company Health and Safety Advisory Committee.

(b) Union Executive Committee and chairperson of Union Provincial Health and Safety Committee and Union staff advisor.

(c) The chair will rotate between the chair of the Company Health and Safety Advisory Committee and the Union Provincial Health and Safety Committee.

3. Function

(a) Identify problems and issues of Company significance which have not been resolved in the Joint Health and Safety Working Committee.

(b) Review proposed initiatives and advise the corporate executive.

(c) Evaluate existing policy and advise the corporate executive on recommended changes. This function applies particularly to safety rules and work protection code.
(d) Develop Joint Policies on Health and Safety
   
i) Authority to Stop Work.

(e) The committee will meet once a year or as mutually agreed.

26.2.2 Joint Health and Safety Working Committee

1. Goal

(a) To provide recommendations to assist Corporate Safety and Wellness in the development, implementation and evaluation of OPG employee health and safety policy and programs.

2. Personnel

(a) Membership will consist of:
   - Two Management representatives
   - Two PWU representatives

(b) Additional Management and PWU resources as required.

3. Function

(a) Participate in the identification and resolution of problems and issues of Company significance in employee health and safety policy and practice.

(b) Participate in the development, promotion and implementation of Company health and safety programs.

(c) Study, develop and make recommendations for changes to the Corporate Safety Rules and Work Protection Code. This function can be delegated to an ad hoc group with mutual agreement.

(d) Recommend and establish additional working committees and task groups as required to fulfill the purpose of this committee.

(e) The committee will normally attempt to resolve issues of mutual interest before seeking intervention by senior management or the Joint Policy Committee on Health and Safety.
26.2.3 Joint Committee on Radiation Protection

A joint committee shall be established on the following basis:

1. Name: Joint Committee on Radiation Protection.

2. Goal: To provide a forum for communications between Management and employee representatives on radiation protection topics, and to develop recommendations to senior management for improvements in the radiation protection program. The resulting program is expected to lead to a level of performance that compares favourably with the best in our business.

3. Structure:
   a) Chair: The chair shall rotate on a yearly basis between Management and a PWU Executive Representative.
   b) Members:
      - Six Management representatives
      - Six PWU representatives
      - Two Society representatives
   c) Secretary: Shall rotate on a yearly basis between the Management representatives and the PWU support staff. Management or the PWU shall not hold both secretary and chair positions at the same time.

4. Functions: Provide, with respect to employee and public health and safety, group recommendations on improvements to the radiation safety program to the Chief Nuclear Officer by:
   - reviewing performance, evaluating against targets and external standards, and recommending broad goals and performance objectives
   - evaluating performance, identifying problem areas and seek commitment for change as appropriate
   - promoting good radiation protection practices
   - defining overall program direction
   - defining appropriate changes to the Radiation Protection Regulations, supporting procedures, and associated programs
26.2.3.5

Frequency of meetings and quorum: the Joint Committee on Radiation Protection will meet quarterly. A quorum will be not less than 50% of the members from each of the parties. In the event that a quorum is not achieved, that quarterly meeting will be cancelled.

26.2.4 Joint Employment Equity/Diversity Committee

1. Goal: To provide a joint forum for work on OPG Corporate Employment Equity, Human Rights and Diversity policies and/or associated corporate issues.

2. Personnel: (a) The committee will be structured to provide broad representation from the Company and the PWU. Up to six positions will be made available to be shared equally between the PWU and the Company (b) The PWU and the Company will be allowed staff advisors as required.

3. Function: To meet and exchange information regularly to ensure that the committee is informed of progress on initiatives undertaken by the Corporation and the Union. Each party will identify and bring forward emerging corporate issues for discussions. Both parties will attempt to agree on recommendation(s) acceptable to all parties and for delivery to the Senior Vice President, OPG Human Resources and/or to the PWU Executive where appropriate. Where agreement cannot be reached, each party will communicate expeditiously their positions to the above appropriate party.

4. Management is responsible for time and expenses, except for union staff time associated with this committee.


26.2.5 Joint Employee and Family Assistance Committee

A joint committee will be established on the following basis:

1. Name: Joint Employee and Family Assistance Working Committee

2. Goal: Provide recommendations to assist the Company and the Union in the development, implementation and evaluation of employee and family assistance policy and programs.

3. Personnel

   (A) Chair: The chair shall rotate on a yearly basis between the Company and a PWU representative.

   (B) Members:

      . Representative from the Company
      . Two (2) PWU representatives and one staff advisor.
      . Two (2) Society representatives

   (C) Secretary: The secretary shall be supplied by the Company.
4. Function:

4.1 Participate in the identification of problems and issues of significance in employee and family assistance policy and practices.

4.2 Participate in the development, promotion and implementation of employee and family assistance programs throughout the province.

4.3 On an ongoing basis study, develop and make recommendations for change to the Company employee and family assistance program. This function can be delegated to a sub-committee by mutual agreement.

4.4 The committee will normally attempt to resolve issues of mutual interest before seeking intervention by the Senior Joint Union/Management Committee.

27.0 DISTRIBUTION OF PWU NEGOTIATED POLICIES AND PRACTICES

The Company will supply the Union with PWU Negotiated Policies and Practices in quantities to distribute to its stewards and with revisions as may be issued.

28.0 DISTRIBUTION OF AGREEMENT AND WAGE SCHEDULES

The parties will make all reasonable efforts to resolve any outstanding issues within 3 months after ratification. The agreement will be distributed within 6 months from date of ratification This Agreement shall be printed as soon as practicable after the date of signing and made available by the Company to the Union in sufficient quantities for distribution to its membership.

29.0 TIME CHARGES - UNION ACTIVITIES

29.1 Time Charges and Expenses - Union Representatives

Time off and expenses for Union officers will be granted in accordance with Negotiated Policies and Practices Number 3.

29.2 Time Charges for Employees On Union Business

When the time of employees on Union business is payable by the Union, such time shall be charged at normal rates of pay. The normal payroll burden without the administration charge of ten percent (10%) will be applicable only for Union releases in excess of five consecutive days.
30.0 Banked Time

The following Banked Time in Lieu Of Overtime agreement shall apply to all PWU represented employees as follows:

An employee who has accumulated overtime hours shall receive this in earnings, calculated at the appropriate premium rate and cannot be required to take time off in lieu of payment. However, the employee may instead elect to accrue lieu time credit calculated at the appropriate premium rate in place of payment.

If no request is made prior to the overtime being worked, payment at the appropriate overtime rates will be automatic and paid, Part A, Item 10.2 will continue to apply.

The accrued lieu time will be taken at a time, which is mutually agreeable to both parties. Banked time can not be taken when overtime is required to cover the shift that the individual is requesting off.

The employee can bank up to 40 hours, and can only renew the 40 hours or a portion thereof after it has been scheduled off or paid out or used to defer vacation time as per Part A, Item 6.7. If the employee chooses to cancel scheduled banked time it will be paid out and cannot be put back in the bank.

Any banked time in lieu of overtime not scheduled off, taken or used to defer vacation time as per Part A, Item 6.7 as of December 1st each year will be paid out as of December 31st of each year.

31.0 EYE PROTECTION

Approved eye protection shall be supplied to individual prescription to all employees who normally wear glasses and are required to wear eye protection for an appreciable amount of time in the performance of their duties.

32.0 PERSONAL TOOLS

The following applies to Nuclear:

T&WE mechanics at Pickering and Darlington

The company will provide T&WE mechanics at Pickering and Darlington the tools necessary to perform their job.

The following applies to Non-Nuclear:

32.1 General

Employees in trade categories and designated clerical/technical categories will provide at their own expense, the ordinary hand tools of the trade. These tools are listed in the appropriate job document and must be of at least industrial quality, which permits employees to perform their work safely, efficiently and to the standard ordinarily demanded in any given trade. (Owing to the marked differences in the nature of work performed by employees who are classified in the same trade category, it is unreasonable to expect a tradesperson to
possess or have on the job, every tool listed for his/her trade. Learners and Improvers must acquire any of the tools listed as and when his/her work demands their use. Employees are encouraged to buy tools which carry a lifetime guarantee.) Tools which are required for equipment of special types, which are peculiar to certain locations as well as tools that fall in the class of shop equipment, will be supplied and maintained by the Company. These, and similar types of tools, have been purposely omitted from the lists.

32.2 Tool Replacement/Upgrading

Each employee, as described in 32.1, will be allowed 8% of the personal tool list retail price calculation per calendar year for tool replacement or upgrading based on his own tool list as defined in the Occupational Definition. A minimum allowance of $50.00 per year for each employee in each classification is available. For those entitled to the minimum allowance of $50.00, the unused portion for one year may be carried forward to the following year to a maximum of $50.00.

To qualify for any reimbursement receipts must be accumulated and submitted for amounts in excess of $50.00. For amounts of less than $50.00 these receipts should be submitted at the end of the year.

32.3 Loss by Fire or Theft

Personal tools which are stolen, are destroyed or damaged by fire to an extent which renders them unusable, will be replaced by the Company. These losses must be incurred in the exercise of Company business and on Company property, except where they occur on or at non-Company locations in the exercise of Company business. Small or inconsequential losses would be recovered through 32.2.

33.0 SPECIAL CLOTHING FOR EMPLOYEES

33.1 General Policy Regarding Work Clothing

Except where provided by the Company in accordance with this Collective Agreement, employees must provide at their own expense suitable clothing for the performance of their regular duties. In general, clothing must be suitable for the safe and efficient performance of the work but need not be uniform in appearance.

So far as is consistent with standard stores' policy, the Company will purchase certain types of work clothing in bulk for resale on the most favourable terms possible to employees requiring them in connection with Company work.

33.2 Special Clothing That May Be Provided at Company Expense

Subject to certain conditions outlined herein, special clothing may be obtained at the expense of the Company for issuance to employees under the following conditions:

33.2.1 Where Uniform Appearance is Required in Nuclear

Where uniform appearance is required by the Company as in the case of certain receptionists, guides, messengers, drivers, and security guards uniforms will be provided.
Where employees are required to wear uniforms they will be provided yearly with a $200 allowance to offset the cost of cleaning.

33.2.2 Where Uniform Appearance is Required for Non-Nuclear Security Guards

Security Guards who are required to wear a uniform will be provided an annual $200 cleaning allowance.

33.2.3 For Work Outside of the Employee’s Regular Routine Duties

A limited number of rainproof coats and hats may be obtained and kept available at construction headquarters, attended stations, etc., for persons who normally work indoors but who are occasionally required to work out of doors under adverse weather conditions, as for example when working during emergencies, operating switches, cleaning racks, etc.

Clothing supplied at stations should be limited to one or two coats and hats, depending upon the number of employees.

33.2.4 For Normal Work Which Must be Performed Occasionally, Under Extreme Conditions

Hip or knee length rubber boots and weatherproof coats and hats may be obtained and issued temporarily to construction workers, maintenance workers, and labourers when required to work in extremely wet locations or under adverse weather conditions.

One or two rainproof coats and hats, depending upon the number of employees involved, may be provided for each line, forestry and maintenance truck or gang for use in emergencies when workers could not be reasonably expected to have protective clothing available at all times.

33.2.5 For Work Involving Exposure to Materials that are Injurious to Health and Particularly Destructive of Clothing

Rubber boots, aprons and gloves of an approved material may be provided for employees when handling acids for batteries, cleaning transformer coils or for other work which is similarly destructive of clothing.

Aprons, gloves and sleeves made of plastic, plastic-coated or other approved material may be provided for employees who are required to handle creosote, creosoted poles or timber as a protection against burns or damage to clothing.

Protective clothing such as coveralls, gloves and rubber boots may be provided for temporary issuance to employees for use when applying herbicides.

Because of the fire hazard in welding and the destructive nature of the work, welders' aprons, armlets and gauntlets may be provided.

33.2.6 To Promote Safety

Safety headgear, eye protection, rubber gloves (electrical), and similar items which are designed exclusively for the safety of employees and the wearing of which is made obligatory on certain types of work, will be provided by the Company.
Special footwear will be provided for the safety of workers when required to work near forebays, sluices, etc., under icy, slippery or otherwise hazardous conditions.

Safety Footwear:

I Employees required to wear protective footwear will be reimbursed as follows:

The dollar limits (actual cost) are:

(1) For those persons required to regularly wear climbing spurs or who are regularly required to climb steel structures as part of their normal duties:

**one or two pairs in one calendar year to a combined maximum of $350.**

(2) **One or two pairs in one calendar year to a combined maximum of $300** will apply to others who choose or are required to wear CSA approved ESR protective footwear.

(3) Others who choose not to wear approved ESR protective footwear, will be reimbursed fifty per cent (50%) of the actual cost, up to a maximum reimbursement of $75.00 per pair.

II Employees who are not required to wear protective footwear:

Employees who purchase safety footwear will be reimbursed thirty-three and one-third percent (33-1/3%) of the actual cost up to a maximum reimbursement of $20.00 per pair subject to the approval of the appropriate manager or supervisor.

**NOTES**

Temporary employees will be reimbursed for a maximum of one pair in each six-month period.

A limit of two pairs of safety shoes or boots per person will be subsidized in a calendar year.

These actual cost maximums include applicable taxes.

33.2.7 Special Conditions

Requests for items of clothing not mentioned but which might be reasonably supplied under the conditions set forth herein will be considered, each case on its own merits.

The company will supply maternity clothing where it is reasonably available to the Company and is requested by a pregnant employee.

33.3 Issuance, Care of, and Responsibility for Clothing Provided by the Company

In order that the use obtained from clothing purchased by the Company may justify the expenditure, the following shall be carefully observed:
1. Except in isolated cases, special clothing must not be issued to any one employee for exclusive use but must be kept available for any employee who may require it for Company purposes mentioned herein.

2. When no longer required on the job, clothing must be promptly returned to local headquarters, station or truck where it will be readily available when required.

3. All clothing furnished by the Company will remain the property of the Company and must be clearly and prominently marked for easy identification.

4. Where loss or destruction of Company clothing issued to an employee occurs as a result of carelessness on the part of the employee, the employee will be required to make good such loss.

34.0 PURCHASING PRIVILEGES - SURPLUS EQUIPMENT STORES

Employees shall have purchasing privileges at Surplus Equipment and Material Stores to the same limit as extended to the general public.

35.0 RETURN OF COMPANY PROPERTY

It is agreed that employees whose employment terminates with the Company shall be responsible for the return of any Company property issued to them during the term of their employment. Failure to return such property shall result in the Company deducting its current value from any monies owing to the employees.

36.0 TIME CHANGE - SHIFT WORKERS

When the clocks are changed due to daylight saving time, the following principles will apply:

1. Employees who are scheduled to work during the affected hours will work a shift which is either shortened or extended by one hour.

2. Payment for the shortened or extended shift will not be calculated on the basis of actual hours worked, rather will be based on the number of hours normally worked (eight or twelve).

37.0 REST PERIODS

Each employee shall be entitled to a 10 minute rest period in the first half and second half of each scheduled work day at a time designated by the Company.
38.0  **BI-WEEKLY PAY DAYS**

38.1 Salaries and wages of all employees throughout the Company covered by this Agreement shall be once every two weeks on the third Thursday following completion of the pay period. This payment will be by direct deposit to one account designated by the employee in a Canadian financial institution with a Canadian Payment Association (CPA) serviceability code of 1 or 2. (CPA serviceability code definitions in effect June 5th, 1991 or subsequent code numbers providing equivalent accessibility). The Company is responsible for the cost of depositing these funds to the employee's account.

38.2 Existing employees who were paid the equivalent of one week’s base pay during the transition from weekly pay to weekly direct deposit pay will have the amount of this one week payment deducted from their final payment of salaries and wages from the Company (i.e., termination, retirement, etc.)

39.0  **ESCALATOR CLAUSE**

1. The parties have agreed for the three year term of this Collective Agreement to include an escalator clause applicable in the last year of the contract. This provision will terminate as of March 31st, 2015 and will not be automatically renewed in any subsequent collective agreement. This escalator clause is designed to generate a maximum of one wage increase on April 1st, 2014 and none thereafter.

2. In the third year of the Collective Agreement, namely April 1st, 2014 to March 31st, 2015, the following formula shall apply:

   (a) An increase of more than 2.75% in the Ontario All Items index (2002 = 100) published by Statistics Canada in February, 2014 (published in March, 2014) over the index for February, 2013 (published in March, 2013) will activate the escalator clause.

   (b) On April 1st, 2014, base rates and band rates will be increased by an amount equivalent to the amount by which the increase in the Index exceeds 2.75% in the 12 month period specified in (a) above but in no case shall the amount of such increase exceed 2.75%.

   (c) This wage increase would be implemented effective April 1st, 2014 at the same time as the negotiated 2.75% wage increase referred in Part A, Item 43.0 below. There will be no compounding of these wage increases.

3. In the calculation of fractions, the simple 5/4 method of rounding will be used. That is, .00001 to .00499 rounds to down and .00500 to .00999 rounds up. This rounding methodology is to be used in the calculation of wage rates.

4. The availability of the escalator shall depend upon the continued availability of the Index calculated on its present base and in its present form. If the Index is not available, the parties will meet and agree on an appropriate alternative conversion of the Index.
40.0 Reduced Work Week Entitlement (RWE)

This clause is applicable only to those employees who were forty (40) hour workers on or before October 3rd 2001 and who voted in favour for the restoration of a RWE

The RWE shall operate in the following manner:

Employees who voted in favour for the restoration of RWE shall continue to work forty (40) hours per week. They will be paid for thirty nine (39) of these hours and the additional worked hour will be banked to a maximum of fifty (52) hours per year.

1. The normal scheduled and paid hours of work will remain at 40 per week.
2. Overtime rates will be paid for all hours in excess of normal scheduled hours.
3. This banked time may be taken on such days as the employee and his/her supervisor mutually agree upon following reasonable advance notice on the part of the employee.
4. Banked time may be taken off in a minimum of half-day (i.e., four-hour) increments.
5. Banked time accumulated in a calendar year must be taken by April 30th of the following year.
6. Where the employee is unable to reach mutual agreement with his/her supervisor to take his/her banked time entitlement (except when exhausting sick leave prior to LTD as noted in Part A, Item 12.2.1), unused banked time entitlement will be assigned on the last working day(s) prior to April 30th.
7. Where an employee falls sick on his/her scheduled banked time off, that day will not be charged against his/her sick leave credits, but shall be treated as banked time off for pay purposes.
8. Banked time will not accumulate for any period of unpaid leave exceeding 40 consecutive scheduled hours. Scheduled days off will not be considered as breaking the consecutive nature of scheduled hours. Banked time will accumulate during a paid leave of absence and Pregnancy / Adoptive / Parental Leave.
9. When an employee terminates or when an employee is reclassified to a job where the normal hours of work are less than 40 hours per week, unused banked time will be paid off at straight time rates.

41.0 TEMPORARY EXTERNAL PROJECT ASSIGNMENTS IN ONTARIO

This provision deals with the rights of PWU members who accept temporary external project assignments involving project work to be performed within Ontario.

1. The PWU maintains the right of representation for members performing work on such projects.
2. The PWU recognizes the need to have the ability to assign volunteer PWU members to such project assignments, away from Company facilities. In order to meet these needs, OPG may require labour contract flexibility.

3. The Sector Vice-President and OPG will jointly develop principles for the establishment of labour terms and conditions for external projects involving work to be performed by PWU workers in Ontario.

4. The proposed labour terms and conditions for Ontario-based work for a particular external project will be submitted by OPG to the PWU Sector Vice-President for review. Where the principles (jointly developed under Item 3) have been satisfied, the Sector Vice-President will provide written agreement to the proposed terms and conditions within 48 hours. Where the principles have not been satisfied, the Sector Vice-President will advise OPG within 48 hours of the issues to be addressed, will negotiate with OPG to resolve these issues, and will reach a final joint decision (agreement or rejection) within an additional 48 hours. The terms and conditions jointly agreed upon for a particular project will change the normal provisions of the Collective Agreement for the term of the particular external project.

5. In the event of applying Article 11, employees who accept temporary OPG assignments will continue to be considered as though they had remained in their home work unit and will be subject to the contractual terms and conditions then in force. Employees will be entitled during the term of their Ontario-based OPG assignments to exercise their redeployment rights unless OPG determines that to do so would seriously jeopardize the international project, in which case the affected employees' rights will be deferred until they return to their home unit.

42.0 Relief

If an employee, relieving in a higher position falls sick, he/she will be paid sick benefits of the rate of the job in which he/she is relieving only up to the first point on the schedule where he/she would have normally returned to his/her basic rate. From this point onward, sick benefits during this illness will be based on his/her basic classification rate.

In recognition that employees are regularly required and scheduled to provide relief in higher positions, they shall receive for their full vacation period the rate of the higher position when such relief has been provided for 50 percent (50%) or more of a vacation year. Employees relieving in a higher position for less than 50 percent (50%) of the vacation year will be paid the rate of their regular classification during the full vacation period.
### 43.0 WAGE STRUCTURE

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## PART B

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PART B

HYDROELECTRIC AND FACILITIES MAINTENANCE TRADES

Specific Matters of Agreement

1.0 HOURS OF WORK

1.1 Facilities Maintenance Trades Employees (Except Hydroelectric & Building Operators at 700 University)

1. The normal work week of all facilities maintenance trades employees of the Company shall be 40 hours per week consisting of five days of eight hours (not before 7:00 am and not later than 6:00 pm) Monday to Friday inclusive.

2. A change to established hours of work within the core hours (7:00 a.m. to 6:00 p.m.) shall be a matter for discussion between the Union (Chief Steward) and the Company. When changes in hours of work are contemplated the preference of 70% of affected staff in the classification(s) will be considered to be the preference of that classification(s). Where the work of classifications is interdependent (e.g., rehabilitation work, electrical, mechanical, civil), the preference of 70% of the employees in the interdependent classifications will be deemed to be the preference.

However, if in the Company's opinion the desired hours of work of the affected classifications cannot be accommodated then the Company will provide the Union (Chief Steward) with written rationale for such a decision.

3. Excepting for shift work, all other work outside of the normally scheduled hours shall be considered overtime and paid for at the appropriate premium rates.

1.2 Shift Work (Facilities Maintenance Trades Employees - Except Hydroelectric & Building Operators at 700 University)

1. The procedures for establishing shift work are as follows:

(a) In order to establish shifts, it shall not be necessary to have a continuity of the same specific operation.

(b) Seventy-two hours' notice shall be given in writing stating the group and the estimated length of the work period involved. A copy of the notice shall be forwarded to the Chief Steward of the Union.

(c) If the work period is for three working days or less, the appropriate premium rate shall be paid.
(d) For periods of longer than three working days for which the 72 hours' notice has been given, the appropriate shift differential shall be paid.

(e) Work performed on Saturdays, Sundays and statutory holidays shall be at the appropriate premium rate.

(f) Facilities Maintenance Trades Employees on afternoon shift will be paid straight time for the one hour of normal working time between 0000 hours (midnight) Friday and 0100 hours Saturday morning.

1.3 Hours of Work - Hydroelectric

Maintenance trades employees of Hydroelectric will be assigned by Management to either day work or shift work.

1.3.1 Day Work - Hydroelectric

1. The normal work week of all maintenance trades employees of Hydroelectric shall be 40 hours per week consisting of five days of eight hours (not before 7:00 am and not later than 6:00 pm) Monday to Friday inclusive.

The normal work week for former T&W-Field Mechanics shall be 40 hours per week consisting of five (5) days of eight (8) hours (not before 6:00 a.m. and no later than 8:00 p.m.), Monday to Friday inclusive. The start times for these employees may be adjusted within the window by Management with seven (7) days' notice to the affected individuals. Such adjusted start times will be equitably rotated among all employees in the classification at the work site.

2. A change to established hours of work within the core hours (7:00 am to 6:00 pm) shall be a matter for discussion between the Union Chief Steward and the Company. When changes in hours of work are contemplated the preference of 70% of affected staff in the classification(s) will be considered to be the preference of that classification(s). Where the work of classifications is inter-dependent (e.g., electrical, mechanical and civil), the preference of 70% of the employees in the inter-dependent classifications will be deemed to be the preference.

However, if in the Company's opinion the desired hours of work of the affected classifications cannot be accommodated then the Company will provide the Union Chief Steward with written rationale for such a decision.

3. Except for shift work, all other work outside of the normally scheduled hours shall be considered overtime and paid for at the appropriate premium rates.

4. A minimum of seven (7) days personal notice shall be given when the employees hours of work are changed.

In the case of illness which would result in a staff shortage, four (4) days personal notice will be given when placing an employee on shift.
5. In emergencies three (3) days personal notice shall be given when the employee's hours of work are to be changed.

6. Failure to provide the required notice period will result in the payment of double time being paid until the required notice period has elapsed.

**NOTE**

Personal notice means the employee will be contacted personally, face to face or by telephone. The contact must be made with the employee, no messages. Personal notice will be followed up within 72 hours with posted notice which will list the time and date the employee was personally contacted. If the notice is not posted within 72 hours, management will pay 4 hours at straight time to the person who was shift changed.

### 1.3.2 Shift Work (Including Building Operators at 700 University)

Shift work may be established for Hydroelectric maintenance trades employees under the following conditions:

1. (a) Eight-Hour Shifts

Shifts: The normal hours of work for non-time balanced eight hour shifts are 40 per week. Shifts may be performed in one, two or three shifts per day, Monday to Sunday inclusive.

- 1st Shift - 0000 hrs to 0800 hrs
- 2nd Shift - 0800 hrs to 1600 hrs
- 3rd Shift - 1600 hrs to 2400 hrs

The above shift start and stop times may be changed by local agreement between the Plant Group Manager and the Union Chief Steward.

#### Shift Differential

- 1st Shift - 85 cents per hour
- 2nd Shift - No shift differential
- 3rd Shift - 65 cents per hour

#### Meal Periods

One (1) paid meal period will be included within each shift as conditions permit.

#### Schedule

A maximum of five (5) consecutive eight (8) hour shifts in any seven (7) day period.
Time Balance

Eight (8) hour shifts may be subject to the time balance provisions of Section 8. if these shifts are used in conjunction with ten (10) and/or twelve (12) hour time balance shifts.

Notice Period

A minimum of seven (7) days' personal notice shall be given when an employee's hours of work are to be changed (except as per 1.3.1 (4.) and (5.).

(b) Ten-Hour Shifts

Shifts: The normal hours of work for non-time balanced ten hour shifts are 40 per week. Shifts may be performed in one or two shifts per day, Monday to Sunday, inclusive, and may be performed within the following shift windows:

<table>
<thead>
<tr>
<th>Shift</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>0600 hrs to 1800 hrs</td>
</tr>
<tr>
<td>2nd</td>
<td>1400 hrs to 0200 hrs</td>
</tr>
</tbody>
</table>

Shift start/stop times and/or shift windows can be changed by local agreement between the Plant Group Manager and the Chief Steward.

Shift Differential

<table>
<thead>
<tr>
<th>Shift</th>
<th>Differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>No shift differential</td>
</tr>
<tr>
<td>2nd</td>
<td>70 cents per hour</td>
</tr>
</tbody>
</table>

Meal Period

One (1) paid meal period will be included within each shift.

Schedule

A maximum of four (4) consecutive ten (10) hour shifts may be scheduled in any seven (7) day period.

Time Balance

Ten (10) hour shifts may be subject to the time balance provisions of Section 8.

Notice Period

A minimum of seven (7) days' personal notice shall be given when an employee's hours of work are to be changed (except as per 1.3.1 (4.) and (5.).
(c) Twelve-Hour Shifts

Shifts: Shifts may be performed in one or two shifts per day, Monday to Sunday, inclusive, and may be performed within the following shift windows:

- **1st Shift**: 1800 hrs to 0800 hrs
- **2nd Shift**: 0600 hrs to 2000 hrs

Shift start/stop times and/or shift windows can be changed by local agreement between the Plant Group Manager and the Chief Steward.

Shift Differential

- **1st Shift**: $1.00 per hour
- **2nd Shift**: No shift differential

Meal Periods

Two (2) paid meal periods will be included within each shift as conditions permit.

Time Balance

Twelve (12) hour shifts will be subject to the time balance provisions of Section 8 (a).

Notice Period

A minimum of seven (7) days' personal notice shall be given when an employee's hours of work are to be changed (except as per 1.3.1 (4.) and (5.).

2. Short Duration Shifts

Shifts as per 1.3.2.1 (a.), (b.) and (c.) may be scheduled for short durations (maximum three (3) consecutive weeks) for maintenance trades employees. No more than four (4) rotations onto these shifts may be worked by any individual in one (1) calendar year.

3. Work Schedules for Shift Work

The Company will post a work schedule for shift workers showing days, hours of work, position and work headquarters of each employee. The design of the work schedule shall provide for a minimum of sixteen (16) hours off between shifts for eight (8) hour shifts, twelve (12) hours off between shifts for ten (10) and twelve (12) hour shifts. Failure to provide the minimum time off between shifts shall require premium rates to be paid for the first affected shift. Without specific commitment, the Company acknowledges the responsibility that such work schedules shall be posted as far in advance as is practicable and subject to the penalty indicated in Subsection 5(d). Until a new work schedule is posted, the existing posted work schedule will remain in effect.
Although the content, preparation, posting and administration of shift schedules is the sole responsibility of the Company, the preference of the majority of shift workers at each station for a particular basic type of schedule will be adopted. Such preferences will be made known to the Company prior to commencement of preparation of a new schedule. However, if in the Company's opinion, the efficiency of the station or the health of a shift worker could be detrimentally affected by the chosen work schedule, then the Company will provide the Union (Chief Steward) with reasons or medical opinions why the desired schedule cannot be implemented.

The preference of individual shift workers regarding vacation periods will be considered, providing such preferences are made known prior to commencement of preparation of new schedules.

The following are the recognized criteria of an acceptable shift schedule:

(a) The schedule should equitably rotate among all crews.
(b) The schedule should follow a repeating pattern so that it is easily understood.

Ten-hour non-time balanced shift schedules will be assigned as follows:

A minimum duration of four (4) weeks and;
A maximum of four (4) days of 1st shifts in a row and;
A maximum of four (4) days of 2nd shifts in a row.

4. Premium Payments - Scheduled Shift Work

1. One and one-half times the employee's basic rate shall be paid for normal scheduled hours of work performed on Saturdays and Sundays.

2. Two times the employee's basic rate shall be paid for normal scheduled hours of work performed on a statutory holiday which occurs on a Monday to Friday. A day off in lieu of this worked holiday shall be scheduled within the following six months. The employee will advise the Company of his/her preferred day off within 30 days after the holiday is worked. If mutual agreement cannot be reached within 30 days of the worked holiday, management may, on seven days’ notice, schedule the lieu day off.

3. Two times the employee's basic rate shall be paid for normal scheduled hours of work performed on a statutory holiday which occurs on a Saturday. There is no entitlement to a day off in lieu of this worked holiday.

4. If mutually agreeable, three times the employee's basic rate shall be paid for normal scheduled hours worked on a statutory holiday occurring on a Monday to Friday. No lieu day would be granted.

5. Special Provisions Concerning Notice of Transfer to a Different Work Schedule or Work Headquarters

One (1) day notice in this item is defined as 24 hours prior to the start of the first affected shift.
(a) When an employee's work headquarters are to be changed, seven (7) days' personal notice will be provided.

(b) When a shift employee is being changed back to his/her normal schedule, he/she shall be given two (2) days' notice if returning to normal schedule within fifteen (15) days of the original change and seven (7) days' notice if returning to normal schedule fifteen (15) days or more after the original change.

(c) Trades Trainees in Steps 0 to 1 may be changed within a calendar day for training purposes, provided that a notice period of sixteen (16) non-working hours is given before the start of the first affected shift.

(d) Failure to provide the required notice period will result in the payment of double time until the required notice period has elapsed.

6. Special Provisions Concerning Shift Differential

The appropriate shift differential shall be paid for regular shift hours only in accordance with Item 1.3.2(1.) (a), (b) and (c), and shall not apply for overtime hours. When premium time is involved for payment of shift work, the premium rate shall be computed on the standard base rate, excluding shift differential.

7. Calendar Day for Shift Workers

Premium payments for a regular continuous shift shall be recorded and treated as if they occurred during the calendar day in which the shift ends.

8. Provisions Concerning Time Balance Shift

A current six-month time balance schedule may not be terminated. Either eight-hour, ten-hour or twelve-hour time balance shift work which is in effect for any work group may be terminated by the Sector Vice President or Delegate or the Plant Group Manager upon two (2) months' written notice from one authority to the other prior to the end of a current six-month schedule. When the Sector Vice President or Delegate has exercised the right to opt out of time balance schedules for any group of employees, no new time balance schedule may be introduced for those employees without mutual agreement of management and the Union.

Time balance shift schedules will only be introduced at any work location providing seventy percent (70%) or more of all eligible employees so desire and vote in favour. That vote will be as determined by a secret ballot, scrutineered jointly by Management and the Union.

A six (6) month master work schedule will be posted thirty (30) days prior to its starting date. The time balance period of the six (6) month schedule may be less than six (6) months. The six (6) month schedule may include day work outside the time balance shift period. The schedule will average forty (40) hours per week using either eight, ten or twelve (8, 10 or 12) hour shifts, or any combination of the three. The schedule will indicate the days, hours of work (shifts) and position for each employee. The schedules will end on the last day of the shift cycle closest to April 30th and October 31st.
The hours of work for each employee, as shown on a work schedule, must balance to zero at the end of the shift cycle.

The zero time balance date must be indicated on each posted schedule.

The posted time balance date must be indicated on each posted schedule.

The posted master work schedule should never be far off balance and should reasonably approximate the time off provisions of day work. It follows then that such a schedule should not leave long sequences of work without time off, nor long sequences of time off.

(a) Plus Time Balance

Plus time balances which exist on the time balance date will be paid for at double time. At the time of layoff all positive time balances will be paid out at 2X.

(b) Minus Time Balances

Minus time balances which occur as a result of changes to the master work schedule shall be worked off within two fiscal months of the end of the fiscal month in which the minus balance occurs. Minus balances not worked off within this two-month period will be written off.

(c) Lieu Days

When scheduled work is performed on a statutory holiday, a day off will be scheduled in lieu of the statutory holiday. This lieu day shall be identified on the schedule and will be included when computing time balances. When workload permits, the employee may request that the lieu day be interchanged with another scheduled working day after the statutory holiday.

(d) Provisions Concerning Time Off

(i) The following items will be credited for pay purposes on an hour-for-hour basis. In the application of undernoted Items, 1, 2, 3 and 4, a reference under the appropriate contract provision to "days" entitlement will mean eight (8) hours. Therefore a twelve (12) hour shift will constitute one and one-half (1.5) days deducted from credits and a ten (10) hour shift will constitute one and a quarter (1.25) days deducted from credits.

(1) Vacation
(2) Floating Holiday
(3) Sick Leave
(4) Leave of Absence
(5) Travelling Time Outside Normal Working Hours
(6) Payment for Temporary Supervision
(7) Time Charges and Expenses for Employee Union Representatives
(ii) When an employee is scheduled to work a ten (10) or twelve (12) hour shift and one of the undernoted conditions occurs, a “day” will be considered to be ten (10) or twelve (12) hours respectively:

(1) Jury Duty  
(2) Funerals  
(3) Moving Day  

(e) Statutory Holidays and Special Time Off

The basic statutory holiday and special time off provisions remain unchanged in that the time off will be calculated on an eight (8) hour basis. However, employees eligible for Remembrance Day and scheduled to work will get the normally scheduled hours off with pay.

(f) Assignment to Day Work or Eight Hour Shifts

Shift workers with a plus (+) or a minus (-) time balance assigned to day work or eight (8) hour shifts for an indeterminate period of time may be required to take off, or work a four (4) hour period respectively.

1.4 Non-Maintenance Trades Employees

The normal work week of Hospitality Workers and General Tradespersons who assist them shall be 40 hours per week consisting of any five consecutive days of the week not before 0530 hours and not later than 2030 hours.

2.0 DIFFERENTIAL FOR SHIFT MAINTENANCE TRADES EMPLOYEES (EXCEPT HYDROELECTRIC)

Shift differentials shall apply to employees required to work on a three-shift schedule or a two-shift schedule. The first part of a three-shift or a two-shift schedule shall begin at normal starting time.

A shift differential of 65 cents per hour shall be paid to employees who are scheduled to work between the hours of 1600 and 2400.

A shift differential of 85 cents per hour shall be paid to employees who are scheduled to work between the hours of 0000 to 0800.

For Regular part-time and Temporary part-time employees, shift differential is not applicable when the shift starts and ends between the hours of 0700 and 1800.

The appropriate shift differential shall be paid for the first eight hours of each scheduled shift on any regular scheduled day of work and shall not apply for any overtime hours. When premium time is involved for payment of shift work, the premium rate shall be computed on the standard basic rate excluding shift differential.
3.0 PAYMENT OF MEALS

3.1 Conditions Governing Allowance for Meals

Recognizing the fact that employees are required to provide their own meals (except as in 3.2) the following conditions will apply:

1. The Company shall not require an employee to carry or provide more than one meal on a day when work is performed.

2. Wherever possible, supervisors shall notify employees who do not normally carry a lunch of the necessity to carry a lunch the following day.

3. If an employee is sent away from headquarters in an emergency without sufficient notice for him/her to provide and take his/her own lunch, the Company will pay the cost of the employee’s noon day meal.

4. If an employee is required to continue working beyond a normal day, the Company will provide the employee’s meal after two hours or more and every four hours thereafter while the employee continues working.

5. If an employee is required to work extended periods of overtime, Monday to Friday inclusive, the Company shall pay the cost of the employee’s meal on a four-hour interval basis.

6. If an employee is called out to work extended periods of overtime on Saturday, Sunday or statutory holidays without forewarning, the Company shall pay the cost of the employee’s meal on a four-hour interval basis. If forewarned, the employee shall carry or provide the first meal and the Company shall pay the cost of any further meals on a four-hour interval basis.

7. When overtime has been scheduled in advance, a meal period will be allowed and no time will be paid for this period. When the overtime is not scheduled in advance, no time will be deducted if employees eat at the job site in a minimum of time.

8. In the conditions outlined in 3, 4, 5, and 6, the Company will either bring the meal to the employee or release him/her from duty long enough to secure and eat it. Where necessary, the Company will provide transportation for this purpose. Employees shall have the choice of the actual cost of the meal or a $15 meal allowance.

9. It is recognized that between the hours of midnight and normal starting time, it may not be feasible for the Company to provide a hot meal. The employee shall have the choice of a $15 meal allowance or the actual cost of the meal to be procured following the completion of his/her shift.
3.2 **Winter Meal Provisions**

In general, the winter months, for the purpose of this clause, shall cover the period of November 1st to April 30th for the areas south of the French River and the period October 1st to May 31st for areas north of the French River. However, if unseasonable weather is experienced any day during the two-week period immediately prior to the opening dates or subsequent to the closing dates, the supervisor in charge may, at his/her discretion, treat such days in the same manner as though they were included in the prescribed period.

During the winter months, if employees are required to work outdoors or in unheated buildings, subject to 3. hereunder, the Company will:

1. Provide means for carrying or storing the employee’s lunches in some warm place and also provide where necessary, transportation for reaching some warm and suitable place for eating lunch. Such time involved in transportation both ways to be absorbed by the Company, thereby allowing the full meal period upon arrival, or

2. Supply or pay for a hot meal and provide transportation. The meal period’s duration will be between the times of departure and re-arrival at the point of work and thus any time involved in transportation, both ways, is absorbed by the employee. Should the meal period be extended beyond its normal duration, any such excess will be absorbed by the employee by working equivalent overtime at straight time rates which will result in a total of normal daily hours of work and pay. This shall not preclude the providing of a meal when time involved is in excess of the normal meal period.

3. In some thinly-settled localities, there may be no warm place for storing or eating lunches, and no place where hot meals may be prepared within a reasonable distance from the point of work. Such conditions are beyond the Company’s control and necessarily form part of the working conditions in that locality. In such cases, lunches must be carried but employees will eat on the job in a minimum period of time. Such time shall not be deducted and the conditions listed above do not apply.

4.0 **EXTENSION OF LUNCH PERIODS**

Where lunch periods are restricted to half an hour and when it has been demonstrated that it has been difficult for employees to get their lunch and return to the job within one-half hour, the Company may exercise its prerogative in extending the lunch period to a maximum of one hour, with the necessary adjustments to the working hours of the day.

5.0 **OVERTIME**

5.1 Due to the nature of the Company operations, some employees will be required to work overtime. Overtime will be minimized and managed within the limits of corporate effectiveness and customer impact. In recognition of employee well-being and inconvenience, an effort shall be made to equitably distribute overtime amongst all qualified employees. Overtime, as used herein,
means that part of the actual working time which is outside the normal scheduled hours and is, therefore, subject to compensation at premium rates.

5.2 **Premium Payments**

Premium payment for overtime which does not include shift work shall be as follows:

1. One and one-half times the employee's basic rate shall be paid for all work performed during the first four clock hours after normal quitting time, Monday to Friday inclusive.

2. Two times the employee's basic rate shall be paid for:

   - All work performed outside of the first four clock hours after normal quitting time, Monday to Friday inclusive.
   - All work performed on a regular day off, on Saturdays, Sundays or statutory holidays.

3. When less than 48 hours' notice has been provided and an extra trip to the work location has been made to work overtime, time shall be counted from the time the employee leaves his/her home until he/she returns.

5.3 **Overtime Cancellation Payments**

All overtime cancelled within 48 hours of its scheduled commencement shall result in a cancellation payment of two hours at straight time rate except in the following circumstances:

1. Overtime arranged during normal scheduled hours as an extension to those normal scheduled hours requires no cancellation payments.

2. Overtime arranged as an extension before the normal hours of work requires no cancellation payment if cancelled with more than 16 hours’ notice prior to its commencement.

5.4 **Overtime Minimum Payments**

All overtime performed, or reported for due to lack of notice of cancellation, shall result in a minimum payment of the greater of four hours at the appropriate premium rate or the actual time worked at the appropriate premium rate, except in the following circumstances:

1. Overtime arranged during normal working hours and worked as an extension before and/or after the employee's normal hours of work requires no minimum payment.

2. When short call-outs are repeated within one hour of the completion of a previous call-out for which the minimum was paid, no additional minimum payment is required.
3. For overtime call-outs occurring less than two hours before the commencement of normal starting time, the minimum will not apply and the appropriate premium rate will be paid continuously from call-out time until normal starting time.

6.0 SPECIAL PROVISIONS CONCERNING OVERTIME

1. Because an employee was required to work overtime or because he/she lost time in changing shifts, he/she shall not be prevented from working his/her total number of normal daily hours in any normal scheduled day of work. If the employee cannot be supplied with the work required to make up the eight hours' work in that day, his/her pay shall be adjusted to provide a minimum of eight hours' work.

2. If an employee who has worked overtime is physically capable and the gang of which he/she is ordinarily a member is at work, he/she shall not be deprived of the opportunity of working his/her normal scheduled hours in addition to the overtime he/she may have worked.

3. An employee who has accumulated overtime hours shall receive this, in earnings, calculated at the appropriate premium rate and cannot be required to take time off in lieu of payment.

4. Employees who have worked overtime qualify for a rest period based on the following:

1. An employee who is required to work continuously for more than 16 hours, or an employee who accumulates 16 hours of working time in any 24-hour period without a minimum five-hour continuous break between 2300 and 0700 hours, shall be entitled to an eight-hour rest period. Time spent for meals may be deducted from the total elapsed time but is not to be considered as breaking the continuity of the hours worked.

If the rest period extends into the employee's normal scheduled hours of work he/she shall be paid at straight time rates for the portion of the rest period which extends into the normal scheduled hours. This is in addition to the overtime worked.

Should the employee be required to continue working beyond the above 16-hour work periods, the employee shall be paid two times his/her normal basic rate until an eight-hour rest period is granted.

Should an employee be released before 16 hours have elapsed, he/she will not be entitled to an eight-hour rest period, and his/her right to continue work at straight time will be governed by Section 6.0(2.), above.

2. An employee on day work who is required to work four or greater accumulative overtime hours between the hours of 2300 and 0700 shall be entitled to an 8 hour rest period.

3. If the rest period in 2 above extends into the employee's normal scheduled hours of work, he/she shall be paid at straight time rates for the portion of the rest period which extends into the normal scheduled hours. Should the employee be required to continue working
during normal scheduled hours, the employee shall be paid at two times his/her normal basic rate until the rest period is granted.

5. In computing overtime for employees on shift work, one and one-half times the employee's basic rate shall be paid for all work performed during the four-hour period following the scheduled shift and two times the employee’s basic rate shall be paid for all work performed during the 12-hour period prior to the start of the scheduled shift, Monday to Friday inclusive. All work performed on Saturday, Sunday and statutory holidays shall be paid at two times the employee’s basic rate.


7. Hospitality Workers and General Tradespersons who assist them shall be paid two times the employee’s basic rate for all work performed on the sixth and seventh day of their five-day schedule, and on statutory holidays.

8. Overtime - Regular Part-Time and Temporary Part Time Employees

Overtime is defined as: (1) hours worked which are in excess of the normal daily hours of the classification; or (2) hours worked in excess of 24 in a week; or (3) hours worked on a regular day off.

Premium Payment for Overtime:

Extension Overtime: Overtime hours worked within the first four clock hours will be at one and one-half times the employee’s basic rate unless the employee works more than 28 hours in a week in which case the hours in excess of 28 will be paid at two times the employee's basic rate.

Non-Extension Overtime: All overtime hours worked that are outside of the first four clock hours after the classification's normal quitting time will be at two times the employees’ basic rate.

Regular Day Off: Overtime hours worked on a regular day off will be paid at two times the employee's basic rate.

7.0 TRAVELLING TIME TO AND FROM THE JOB

Maintenance Trades employees shall travel from their headquarters to and from the job on Company time. The word "headquarters" shall be for the purpose of this item "where the employee normally reports for work".
8.0 WATER WORKERS

8.1 Water Worker III (Band III)

Diver, Scuba diver and Captain of the Niagara Queen are duties of a Water Worker III.

If a Band I or Band II employee is required to dive during a normal working day (Monday to Friday 0000 to 2400 hours) shall receive a minimum of eight hours at the appropriate Band III relief rate. For diving operations beginning before and ending after midnight (2400 hours), the minimum will be payable only for the day diving began.

All diving performed between sunset and sunrise shall be paid at the premium rate irrespective of regular scheduled hours.

In addition to the foregoing, the Company will insure the life of an employee required to dive, in the amount of $10,000 during diving operations.

During normal scheduled hours, if an employee is called upon to perform the duties of Boat Captain of the Niagara Queen, he/she shall be paid a minimum of four hours at the Band III supervisory rate, or actual hours worked, whichever is the greater.

8.2 Water Worker II (Band II)

Diver Tender, Engineperson, Deckhand of the Niagara Queen and operation of a boat 7.92 m (26 feet) in length or more are duties of a Water Worker.

Water Worker II’s shall not be required to act as safety scuba divers during diving operations.

Water Worker II’s will be given a suitable course designed by Health and Safety Division in the diagnosis and treatment of diseases peculiar to the diving trade.

All Band I employees performing relief as Water Worker II’s shall be paid the appropriate Band II relief rate for a fully scheduled day.

9.0 APPRENTICES/TRAINEES

Upon completion of 2 years of service, Apprentices/Trainees shall be entitled to all the benefits afforded a regular employee as outlined in Part A, Item 23.0.

Effective April 1st, 2009 OPG will require Apprentices/Trainees to register with the Ministry of Training, Colleges and Universities (MTCU). However, the completion of the C of A and C of Q is the responsibility of the Apprentice/Trainee. Apprentices/Trainees will be reimbursed for the registration fee charged by the MTCU. Apprentices/Trainees will be reimbursed for the examination fee and paid at their basic rate, for the time required to write each examination once, up to the maximum number of hours established by the appropriate Agency/Ministry for each examination.
10.0 MANAGERIAL DUTIES

A management supervisors’ normal duties are supervisory in nature. Under normal circumstances they must not take the place of skilled workers. In the event that an emergency work condition arises, skilled help should be called in. Where suitable skilled help is not available at the required time, supervisors are expected to perform whatever duties are necessary. The foregoing is not intended to prohibit the management supervisor from carrying out appropriate training.

11.0 PAYMENT FOR TEMPORARY SUPERVISION

11.1 Tradesperson Responsibilities

A tradesperson is required to exercise judgment and control over his/her own actions so that the assigned work may be performed safely, efficiently, and effectively, and with consideration of its effect on others.

In a work situation, a journeyperson will be responsible only for his/her own work and the work and training of one apprentice or helper. However, for the purposes of training, a journeyperson may be required to teach trade skills of a specific task to more than one apprentice or journeyperson at one time. During such a teaching situation, the journeyperson is responsible, only, for the demonstration of trade skills and not for the work of the apprentices or journeyperson involved.

Where a group of employees are working at a location on jobs which are independent of one another and planned by a supervisor so that no coordination of their activities is required, additional supervision will not be required.

Where the job is being performed by three or more employees, one of them shall be appointed and paid as a trades supervisor in accordance with Article 8 and Part A, item 43.

11.2 Level of Supervision

While in receipt of 5% for supervision a tradesperson shall perform supervision for up to 3 days without face to face contact with his/her Union Trades Supervisor. Less frequent contact requires the 10% supervisory payment.

12.0 ADVERSE WEATHER

When in the Company’s opinion the weather is unduly adverse, employees shall not normally be required to work outside and the following shall apply:

12.1 Regular Employees

Regular employees shall within normal scheduled hours be provided with inside work.
12.2 Regular-Seasonal Employees

Employees who have attained regular-seasonal status in accordance with Part A, Item 2.0, and continue to be employed on a seasonal basis shall be entitled to a half day's pay per day or pay for actual hours worked or held whichever is the greater, providing the employee reports for work.

12.3 Temporary Employees

Two hours' pay will be allowed when a temporary employee reports and is prepared to remain for two hours at his/her place of work and is prevented from working due to unduly adverse weather.

If a temporary employee is required to remain at his/her place of work longer than two hours, he/she shall be paid for all the time he/she is required to stay on the job.

13.0 CLOTHING

13.1 Uniforms

The Company shall supply uniforms, where they are required to be worn, at no cost to the employee.

13.2 Stocking of Overalls and Associated Smocks

The Company will stock bib-type overalls, coveralls and associated smocks in Central Stores which will be available for purchase by employees on the basis of a cash sale.

13.3 Laundering and/or Supplying Clothing

When the supervisor in charge of a work crew deems a specific job dirty for the particular trade function, he/she shall either:

1. Authorize laundering of the employee's work clothing, or
2. Issue coveralls or other suitable clothing during the period in which this job is being performed.

13.4 Hydroelectric

1. Management will supply and clean coveralls or overalls. Replacement will be up to 2 pairs per 24 months if condition warrants.
2. Management will supply employees with two sets of 100% cotton or natural fibre shirts and pants every 24 months. Employees will be responsible for cleaning.
3. The company will supply a parka and insulated bib-overalls or insulated coveralls every 36 months to employees required to work periods outdoors. The company will attempt to bulk supply appropriate type parkas if it is more cost effective.
4. The Company will supply seasonal appropriate outdoor clothing, one spring/fall jacket every thirty-six (36) months.

Clothing supplies shall be jointly reviewed at the local level to ensure adequate supply and cost effectiveness.

Employees must exercise reasonable care in the use of the clothing supplied.

13.5 Facilities Maintenance Trade Employees

Along with the daily uniform, the appropriate outerwear shall be supplied. Replacement of the outdoor clothing shall be done once every thirty-six (36) months.

14.0 ACTING IN VACANCIES

All acting positions are to be limited to 90 days unless extensions are agreed to by the Company and the Union Chief Steward. Pending the arrival of the successful applicant and his/her assuming of the normal duties, the acting incumbent who is performing the normal duties and responsibilities of an "acting" position shall receive the rate for the position.

15.0 ON-CALL

Employees may be placed on-call, as required, outside of their regular working hours. On-Call depending on the nature of the anticipated work as follows:

15.1 On-Call

On-Call is the term used to cover trouble call service performed by station maintenance personnel and facilities maintenance trades (mechanics and electricians) who, because of their limited numbers and the resultant increased frequency with which they are required to perform service duty, are allowed up to a maximum of two hours between the time they are called and the time when they report for work. The rates of payment for on-call shall be computed at one half (1/2) hour at the employees basic hourly rate per day except for Saturdays, Sundays and statutory holidays when the rate will be one (1) hour at the employee's basic hourly rate per day. This rate includes payment for the use of the employee’s telephone. An employee who is required to report to work while on-call shall be paid for his/her working time in accordance with regulations governing overtime work, including the regulation governing work performed on a “short call” basis.

Staff will be assigned to on-call only if sufficient volunteers cannot be obtained. The assignment to on-call will be limited to two weeks in a four week period for any employee.
15.2 **Provisions for Telephones**

Telephone service to such designated employees deemed necessary by the Company shall be in accordance with Negotiated Policies and Practices Number 1.

15.3 When an employee is on service duty or on-call a paging device will be supplied where such service is available and experience in that area has proven it will provide a reliable service.

16.0 **HEADQUARTERS**

Headquarters, as referred to herein, means the building or point designated by the Company at which the employees are expected to report for work or to assemble for preparation for leaving for work at outside points. Employees moving from point to point, may have temporary headquarters established at some hotel or boarding place or some garage at which the truck is kept and at which the employees are to assemble.

17.0 **SHIFT WORK - PRINTING SERVICES DEPARTMENT**

The provisions of this Agreement shall apply to those employees hired after April 1st, 1982, designated by the Company as being required to work shift work to operate printing services.

1. Employees hired prior to April 1st, 1982, will have their day status protected until such time as they apply for and are accepted to a position requiring shift work.

2. Day status employees may volunteer for a trial period of shift work after which time they may either apply for a shift position when vacant or retain their day status as in 1. above.

The following item will apply to the shift staff of Printing Services Department:

1. **Hours of Work "Day Work":** Employees covered by this arrangement may be required to work on "day work". When shift employees are transferred to or from day work, a minimum of seven days' personal notice shall be given. Failure to provide the required notice shall result in the payment of double time for all full shifts worked until the notice period has elapsed.

2. When working "day work" the provisions of Part B Maintenance Trades shall apply.

17.1 **Working Conditions**

Hours of Work - Specific: The normal hours of work will be eight hours per day, 40 hours per week on a Monday to Friday basis.

The non-rotating shift work hours shall be as follows:

<table>
<thead>
<tr>
<th>shift</th>
<th>time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afternoon</td>
<td>1600 - 2400 hours</td>
</tr>
<tr>
<td>Nights</td>
<td>0000 - 0800 hours</td>
</tr>
</tbody>
</table>
Employees on shift work shall eat their meals during the shift hours as conditions permit.

Shift Differential: The appropriate shift differential as described in Part B, Item 2.0 will apply.

Shift work will not be scheduled on statutory holidays.

18.0 ASSIGNMENT OF OPERATOR AGENTS

For new operator agent assignments, management retains the right to determine the number and appropriate trades classification for each site. Assignment priority will be;

a) Maintenance Trades employees who are former Electrical Operators.
b) Senior Mechanical/Electrical volunteers.
c) If no volunteers, junior Mechanical/Electrical will be assigned.
PART C

HYDROELECTRIC OPERATORS
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PART C

HYDROELECTRIC OPERATORS

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11.0 MANAGERIAL DUTIES
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1.0 HOURS OF WORK

The content, preparation, posting and administration of shift schedules is the sole responsibility of the Company.

1.1 Regular Operators

1.1.1 Master Work Schedule

A six-month master work schedule, averaging 40 hours per week, posted one month in advance, will be prepared and posted for every station, indicating the days, hours of work (shift) and operating position for each operator in that station. The master work schedule will provide a minimum of 16 hours off between eight hour shifts.

Twelve hour shift provisions may be scheduled as per Mid-Term R-107-4.

1.1.2 Time Balance

1. The master work schedule shall have the time balance adjusted for each operator to zero on April 30 and October 31. Statutory holidays occurring and vacation allowances taken during the respective periods shall be included when computing time balances.

2. Plus time balances on the above dates shall be paid for at double time. At the time of layoff all positive time balances will be paid out at 2X.

3. Minus time balances which occur as a result of implementing the provisions of 1.1.3(1.), (4.), 1.3.4 and 1.3.5 shall be worked off in the master work schedule in which they occur or the two-month period immediately following the establishment of the minus time, whichever is the greater.

1.1.3 Revisions to Master Work Schedule

Revisions to master work schedules should be done in a manner that mutually meets the needs of both the employee and the Company.

It is the Company’s intent to minimize the impact of revisions to master work schedules on the affected employees consistent with good business practices.
This shall be accomplished by open discussion with all potentially affected employees to ensure:

- the impact of disruption to the employee’s previously scheduled time off is considered
- that employees understand the impact of the changes on the cost to the Company.

Master work schedules may be subject to revisions as follows:

1. Individual operators may be changed within the master work schedule for strengthening of shifts providing a minimum of seven days’ personal notice is given. The intention is that such changes shall normally be of a permanent nature.

   In the case of illness, which would result in a staff shortage, four (4) days’ advance notice will be given when placing an employee on shift.

2. Supernumerary hours of work may be changed within a calendar day to supply relief providing a minimum notice of 16 non-working hours is given before the start of the first affected shift. If sufficient notice cannot be provided, this change will not be made.

3. With a minimum of four days' notice, supernumerary days of work may be interchanged with scheduled days off for purposes of relief, meetings (excluding meetings involving Union), interviews, short leaves of absence, familiarization trips, training programs and for additional help during heavy workload periods. If more than four weeks separates a scheduled supernumerary day from a scheduled day off or four days' notice cannot be given then these may not be interchanged.

4. Once per schedule per operator and with a minimum of four days' notice an individual operator may be temporarily transferred from his/her master work schedule to the master work schedule of an operator who will be absent for at least ten working days. Seven days' notice will apply for subsequent temporary transfers. Such transfers shall be for the purpose of supplying relief for staff shortages due to transfers, leaves of absence or the absence of an operator involved in training as outlined in 1.4.5. An operator so transferred shall be required to assume the schedule of the absent operator and two days' notice shall be given when returning to his/her normal master work schedule.

   A maximum of two additional regular operators may be temporarily transferred to fill in behind the relieving operator and their moves shall be governed by the foregoing of this item.

5. An individual operator's schedule on a master shift schedule may be changed without penalty, as a result of his/her request for an extension of his/her vacation as outlined in 5.0(2.)(d).

**NOTE**

In the above revisions every effort will be made by the Company to maintain the minimum of 16 hours off between shifts. However, where it is necessary to do so and with the appropriate notice, less than 16 hours off between shifts may be scheduled. These short changes will be limited to two changes per operator for a posted master schedule.
NOTE

Personal notice means the employee will be contacted personally, face to face or by telephone. The contact must be made with the employee, no messages. Personal notice will be followed up within 72 hours with posted notice which will list the time and date the employee was personally contacted. If the notice is not posted within 72 hours, management will pay 4 hours at straight time to the person who was shift changed.

1.1.4 Penalties

1. Failure to comply with one month's advance posting, as indicated in 1.1.1 shall require the payment of double time for work performed under the new schedule for which one month's advance posting has not been provided.

2. Failure to give the required notice, as indicated in 1.1.3(1.) and (4.) shall require the payment of double time until the notice period has elapsed.

1.2 Operator Trainees

1.2.1 Work Schedule

When supernumerary, operator trainees shall be given a four-week schedule, averaging 40 hours per week, posted one week in advance, showing days and hours of work. Once they have completed two (2) years of training, trainees will be placed on the master schedule the next time a master schedule is posted.

1.2.2 Revisions to Work Schedule

While adherence to the supernumerary schedule is desirable, flexible utilization of trainees' working time will, on occasion, necessitate change in days of work on 24 hours' notice and hours of work on 16 hours' notice.

1.2.3 Transfers between Work Schedule and Master Work Schedule

1. When transferring from a supernumerary schedule to the schedule of a regular operating position and also when returning to their supernumerary schedule they shall be given one day's notice providing the transfer involves a change in the hours of work.

2. Plus time that has accumulated as a result of having worked in master work schedules shall be scheduled as time off during the four-week period following the operators' return to their supernumerary schedules. Failure to schedule this time off as outlined above, or a cancellation of such scheduled time off, shall require the payment of all remaining plus time at double time.

3. When occupying a regular operating position they shall be subject to the provisions governing regular operators as detailed in 1.0.
1.2.4 Penalties

Failure to comply with the one week's advance posting, as indicated in 1.2.1 shall require the payment of double time for work performed under the new schedule for which one week's advance posting has not been provided.

Failure to give the required notice, as indicated in 1.2.2 and 1.2.3 shall require the payment of double time until the notice period has elapsed.

1.3 Miscellaneous Scheduling Provisions

1.3.1 Administration

Although the content, preparation, posting and administration of shift schedules is the sole responsibility of the Company, the preference of the majority of operators at each station for a particular basic type of schedule will be adopted. Such preferences will be made known to the Company prior to commencement of preparation of new schedule.

However, if in the Company's opinion, the efficiency of the station or the health of an operator could be detrimentally affected by the chosen schedule, then the Company will provide the Union (chief steward) with reasons or medical opinions why the desired schedule cannot be implemented.

The preference of individual operators regarding vacation periods will be considered, providing such preferences are made known prior to commencement of preparation of new schedules.

Operating positions identified on the Master Work Schedule will normally be filled.

During periods of destaffing of positions, discussions will be held with the local Chief Steward and Management to decide when positions filled in relief by operator trainees will be discontinued.

1.3.2 Changing Positions on a Shift

Changing of positions on a given shift shall not involve premium rates of pay.

1.3.3 Definition

Notice as referred to in this item shall be defined as per the following example: One day's notice shall mean 24 hours prior to the start of the first affected shift. Also, the notice period shall be deemed to commence coincident with the posting of the revised schedule.

1.3.4 Location Transfer or Promotion Within a Station

On transfer to a new location or promotion within a station, the individual operator is required to assume the existing schedule for the new position without notice or penalty. His/her time balance shall, unless special circumstances prevent, be adjusted before taking over his/her position on the master work schedule, and in any case before the zero balance date of the existing schedule.
1.3.5 Training

Operators may be temporarily transferred from their work schedules for purposes of job related training and development at the stations with Hydroelectric Operating Supervisors and at other locations where planned operator training is provided. Seven days’ personal notice shall be given to all participating operators except in the event of a late cancellation in which case an alternate operator may be selected and he/she may waive the notice period.

Failure to provide the required notice period will result in the payment of double time until the required notice period has elapsed.

1.3.6 Floating Statutory Holiday

A floating holiday may be interchanged with a supernumerary day or with a day where step-up relief can be provided. Floating holidays may be taken in the 12 month period from May 1st to April 30th.

2.0 FORTY-HOUR PER WEEK OPERATORS

2.1 Non-shift Day Operators

The normal work week for these positions shall be 40 hours per week, consisting of five days of eight hours each, Monday to Friday, inclusive, statutory holidays excepted. The standard hours of work shall be 0800 to 1200 hours and 1300 to 1700 hours, except where non-shift day operators are part of a shift complement, in which case their hours of work shall be 0800 to 1600 hours.

With local agreement between the Plant Group Manager and the local Chief Steward, a change to the standard hours can be made. However, the hours of work shall be between 0700 and 1700 hours.

Where in the Plant Group Manager’s opinion, the change in standard hours is not meeting operational needs, the non-shift day operator(s) will revert back to the standard hours of work.

Operators filling such positions shall not be required to accept service duty or on-call duty.

3.0 SELECTION TO/ACTING IN VACANCIES

Selection to vacancies to be made within 90 days after the vacancy is created providing there is a suitable applicant.

Pending the arrival of the successful applicant, and his/her assuming of the normal duties, the acting incumbent who is performing the normal duties and responsibilities of an acting position shall receive the appropriate rate in accordance with Article 8, Part A, Item 43 and Item 6.0 herein.
4.0 DIFFERENTIAL FOR SHIFT WORK

Shift differentials shall apply to employees required to work on a three-shift schedule or a two-shift schedule. The first part of a three-shift or a two-shift schedule shall begin at normal starting time.

Regular part-time and temporary part-time employees will not be eligible for shift differential when the shift starts and ends between the hours of 0700 and 1800.

1. A shift differential of 65 cents per hour shall be paid to employees who are scheduled to work between the hours of 1600 and 2400.

2. A shift differential of 85 cents per hour shall be paid to employees who are scheduled to work between the hours of 0000 and 0800.

The appropriate shift differential shall be paid for the first eight hours of each scheduled shift on any regular scheduled day of work and shall not apply for any overtime hours. When premium time is involved for payment of shift work, the premium rate shall be computed on the standard basic rate, excluding shift differential. Operator Trainees will be paid this shift differential when they are working shift work.

5.0 VACATIONS

Vacations for operators will be governed by the following:

1. The 12-month period in which vacation is actually taken shall be from May 1st to April 30th of the following year rather than the calendar year.

2. Subject to exceptions resulting from unforeseen or emergent conditions, arrangements will be made to provide vacations as under-noted:

   (a) Fourteen consecutive days\(^1\) off within the period May 1st to September 30th (summer schedule) to all regular operators.

   (b) If desired by the operator and he/she makes this known to the Company prior to the preparation of the master work schedule, 21 consecutive days\(^1\) off including three weekends within the period May 1st to October 31st (summer schedule) to all regular operators who qualify for three or more weeks’ vacation.

   (c) Where mutually convenient to the Company and the employees, if individual operators so request, all or part of the vacation allowance may be taken outside the period May 1st to October 31st.

   (d) A request by an individual operator for an extension of his/her vacation period may be granted at the Company’s discretion by interchanging his/her scheduled vacation days or

\(^1\) The consecutive days referred to would normally include other than vacation entitlement.
unused vacation entitlement with days of work, providing qualified relief (reserve operators, surplus operators, operators-in-training) is available at the location.

3. If it becomes necessary to cancel the additional extension as outlined in this item, the operator granted the extension will be required to return to his/her original schedule without penalty to the Company.

4. If, in any instance and due to unforeseen circumstances, vacation schedules are adversely affected, the Company will use available relief so as to reduce the abnormal period to a minimum. See also Part A, Item 6.0.

6.0 RELIEF WORK

1. Operator Trainees may be used to supply relief in any position excepting a Hydroelectric Operating Supervisor.

2. In each instance where an Operator or Operator Trainee falls sick while relieving in a higher-rated position, his/her sick benefits will be calculated at the higher relief rate for that specific period of time up to the first point on the schedule where he/she would have normally returned to his/her basic rate. From this point onward sick benefits during this illness will be based on his/her basic classification rate.

3. The entitlement of an Operator or Operator Trainee for payment of vacation days at a relief rate will be determined by the amount of relief provided during the period from May 1st to April 30th each year. If relief has been provided for 50 percent (50%) or more of this time in a higher position, all vacation days taken during this same period will be paid at the higher rate. Time worked after a permanent promotion to a higher position will not be counted towards the 50 percent (50%) credit.

4. Operator Trainees in Band II step 0 & 3 who are required to upgrade to an Operator position will be placed on Band II step 5 for the time they are filling a full time Operator position on the schedule.

5. When Operators or Operator Trainees relieve in a higher-rated position and he/she acquires a lieu day (statutory holiday), the lieu day shall be paid at the higher rate.

6. When relieving in a higher rated position during his/her normally scheduled hours of work, Operators or Operator Trainees shall be paid a minimum of four hours' pay at the appropriate relief rate, or the actual hours worked, whichever is greater.
7.0 OVERTIME

Due to the nature of the Company's operations, some employees will be required to work overtime. Overtime will be minimized and managed within the limits of corporate effectiveness and customer impact. In recognition of employee well-being and inconvenience, an effort shall be made to equitably distribute overtime amongst all qualified employees. Overtime, as used herein, means that part of the actual working time which is outside the normal scheduled hours and is, therefore, subject to compensation at premium rates.

Overtime, as used herein, means that part of the actual working time outside of an Operator’s or Operator Trainee’s schedule (subject to provisions of 1.0 to 1.3).

7.1 Definitions

Emergency Overtime: Work outside normal scheduled hours for which there has been no prearrangement.

Prearranged Overtime: Work performed outside of normal scheduled hours for which notification must be given a minimum of 24 hours in advance, for which time shall be counted from the time the operator arrives at his/her regular work headquarters until he/she finishes work at that headquarters. Where this advance notice is not given, overtime shall be considered as emergency overtime.

Extension Overtime: Work performed outside of normal scheduled hours as an extension of the normal shift (either immediately preceding or following the scheduled shift) for which time shall be counted from the time an operator reports for work until normal starting time (in the case of extension overtime preceding a scheduled shift) or from normal quitting time until an operator finishes work (in the case of extension overtime following a scheduled shift). Extension overtime will not be used where relief is required for a complete shift and an operator in the same or lower position is available.

7.2 Minimum Payments

7.2.1 Emergency Overtime

All emergency overtime worked shall receive a minimum payment of three hours’ straight time pay or the actual time worked at the appropriate premium rates, whichever is the greater providing short emergency calls are not repeated within one hour of the completion of a previous call, for which the three hours’ minimum (three hours at straight time) was paid.

In addition to the payment for emergency overtime or minimum payment as outlined above, one hour (straight time) shall be paid to the operator as compensation for travelling from his/her home to his/her place of work and return.

7.2.2 Prearranged Overtime

All prearranged work outside of normal hours performed or reported for due to lack of notice of cancellation on a scheduled day of work shall receive a minimum of two hours' straight time pay or the actual time worked at the appropriate premium rate, whichever is the greater.
All prearranged work performed or reported for due to lack of notice of cancellation on a scheduled day off shall receive a minimum of four hours’ straight time pay or the actual time worked at the appropriate premium rate, whichever is the greater.

All prearranged overtime work cancelled within 24 hours of the designated work commencement time shall require payment of two hours at the basic rate to all affected operators.

One hour at straight time will be paid in lieu of time spent travelling when an employee is called in to work overtime and an extra trip is involved.

7.3 Special Provisions Concerning Overtime

An employee who is required to work continuously for more than 16 hours shall be entitled to an eight-hour rest period. Time spent for meals may be deducted from the total elapsed time but is not to be considered as breaking the continuity of the hours worked.

If the rest period extends into the employee’s normal scheduled hours of work he/she shall be paid at straight time rates for the portion of the rest period which extends into the normal scheduled hours. This is in addition to the overtime worked.

Should he/she be required to continue working beyond 16 hours he/she shall be paid two times his/her normal basic rate until an eight-hour rest period is granted.

Should an employee be released before 16 hours have elapsed, he/she will not be entitled to an eight-hour rest period.

7.3.1 Equivalent Time Off Without Pay

See Part A, Item 10.2.

7.4 Overtime - Regular Part-Time And Temporary Part-Time Employees

Overtime is defined as: (1) hours worked which are in excess of the normal daily hours of the classification; or (2) hours worked in excess of 24 in a week; or (3) hours worked on a regular day off.

Premium Payment for Overtime:

Extension Overtime: Overtime hours worked within the first four clock hours will be at one and one-half times the employee’s basic rate unless the employee works more than 28 hours in a week in which case the hours in excess of 28 will be paid at two times the employee’s basic rate.

Non-Extension Overtime: All overtime hours worked that are outside of the first four clock hours after the classification’s normal quitting time will be at two times the employees’ basic rate.
8.0 PREMIUM PAYMENTS

The following premium payments shall apply to Operators and Operator Trainees

8.1 Payment for Overtime

Overtime, as used herein, means that part of the actual working time which is outside the normal scheduled hours, and is therefore, subject to compensation at premium rates.

Premium payment for overtime shall be as follows:

1. One and one-half times the employee's basic rate shall be paid for all work performed during the first four clock hours after normal quitting time, Monday to Friday inclusive.

2. Two times the employee's basic rate shall be paid for:
   - all work performed outside of the first four hours after normal quitting time, Monday to Friday inclusive,
   - all overtime work performed on an unscheduled day of work, on Saturdays, Sundays and statutory holidays which occur Monday to Friday.

3. Two and one-half times the employee's basic rate shall be paid for all overtime hours worked on a statutory holiday which occurs on Saturday.

8.2 Scheduled Work

1. One and one-half times the employee's basic rate shall be paid for scheduled work performed on Saturdays and Sundays.

2. Two times the employee's basic rate shall be paid for:
   - Scheduled work performed on a statutory holiday which occurs on a Saturday. The premium for scheduled Saturday in 1. above shall not apply.

8.3 Cancelled Vacation Days

When an employee's vacation is cancelled by the Company, the employee shall receive the appropriate premium rate for all normal hours worked on cancelled vacation days for which seven calendar days' notice has not been given up to a maximum of seven calendar days. If more than seven calendar days' notice has been given, the employee shall receive straight time for all normal hours worked.
Where possible, and where it is mutually agreeable, cancelled vacation days shall be rescheduled during the current or succeeding six months' schedule. If this is not possible, the cancelled vacation shall be included in the employee's time balance at the end of the schedule in which it occurred.

When an operator's vacation is postponed owing to his/her illness, this postponed vacation will be rescheduled at a mutually agreeable time during the current or succeeding six months' schedule. If this is not possible, the cancelled vacation will be paid for at straight time rates.

**NOTE**

Operators shall receive entitlement for the same number of statutory holidays as Part B employees. Therefore, when a statutory holiday falls on a Saturday, statutory holiday credit shall not apply.

### 9.0 OPERATORS' ORGANIZATIONAL STRUCTURE

#### 9.1 Two Level Structure

#### 9.1.1 Definitions

**Supervising Operator**

1. Operators in the senior position in multi-position stations.

**Operator**

1. Operators in one-person per shift stations that exercise operating control of generating stations or control/regulate water flows.

2. Subordinate operators who directly assist in the operation of multi-position stations.

#### 9.2 Interpretation of Special Terms

**Operating Control:** The operator has the authority to perform, direct or authorize the operation of all devices under his/her control. He/she need not have remote or supervisory control of the equipment.

**Directly Assist:** The operator must work directly with the supervising operator and fully share in the supervising operators’ responsibilities for directing, coordinating and controlling operations in his/her assigned jurisdiction. The operator may or may not spend part of his/her time in a travelling capacity.

**Multi-position:** The station coverage must normally comprise a supervising operator and one or more operators on at least one shift a day, for a minimum of two days each week.
9.3 Application of Operators' Organizational Structure

Where it is mutually recognized that a problem or problems exist regarding the application of the operators' organizational structure, a meeting of the Union and the Company will be called to resolve these specific problems. However, individual problems regarding the interpretation and application of the method will be initially dealt with in the field between the employee and his/her supervisor.

10.0 JOINT COMMITTEES

The Operators' Consultative Committee, established in 1954, shall continue to act under the following terms:

10.1 Personnel

Maximum of three appointees from each party.

10.2 Function

To act as a liaison between the Company and the employees in the field for the purpose of exchanging information relating to changing conditions as they affect operators.

To discuss mutual operating problems of a general nature which arise from time to time.

Any program developed by the Company to establish standards of qualifications for operating positions will be a matter of Union advisement as to progress and discussion.

The committee may be convened at approximately three-month intervals to deal with agenda submitted by either the Union or the Company and acceptable to both parties as being within the scope of the committee's function.

10.3 Limits of Authority

It is understood that this committee will meet to discuss general operating problems of common interest to the Union and the Company and shall not have bargaining power or authority to amend existing policy, or interpret collective agreements. Any recommendations which arise as a result of discussions shall be presented separately to the Union and to the Company by their respective members.

11.0 MANAGERIAL DUTIES

A management supervisor's normal duties are supervisory in nature. Under normal circumstances they must not take the place of skilled workers. In the event that an emergency work condition arises, skilled help must be called in. Where suitable skilled help is not available at the required time, supervisors are expected to perform whatever duties are necessary. The foregoing is not intended to prohibit the management supervisor from carrying out appropriate training.
12.0 PROVISION OF MEALS

In recognition of the importance of regular meals to an individual's health and effectiveness on the job, the Company will supply meals as outlined below and when required, will assign an employee to secure the meals.

(a) Employees provide their own meals on regular days of work.

(b) When an employee works overtime on a regular day off, he/she will be expected to provide one meal if 23 hours notice has been given.

(c) When an employee works extension overtime before or after normal scheduled hours, all required meals will be provided by the Company. The first meal (or meal allowance) will be provided when two (2) hours of overtime are worked. Subsequent meals or meal allowances will be provided every four (4) hours of overtime worked thereafter.

(d) When meals cannot be reasonably obtained\(^2\), an allowance of $15.00 per meal will be paid.

12.1 Meal Periods

(a) Employees on day work shall take a meal period designated by the Company and shall not be paid for this time (unless otherwise provided for in the Collective Agreement).

(b) Employees on shift work shall eat their meals during the shift hours as conditions permit.

(c) When an employee works extension overtime, no time shall be deducted for eating such meals where the employee eats the meal on the job and in a minimum of time.

\(^2\) ‘Reasonably obtained’ is to be defined locally by Union and Management.
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CLERICAL/TECHNICAL
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PART D

CLERICAL / TECHNICAL

Specific Matters of Agreement

1.0 WAGES

The wage rates for all employees covered by this section of the Collective Agreement shall be in accordance with, Part A, Item 43 and Article 8.

2.0 HOURS OF WORK - GENERAL

1. Clerical/technical employees whose basic hours of work are 35 hours per week may be periodically required to change their work location and to work 40 hours per week or the same hours as field staff. All hours in excess of seven hours per day, Monday to Friday, are to be paid at the appropriate premium rate.

2. Certain technician classifications which have been established on a 40-hour week basis shall continue to work normal hours of 40 hours per week but when on field work may be required to work the same hours as the field staff.

3. The normal work week of all clerical/technical employees of the Corporate Mailing Section shall be 35 hours per week consisting of five days of seven hours per day, Monday to Friday inclusive. Such employees shall normally be free to select variable working hours within the period 7:30 am to 5:30 pm in accordance with Subsection 1.1.1.

Where, in the opinion of the Company, such selections fail to maintain an effective mail service, the Company may establish hours of work between 7:30 am and 4:30 pm for all employees on the basis of weekly work schedules which shall be posted in the work location seven days in advance of their application. Early starting times shall be rotated equitably among the staff.

2.1 Hours of Work - Specific

With the exception of shift work, head office hours shall be a 35-hour week subject to Article 8.12

8:30 am - 12:00 noon (Monday through Friday)
1:00 pm - 4:30 pm (Monday through Friday)

2.1.1 Variable Working Hours in Head Office (Nuclear)

The governing policy of variable working hours at head office is to improve business performance, employee and customer satisfaction by offering flexibility in start and stop times and lunch periods for employees.

The work week will consist of five, seven/eight hour days, Monday to Friday. The hours of work selected must be in accordance with the observation of core working hours of 9:00 a.m. to 11:45 and 1:15 p.m to 2:30 p.m.
Each month employees may select their standard work period for the following month. Employees may select a starting time which is not earlier than 7:00 a.m. and not later than 10:00 a.m. or at 1/4 hour intervals prior to that. Their finishing time will not be earlier than 2:30 p.m. They may select a 30, 45, 60, 75 or 90 minute lunch period to be taken between 11:45 a.m. and 1:15 p.m.

The hours of work selected are subject to the supervisor's approval. The supervisor may, if necessary, restrict some employees to the hours of 8:30 am to 4:30 pm (for 35 hour per week employees), if, for example, the hours of work selected reduce the level of service provided by the employee to members of the employee's team, the employee's supervisor, the Business Unit or the customers of the Business Unit. The supervisor may not assign 35 hour per week employees to hours of work outside of 8:30 am to 4:30 pm, except as provided for in Part D, Item 4.0 - Overtime.

Where in the Company's opinion, a work unit cannot be operated satisfactorily under variable working hours, they will not be implemented in that unit. Individual deviation from selected work schedules will require the supervisor's prior approval.

2.1.2 Variable Working Hours in Head Office (Non-Nuclear)

Employees will be requested each month to select their standard work period for the following month. The work week will consist of five, seven-hour days, or eight hour days Monday to Friday. The hours of work selected must be in accordance with the observation of core working hours of 10:00am to 2:30pm.

Employees may select a starting time which is not earlier than 6:30 a.m. and not later than 10:00 a.m. or at 1/4 hour intervals prior to that. Their finishing time will not be earlier than 2:30 p.m. They may select either a 30, 45, 60, 75 or 90 minute lunch period commence within 3 to 5 hours of their start time.

The hours of work selected are subject to the supervisor's approval. The supervisor may, if necessary, restrict some employees to the hours of 8:30 am to 4:30 pm (for 35 hour per week employees). The supervisor may not assign 35 hour per week employees to hours of work outside of 8:30 am to 4:30 pm, except as provided for in Part D, Item 3.0 - Overtime.

Where in the Company’s opinion, a work unit cannot be operated satisfactorily under variable working hours, they will not be implemented in that unit.

Individual deviation from selected work schedules will require the supervisor's prior approval.

2.2 Hours of Work - Outside Head Office

Hours of work (including variable hours of work) in locations other than head office shall be negotiated by the Company and the Sector Vice President or Delegate of the Union.

Where in the Company’s opinion, a work unit cannot be operated satisfactorily under variable working hours, they will not be implemented in that unit.
2.3 **Compressed Work Week (Non-Nuclear ONLY)**

The parties agree that there may be instances in which there is a benefit to both the employee and the company of entering into a compressed work week arrangement. Either party can initiate discussions with respect to such arrangements but it will only be implemented upon attaining joint agreement. The benefits of a compressed work week must be demonstrated or the arrangement may be cancelled by either party upon the giving of appropriate notice. The details of the arrangement must be in writing and signed off by the parties.

Failure to agree to a compressed work week or the cancellation of same is not a matter subject to the grievance/arbitration process.

Details of this provision as well as the administrative/time keeping issues are included in a Joint Bargaining intent document dated July 19th, 2001.

2.4 **On-Call (Non-Nuclear ONLY)**

On-call is the term used to cover after hours service performed by various Part D employees. They will be allowed two hours to report from the time that they are called. The rates for on-call shall be computed at one half (1/2) hour at the employee’s basic hourly rate per day, except for Saturday, Sunday and statutory holidays when the rate will be one (1) hour at the employees basic hourly rate per day. An employee who is required to report to work while on-call shall be paid overtime rates as per Part D, Item 4.0.

When an employee is on-call, management will endeavor to provide the employee with either a cellular phone or a pager in order to facilitate contact.

On-call will be managed on a voluntary basis among qualified employees.

It is not the intent of this item to schedule employees on-call to avoid staffing on-going positions.

3.0 **SHIFT DIFFERENTIAL AND SHIFT WORK**

It is recognized that from time to time it may be necessary, due to the nature of the Company’s operations, to place certain clerical/technical day working employees on shift work. Where this occurs, the following provisions will apply:

1. Shift work shall not be implemented for a period of three working days or less. If the working period is three days or less, the appropriate premium rate will be paid for the minimum three-day period.

2. The Company will provide 72 hours’ (three calendar days) posted notice of the commencement and termination of a shift. Failure to provide such notice will require a penalty payment of double time for all changed hours of work within the notice period.

**Note**

For Non-Nuclear such notice will be personal notice as defined in the Collective Agreement.
3. Such a placing on shift work shall not deprive an employee of his/her total number of normal scheduled weekly hours.

4. Revision to the work schedule shall provide for a minimum of 15 hours off between shifts. Failure to provide such time off will require the penalty payment for the first affected shift.

5. Shift differential shall apply to employees required to work on a three-shift schedule or a two-shift schedule and shall not apply for overtime hours.

6. Shift work will be scheduled on a Monday to Friday basis.

7. Work in excess of the total number of normal daily hours will be paid at the appropriate overtime rates.

8. The following shift differentials shall apply:
   (a) Sixty-five cents per hour to employees scheduled to work between the hours of 1600 and 2400.
   (b) Eighty-five cents per hour to employees scheduled to work between the hours of 0000 and 0800.

9. Regular part-time and temporary part-time employees will not be eligible for shift differential when the shift starts and ends between the hours of 07:00 and 18:00.

4.0 OVERTIME

Due to the nature of the Company's operations, some employees will be required to work overtime. Overtime will be minimized and managed within the limits of corporate effectiveness and customer impact. In recognition of employee well-being and inconvenience, an effort shall be made to equitably distribute overtime amongst all qualified employees. Overtime, as used herein, means that part of the actual working time, which is outside the normal scheduled hours and is, therefore, subject to compensation at premium rates.

4.1 Overtime Definitions

Prearranged Overtime: Work performed outside the normal scheduled hours for which notification must be given a minimum of 24 hours in advance. Time shall be counted from the time the employee reports for work until the employee finishes work.

Emergency Overtime: Work performed outside the normal scheduled hours, which is neither prearranged nor extension overtime. Time shall be counted from the time the employee reports for work until the employee finishes work.

Extension Overtime: Work performed outside the normal scheduled hours as an extension of the normal scheduled hours (either immediately preceding or following the normal scheduled hours). Time shall be counted from the time the employee reports for work until normal starting time or from normal quitting time until the employee finishes work.
4.2 Payment For Overtime

Overtime, as used herein, means that part of the actual working time, which is outside the normal scheduled hours, and is therefore, subject to compensation at premium rates.

Premium payment for overtime shall be as follows:

1. One and one-half times the employee's basic rate shall be paid for all work performed during the first four clock hours after normal quitting time, Monday to Friday inclusive.

2. Two times the employee's basic rate shall be paid for:
   - All work performed outside of the first four hours after normal quitting time, Monday to Friday inclusive.
   - All work performed on a regular day off, on Saturdays, Sundays and statutory holidays which occur Monday to Friday.

4.3 Overtime - Miscellaneous Provisions

1. In order to alleviate excessive inconvenience, an effort shall be made to equitably distribute overtime amongst all qualified employees. Where employees feel they have been assigned abnormal amounts of overtime, consideration of such cases shall be considered fit matter for discussion at the local level.

2. The Company agrees to control excessive authorized overtime by restricting actual overtime to not more than 12 hours per week, excluding travelling time. Under extraordinary circumstances, the Union will consider waiving the restrictive features of this clause.

3. A travelling allowance up to a maximum of one hour shall be paid at the appropriate overtime rate when an employee is called in to work overtime and an extra trip is involved. See also Section 4.4.

4. Because an employee was required to work overtime or because he/she lost time in changing shifts, he/she shall not be prevented from working his/her total number of normal daily hours in any normal scheduled day of work. If the employee cannot be supplied with the work required to make up the normal daily hours of work in that day, his/her pay shall be adjusted to provide a minimum of his/her normal weekly hours of work.

5. If an employee who has worked overtime and is physically capable and the group of which he/she is ordinarily a member is at work, he/she shall not be deprived of the opportunity of working his/her normal scheduled hours in addition to the overtime he/she may have worked.

6. An employee who has accumulated overtime hours shall receive this in earnings, calculated at the appropriate premium rate and cannot be required to take time off in lieu of payment.

7. An employee who is required to work continuously for more than 16 hours or an employee who accumulates 16 hours of working time in any 24 hour period without a minimum five hour
continuous break between 23:00 and 07:00 hours shall be entitled to an eight-hour rest period. Time spent for meals may be deducted from the total elapsed time but is not to be considered as breaking the continuity of the hours worked.

If the rest period extends into the employee’s normal scheduled hours of work, he/she shall be paid at straight time rates for the portion of the rest period, which extends into the normal scheduled hours. This is in addition to the overtime worked.

Should he/she be required to continue working beyond 16 hours he/she shall be paid two times his/her normal basic rate until an eight-hour rest period is granted. Should an employee be released before 16 hours have elapsed, he/she will not be entitled to an eight-hour rest period, and his/her right to continue work at straight time will be governed by Item 4.3(5.).


4.4 Minimum Payments - Overtime

All Part D clerical/technical employees who are called out to work overtime with or without notice shall receive the following:

When minimum payments apply no travel allowance will be paid.

1. All prearranged overtime performed or reported for due to lack of notice of cancellation, Monday to Friday inclusive, shall receive a minimum of two hours at straight time or the actual time worked at the appropriate premium rates, whichever is the greater.

2. All prearranged overtime cancelled with 48 hours of the designated time of work commencement shall require payment of two hours at straight time.

3. All prearranged overtime performed or reported for due to lack of notice of cancellation on Saturdays, Sundays and statutory holidays shall receive a minimum payment of four hours at straight time or the actual time worked at the appropriate premium rates, whichever is the greater.

4. This shall not apply where the overtime period commences on a Saturday, Sunday or statutory holiday, as part of a longer overtime period continuing into the next calendar day.

5. All emergency overtime work shall receive a minimum payment of four hours at straight time or the actual time worked at the appropriate premium rate, whichever is the greater, providing short emergency calls are not repeated within one hour of the completion of a previous call for which the four-hour minimum was paid.

If the call-out occurs less than two hours before the commencement of normal starting time, the minimum will not apply and the appropriate premium rate will be paid continuously from the call-out time until normal starting time.
4.5 **Overtime - Regular Part-Time and Temporary Part-Time Employees**

Overtime is defined as: (1) hours worked which are in excess of the normal daily hours of the classification; or (2) hours worked in excess of 24 in a week; or (3) hours worked on a regular day off.

**Premium Payment for Overtime:**

Extension Overtime: Overtime hours worked within the first four clock hours will be at one and one-half times the employee's basic rate unless the employee works more than 28 hours in a week in which case the hours in excess of 28 will be paid at two times the employee's basic rate.

Non-Extension Overtime: All overtime hours worked that are outside of the first four clock hours after the classification's normal quitting time will be at two times the employees' basic rate.

Regular Day Off: Overtime hours worked on a regular day off will be paid at two times the employee's basic rate.

5.0 **PROVISION OF MEALS**

In recognition of the importance of regular meals to an individual's health and effectiveness on the job, the Company will supply meals as outlined below and when required, will assign an employee to secure the meals.

(a) Employees provide their own meals on regular days of work.

(b) When an employee works overtime on a regular day off, he/she will be expected to provide one meal if 23 hours notice has been given.

(c) When an employee works extension overtime before or after normal scheduled hours, all required meals will be provided by the Company. The first meal (or meal allowance) will be provided when two (2) hours of overtime are worked. Subsequent meals or meal allowances will be provided every four (4) hours of overtime worked thereafter.

(d) When meals cannot be reasonably obtained\(^1\), an allowance of $15.00 per meal will be paid.

5.1 **Meal Periods**

(a) Employees on day work shall take a meal period designated by the Company and shall not be paid for this time (unless otherwise provided for in the Collective Agreement).

(b) Employees on shift work shall eat their meals during the shift hours as conditions permit.

(c) When an employee works extension overtime, no time shall be deducted for eating such meals where the employee eats the meal on the job and in a minimum of time.

\(^1\) ‘Reasonably obtained’ is to be defined locally by Union and Management.
6.0 A PRINCIPLES RE RESOURCING FOR RELIEF, ACTING & TEMPORARY ASSIGNMENTS
(Nuclear)

Recognizing that relief, acting and temporary assignments contribute to the development of personnel and
contribute to the work being done effectively, the following will be considered when resourcing these
assignments:

Sound business management while meeting the intent of the collective agreement with regards to:

- Selection for step-up
- Duration of step-up opportunity
- Equitable distribution of step-up opportunities

Supervision

For supervisory positions primary consideration will be given to personal qualities such as leadership and the
understanding and display of the practice of good human relations.

Definitions

Relief: Replacement of an incumbent who is absent.
Temporary: Where there is additional work a temporary nature, without an incumbent
Acting: There is a vacancy in a position, i.e. no incumbent and the work needs to be done during posting
selection process.

Relief/Temporary/Assignments of greater than 25 days duration.

As per Part D, Item 6.1, step-up opportunities are rotated within the job family:

- By Seniority
- Site-Wide
- Employed for a minimum of 6 months in his/her base position
- Not already on assignment
- An employee will not be refused twice due to a lack of the same qualification

Regular employees shall be given step up opportunities over temporary employees.

6.1 A Relief Work

Intent

The assignment of relief is a Management right and increased duties must be assigned not assumed.
Compensation for relief assignments shall be in accordance with Article 8.

1. The Company shall notify the employee in writing, in advance where possible, of the requirement
to perform relief, of the general nature of the major duties to be performed, and the rate to be paid
during the relief period.
2. Notification of the Chief Steward is required when the employee is required to relieve for a period of two working days or more.

3. Statutory holidays will not affect the continuity if they occur between the first and second days.
   Payment for a statutory holiday shall be at the relief rate if it occurs during the relief period and at the normal rate if it occurs at the beginning or the end of the relief period.

6.2 A Acting in a Vacant Position

An employee may act in an existing job in which a vacancy is created, pending the arrival of a successful applicant to the vacancy. When an employee is to be placed in an acting position, the Company shall notify the employee and the chief steward in writing setting out:

1. The reason for the acting position.
2. The general nature of the major duties to be performed.
3. The rate to be paid for the acting position.
4. The expected duration.

The duration of the acting period shall not exceed 90 days from the date the employee is placed in the acting capacity, unless an extension is agreed to by the Company and the Sector Board Chairperson of the Union. Pending the arrival of the successful applicant and his/her assuming the normal duties, the acting incumbent who is performing the normal duties and responsibilities of an acting position shall receive the appropriate rate in accordance with Article 8 and Part A, Item 43.

6.3 A New Personnel Development (Training and Experience)

The benefits of personnel development to the Company and to the individual are recognized.

Also recognized is the emphasis placed on personnel development, when determining qualifications, for promotion purposes. The need for equitable development opportunities and treatment of individuals and groups is clear. Therefore, it is agreed that:

1. Individuals and groups should receive equitable development opportunities and treatment.

2. Disruptions to training will be minimized. Where the work situation, unavoidably, precipitates an inequality of development opportunity and treatment, such inequity will be recognized and will not be allowed to work to the disadvantage of that individual or group.

3. Employees shall receive 100% of approved reimbursable costs, paid for external training which:
   - creates or maintains an employee’s capability related to current job performance,
   - creates an employee’s capability for a position identified in a succession, retraining or redeployment plan.
Employees shall receive 75% of registration/tuition fees and learning material costs for external training activities which create employee’s capability for future jobs within the Company and provided such training is outside working hours.

6.0 B PRINCIPLES RE RESOURCING FOR RELIEF, ACTING & TEMPORARY ASSIGNMENTS (Non-Nuclear)

Recognizing that relief, acting and temporary assignments contribute to the development of personnel and contribute to the work being done effectively, the following will be considered when resourcing these assignments:

- the more senior employees will be given preference;
- assignments may be split between employees;
- specific qualifications/knowledge required for the position will be taken into consideration;
- for supervisory positions primary consideration will be given to personal qualities such as leadership and the understanding and display of the practice of good human relations;
- employee development;
- Employment Equity objectives discussed in advance with the Union shall be considered;
- amount of notice and duration of assignment will be considered.

These assignments will be distributed as equitably as possible, over time, once the above conditions have been considered.

The format for utilization of the above in a Business Unit (or smaller unit) will be a joint responsibility.

Item 6.0 shall not be subject to the grievance/arbitration procedure.

Disputes will be resolved locally and may be referred to the Sector Vice President or Delegate and the Local Manager.

Circumstances which negate consideration of the above conditions will normally be discussed in advance with the Union.

6.1 B Relief Work

The assignment of relief is a Management right and increased duties must be assigned not assumed. Compensation for relief assignments shall be in accordance with Article 8.

1. The Company shall notify the employee in writing, in advance where possible, of the requirement to perform relief, of the general nature of the major duties to be performed, and the rate to be paid during the relief period.
2. Notification of the Chief Steward is required when the employee is required to relieve for a period of two working days or more.

3. Statutory holidays will not affect the continuity if they occur between the first and second days.

Payment for a statutory holiday shall be at the relief rate if it occurs during the relief period and at the normal rate if it occurs at the beginning or the end of the relief period.

6.2 B Acting in a Vacant Position

An employee may act in an existing job in which a vacancy is created, pending the arrival of a successful applicant to the vacancy. When an employee is to be placed in an acting position, the Company shall notify the employee and the chief steward in writing setting out:

1. The reason for the acting position.
2. The general nature of the major duties to be performed.
3. The rate to be paid for the acting position.
4. The expected duration.

The duration of the acting period shall not exceed 90 days from the date the employee is placed in the acting capacity, unless an extension is agreed to by the Company and the Sector Vice President or delegate of the Union. Pending the arrival of the successful applicant and his/her assuming the normal duties, the acting incumbent who is performing the normal duties and responsibilities of an acting position shall receive the appropriate rate in accordance with Article 8 and Part A, Item 43 of this Agreement.

7.0 POSTING OF VACANCIES

All vacancies as set out in Article 10.1 and as covered by this section of the agreement will be posted when they become vacant with the following exceptions:

1. A change to the job duties which results in an upward change of the pay bands shall not be considered to create a vacancy, if there is in the Company’s opinion, an employee at the location who is the only one qualified to perform the resulting job. If there is a more senior employee in the same pay band in the same job family at the location who was not appointed to the resulting job, s/he shall have the right to seek redress under Article 2 grievance procedure.

2. Changes to jobs which result in a surplus in staff complement of the work group shall not be considered to create a vacancy in the resulting job(s).

7.1 Posting Procedures

A notice of vacancy referring to Clerical-Technical positions shall be based on the job description and shall be posted province wide. Nothing contained in the notice of vacancy shall contravene the information contained in the job documents. No important information (subject to space limitations) shall be omitted.

Refer to Part A, Item 17.2 - Notification to Applicants.
8.0 POSITIONS EXCLUDED AS PER ARTICLE 1
- CLERICAL/TECHNICAL

Incumbents in positions excluded under Article 1 perform certain inherent work functions, which are part of their normal duties. It is also recognized, however, that such work functions will not be performed for the purpose of reducing staff requirements or deliberately to avoid overtime for employees represented by the Union. If the Union believes that this provision is being abused, it may lodge a grievance under Article 2 of the Collective Agreement.

9.0 SHIFT WORK - INFORMATION MANAGEMENT FACILITIES

It is recognized that Information Management Facilities shift working employees at head office must undergo conditions not normally experienced by other clerical/technical employees.

9.1 Rate of Pay

The basic rate of these employees shall be by Article 8 and Part A, Item 43. Calculation of all premiums shall be made on this basic rate. An increment of seven and one-half percent (7.5%) shall be added to the basic rate of each classification when such classification is designated as being two- or three-shift and six- or seven-day operation. Classifications designated as two- or three-shift, five-day, Monday to Friday operation, will be paid at the basic rate. When an employee is to be placed on or taken off shift work, the Union's chief steward will be notified of such changes in writing.

9.2 Hours of Work

Shift working personnel shall work an average of 35 hours per week over a period of approximately one year. Employees will be informed of their time balance in June. Each employee's time will be balanced at the end of one of the five fiscal weeks immediately preceding December 16th. Payment of plus time balances existing on the time balancing date shall be paid before December 31st at the rate of two times the employee's classification basic rate in effect at the time balancing date. At the time of layoff all positive time balances will be paid out at 2X.

NOTE

The Company will not be required to balance time for employees who have been hired or transferred from non-shift work to shift work in the five fiscal weeks immediately preceding December 16th until a period of approximately one year following the employee's appointment to the new position has elapsed.

Minus time balances which occur as a result of promotion of a shift working employee within the five fiscal weeks immediately preceding December 16th shall be worked off within the two-month period immediately following the establishment of the minus time.
9.3 Scheduling Provisions

The Company will be responsible for the preparation, content and administration of shift schedules averaging 35 hours per week over approximately a one-year period. These schedules shall cover a nine-week period, posted two weeks in advance, showing the days, hours of work (shift), and position of each employee. Any reserve employees and their hours of work (shift) shall be shown on the schedule. The schedule will provide for a minimum of two shifts (16 hours) off between shifts. Failure to comply with two weeks’ advance posting as stated herein shall require payment of two times the employee’s basic rate for work performed under the new schedule until the notice period has elapsed.

Although the content, preparation, posting, revision and administration of shift schedules is the sole responsibility of the Company, the preference of the staff regarding the type of schedule to be worked and the preferences of individual employees regarding vacation periods will be considered, providing such preferences are made known prior to commencement of preparation of new schedules. Where employees feel they have been assigned unreasonable schedules, such schedules shall be considered fit matter for discussion at local level.

NOTE

The cycling of schedules, allowing for holidays and sickness, may create a reserve of employees over and above the complement required for any shift. Whenever an employee in the normal course of his/her rotation of the schedule becomes supernumerary, he/she will be known as a "reserve employee".

Schedules will be posted two weeks in advance to cover one, two or three shifts per day for five-, six- or seven-day coverage with eight working hours per shift.

The day a shift begins will dictate the shift hours, and the specific hours of work for all Information Management Facilities classifications designated as being two or three shift and six or seven days a week operation will be as follows:

<table>
<thead>
<tr>
<th>Normal Work Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days</td>
</tr>
<tr>
<td>Evenings</td>
</tr>
<tr>
<td>Nights</td>
</tr>
</tbody>
</table>

All shift workers will eat their meals on duty. On day shift, Monday to Friday, the employee can opt for a normal, unpaid lunch period.

9.4 Schedule Alterations

A minimum of seven days' notice shall be given when an employee's hours of work as shown on the schedule are to be changed, with the following exceptions:

1. Reserve hours of work may be changed within a calendar day, providing a minimum of two non-working shifts' (16 hours) notice is given before the start of the first affected shift.
2. With four days' notice, reserve days of work may be interchanged with scheduled days off, within the posted schedule. Such interchange will not be used for an employee while attending meetings involving the Union.

3. In the case of illness, which would result in a staff shortage, four (4) days' advance notice will be given when placing an employee on shift.

9.4.1 Penalties

Failure to give the required notice, stated in Subsection 9.4, shall result in the payment of two times the employee's classification basic rate until the notice period has elapsed.

9.5 Shift Differential

Sixty-five cents per hour shall be paid for scheduled hours worked on the evening shift.

Eighty-five cents per hour shall be paid for scheduled hours worked on the night shift.

The appropriate shift differential shall be paid for the first eight hours of each scheduled shift on any day and shall not apply for overtime hours. When premium time is involved for payment of shift worked, the premium rate shall be computed on the standard basic rate, excluding shift differential.

Regular part-time and temporary part-time employees will not be eligible for shift differential when the shift starts and ends between the hours of 07:00 and 18:00.

9.6 Special Payment Provisions

One and one-half times the employee's classification basic rate shall be paid for scheduled shift work performed on Sundays, and statutory holidays.

NOTE

Shift workers shall receive entitlement for the same number of statutory holidays as Monday-Friday, day-working clerical/technical employees. Therefore, when a statutory holiday falls on a Saturday, statutory holiday credit shall not apply. See chart at end of this section.

9.7 Overtime

Overtime for shift workers shall be paid at the appropriate overtime rate for all hours worked outside of the posted shift schedule as per Part D, Item 4.2, paragraphs 1 and 2.

9.7.1 Minimum Payments - Overtime

Minimum payments for overtime shall be in accordance with Part D, Item 4.4.

Payment for overtime shall be made not later than on the second pay day following the pay period during which the overtime was performed.
The Company agrees to control excessive authorized overtime by restricting actual overtime to total not more than two shifts (16 hours) in any given pay week.

9.8 Definition of Notice

Notice: as referred to in this section shall be defined as per the following example:

One day's notice shall mean three shifts (24 hours and not an individual employee's shift) prior to the start of the first affected shift. Also, the notice period shall be deemed to commence coincident with the posting of the revised schedule. A reasonable effort will be made to contact the employee affected by the change.

9.9 The following items will be credited, for pay purposes, on an hour-for-hour basis.

1. Personal time off.
2. Travelling time outside normal working hours.
3. Payment for temporary supervision.
4. Time charges and expenses - employee union representative.

When the following items apply a "day" will be the scheduled hours of work for that day:

1. Jury duty.
2. Funerals.
3. Moving day.

The basic statutory and special time off provisions remain unchanged in that the time off and pay entitlements will continue to be calculated on a seven-hour basis. However, employees eligible for Remembrance Day and scheduled to work will get the normally scheduled hours off with pay.

9.10 When employees are on vacation or sick leave, their time for these particular days is to be credited with only seven hours and no positive time balance of one hour.

10.0 TEMPORARY GUIDES

The normal hours of work of a temporary guide will be up to a maximum of 35 hours per week, which may be scheduled on any day of the week with an average of two days off per week. Temporary guides are not eligible for the payment of shift differential. Overtime shall be paid for all hours worked in excess of 35 hours per week as per Part D, Item 4.2, paragraphs 1 and 2.

NOTE

The payment for scheduled work performed on a statutory holiday will be one and one-half times the employee's basic rate plus a lieu day.
The Company will provide a suitable uniform and bear the cost of cleaning at intervals decided upon by the Company.

Transportation provisions will be in accordance with Mid-Term Agreement entitled "Transportation for Employees to Outlying Stations". In addition, the Company will bear the cost of transportation for female employees required to travel during periods of darkness in those locations where appropriate public transportation is not available.

11.0 HEALTH PHYSICS TECHNICIANS - HEALTH AND SAFETY

11.1 Hours of Work - Health Physics Technicians

The parties agree to develop a schedule covering seven days per week for a period of not less than 3 months to be posted 30 days in advance, providing an average of 35 hours per week.

The following are the recognized criteria for developing an acceptable shift schedule:

1. The schedule should equitably rotate among all employees.
2. The schedule should follow a repeating pattern so that it is easily understood.
3. The majority of employees in each location must agree to the schedule.
4. The schedule may provide flexibility in the work day and work week.
5. The schedule must provide for time balancing.

NOTE

In the event that the parties fail to develop an agreed to shift schedule, the provisions of Part D, Item 4.0 will apply.

11.2 Method of Payment

11.2.1 Scheduled Hours

Payment at straight time, Monday to Friday.

Payment at time and one-half for all scheduled hours worked on Saturdays and Sundays.

11.2.2 Overtime

Payment for all work performed outside of scheduled hours to be made in accordance with the overtime provisions of Part D, Item 4.0.
11.2.3 Statutory Holidays - Scheduled Hours

Time and one-half for all scheduled hours worked on a statutory holiday, plus statutory holiday credit.

11.2.4 Statutory Holidays - Overtime

Double time for all non-scheduled hours worked on a statutory holiday, plus statutory holiday credit.

12.0 SHIFT WORK – TECHNICAL STAFF (Inspection and Maintenance Technicians – Nuclear ONLY)

12.1 Applicability

This section applies to Inspection and Maintenance Technicians I/II/III.

12.2 Intent

I&M technicians are primarily day workers. However operational requirements mean that these employees will be required to work shift from time to time. The Company may select and assign I&M Technicians to shift work for up to eight (8) months in total per annum per employee.

12.3 Implementation

Although the content, preparation, posting and administration of the shift schedule is the responsibility of the Company, an annual province wide secret ballot vote by I&M Technicians will determine whether the shift schedule will be composed of 8 or 12 hour shifts. The choice of a simple majority of those voting will prevail. Shift preferences will be made known to the Company prior to the commencement of the new schedule. A province wide 12 month I&M schedule will be posted 30 days prior to its starting date.

12.4 Duration of Shifts

Shift work employees will work 8 or 12 hour shifts determined in accordance with 12.3. The design of shift schedules may be time balanced to greater than base hours (35 hours per week). The design of the schedule shall provide for a minimum of 16 hours off between shifts when working on an 8 hour shift schedule and 12 hours off between shifts when working on a 12 hour shift schedule.

12.5 Scheduling Provisions When on Shift

12.5.1 A minimum of seven (7) days’ notice will be given when an employee’s shift schedule is changed or when an employee is put on shift with the following exceptions:

(a) Three (3) days’ notice if a forced unit outage occurs for reasons of equipment failure or for a safety reason. Refer to Mid-term Agreement R-7 for definition of unit outage.

The applicability of the three (3) day notice period in this clause is dependent upon a shift change notice being issued to the affected employees within 48 hours of the occurrence of the forced unit outage.
(b) In the case of illness, four days’ notice will be given.

Failure to provide the above notice will require the payment of double time for work performed during the notice period. For purposes of clarification Part D, Item 3.0(1) and Part D, Item 3.0(2) do not apply.

12.5.2 An employee will not receive less pay on average as a result of being placed on shift work than he would have received as compensation for working regular day hours. This item overrides Part D, Item 3.0(3).

12.5.3 Revision to the work schedule shall provide for a minimum 15 hours off between shifts. Failure to provide such time off will require the penalty for the first affected shift.

12.5.4 Shift Differential

Shift differentials shall apply to employees required to work on a three-shift schedule or a two-shift schedule. The first part of a three-shift or a two-shift schedule shall begin at normal starting time.

Regular part-time and temporary part-time employees will not be eligible for shift differential when the shift starts and ends between the hours of 0700 and 1800.

12.5.4.1 Eight Hour Shifts

A shift differential of 65 cents per hour shall be paid to employees who are scheduled to work between the hours of 1600 and 2400.

A shift differential of 85 cents per hour shall be paid to employees who are scheduled to work between the hours of 0000 to 0800.

12.5.4.2 Twelve Hour Shifts

A shift differential will be paid for the night shift only.

The shift differential will be the sum of the differentials in 12.5.4.1 above multiplied by 8/12.

12.5.4.3 The appropriate shift differential shall be paid for the first eight/twelve hours of each scheduled shift on any regular scheduled day of work and shall not apply for overtime hours. When premium time is involved for payment of shift work, the premium rate shall be computed on the standard basic rate, excluding shift differential.

12.5.5 Work in excess of the total number of normal scheduled hours will be paid at the appropriate overtime rates.
12.5.6 Premium Payments

The computing of hourly rates for overtime shall be in accordance with the following:

The basic hourly rate of each employee's classification as set out in Part A, Item 43 without any increments, premiums or bonuses.

Premium payment, for the undemoted, shall be as follows:

12.5.6.1 Shift Workers

12.5.6.2 Scheduled Work

1. One and one-half times the employee's basic rate shall be paid for scheduled work performed on Saturdays and Sundays.

2. Two times the employee's basic rate shall be paid for:
   (a) Scheduled work performed on a statutory holiday, which occurs on Monday to Friday. An additional day off will be scheduled in lieu of the statutory holiday within six months of the end of the posted schedule.
   (b) Scheduled work performed on a statutory holiday, which occurs on a Saturday. The premium for scheduled Saturday in 1. above shall not apply.

12.5.7 When these employees are required to work 12 hour shifts 12.5.3 will not apply. For purposes of clarification, this Item overrides Item 3.04.

12.5.8 Scheduled hours worked in pay periods involving shift work will be credited to a time bank. An amount equal to base hours for the pay period worked on shift will be paid and deducted from the time bank. Plus time balances which still exist as of the last day of the year shall be paid at double time, or where it is mutually agreeable all or a portion thereof may be taken off at premium rates. Plus time balances, which still exist as of the last day of the regular schedule shall be paid for at double time. At the time of layoff all positive time balances will be paid out at 2X. Minus time balances, which occur as a result of changes to the regular schedule shall be worked off within two fiscal months of the end of the schedule month in which the minus balance occurs unless it is mutually agreed to between the employee and his/her supervisor to extend this period. Minus balances not worked off within this two month period will be written off (unless it has been agreed to extend this period).

12.5.9 Shift work may be scheduled on any day of the week. Overtime for those assigned to shift will be paid for hours worked in excess of the scheduled shift hours with applicable premiums. For purposes of clarification, Part D, Items 3.0(6) and 3.0(7) have no application.

Overtime beyond scheduled hours of work may be taken off at mutually agreed upon times calculated in accordance with the applicable premium rates. Where there is no agreement, overtime shall be paid at the applicable premium rates.
12.5.10 When scheduling 8 or 12 hour shifts the shift will consist of 5 consecutive 8 hour shifts or 4 consecutive 12 hour shifts. The shift schedule shall provide for at least 48 hours off between sequence of shifts.

12.5.11 Shift Schedule Pay Provisions

When an employee is scheduled to work an 8-hour shift, the following will apply:

(a) In determining credits used for vacations, floating holidays and sick leave, one and one-seventh days will be deducted.

(b) In determining pay treatment for

(i) travelling time outside normal working hours
(ii) payment for temporary supervision
(iii) time charges and expenses - employee union representative

calculations will be made on an hour-for-hour basis to a maximum of 8 hours except for (i) where the maximum will be 7 hours.

(c) In determining pay treatment for the following items a day will be considered to be 8 hours:

(i) Leave of Absence with Pay - Part A, Item 10.1
(ii) Moving Days

(d) In determining pay treatment for

(i) Statutory Holidays
(ii) Special Time Off

a day will continue to mean seven hours. **However, employees eligible for Remembrance Day and scheduled to work will get the normally scheduled hours off with pay.**

When an employee is scheduled to work a 12 hour shift, the following will apply:

(a) In determining credits used for vacations, floating holidays and sick leave, one and five-sevenths days will be deducted.

(b) In determining pay treatment for

(i) travelling time outside normal working hours
(ii) payment for temporary supervision
(iii) time charges and expenses - employee union representative

calculations will be made on an hour-for-hour basis to a maximum of 12 hours except for (i) where the maximum will be 7 hours.

(c) In determining pay treatment for the following items a day will be considered to be 12 hours:
(i) Leave of Absence with Pay - Part A, Item 10.1
(ii) Moving Days

(d) In determining pay treatment for

(i) Statutory Holidays
(ii) Special Time Off

a day will continue to mean seven hours. **However, employees eligible for Remembrance Day and scheduled to work will get the normally scheduled hours off with pay.**

12.6 Deleted Provisions When on Shift

When an individual is assigned a shift and the provisions of 12.4 are in effect, the following provisions of Part D will not apply.

1. Item 2.0 - Hours of Work - General
2. Item 2.1 - Hours of Work - Specific
3. Item 2.2 - Hours of Work - Outside Head Office

12.7 The I&M Technician Schedule at Bruce has start and stop times which do not align with the regularly scheduled bus services, then the company will supply buses for each shift or pay travel expenses as per PW-8.

12.8 Compensation for travel and travel time shall be in accordance with the relevant sections of Part A of the Collective Agreement.

12.9 Personal Property

Reimbursement by the Company for losses of the employee's personal property as a result of radioactive contamination shall be considered and assessed on the individual merits of each case.

12.9.1 Access to Radiation Records

Each employee shall have access to his/her personal radiation dose records.

12.9.2 Ionizing Radiation

The Union Office will be supplied with one copy of the Radiation Protection Requirements and one copy of the Radiation Protection Procedures Manual, and all revisions to these Requirements and Procedures.

12.9.3 Radiation Limits

Employees performing their normal work, who exceed radiological limits requiring them to be removed from certain work locations, shall be given suitable work elsewhere at not less than their basic rate of pay.
12.9.4 Pregnant Nuclear Energy Workers

Every reasonable effort shall be made to assign a pregnant Nuclear Energy Worker to a location where there is no expected recordable radiation dose above natural background. In relocations of pregnant Nuclear Energy Workers, the normal base rate of pay will be maintained. The relocation period will be extended for a reasonable period of time for female Nuclear Energy Workers who indicate they intend to continue to breast-feed their babies after they return to work.

12.9.5 Female Nuclear Energy Workers Wishing to Conceive

Every reasonable effort shall be made to re-assign a female Nuclear Energy Worker, at her request, to a location where there is no expected measurable radiation dose while she is attempting to conceive. The purpose of the reassignment is to ensure that the embryo/fetus is not exposed to radiation during the period between conception and confirmation of pregnancy.

The re-assigned female Nuclear Energy Worker shall have her wages maintained under the following conditions:

(a) the re-assignment is six months or less, and

(b) the employee will have no more than three such re-assignments, and

(c) Exceptions to the above may be granted at the discretion of The Company’s Chief Physician.

12.9.6 Although every effort shall be made to minimize disruption to the continued training and development of the employee in her chosen career, it is recognized that re-assignment to a non-related work area may interrupt the training program. In the case where it is interrupted, progression through the training program will be frozen for the duration of the reassignment.

12.9.7 Dose Limits

The Company is committed to excellence in radiological safety performance. All radiation exposures shall be kept as low as reasonably achievable, consistent with sound operating practices, and with due regard for employee concerns.

The Company will pursue a policy of controlling radiation doses to its employees such that individual doses will not exceed 10 mSv (1 rem) per year averaged over any five (5) year period, provided the total collective dose does not increase as a result.

Each facility shall jointly develop annual targets and implementation plans which will strive to improve on this standard and eliminate unnecessary radiation exposure.

The Grievance process is not intended to apply to Part D, Item 12.9.7, however, instances where annual targets have been exceeded will be reviewed by the Joint Health and Safety Committee of that facility. Such instances may also be fit matter for discussion by the Joint Committee on Radiation Protection.
13.0 SHIFT WORK - TECHNICAL STAFF (Instructor – Nuclear ONLY)

13.1 Applicability

This section covers the following classification: Instructor.

13.2 Intent

The intent of this section is to provide a framework within which employees in the above named classifications may be assigned to shift work on a Monday to Friday basis for limited periods of time. The "limited period" is to be less than three months in each year for each employee unless the employee involved specifically consents to an extension.

13.3 Implementation

When shift work is required, management will solicit preferences for shift work from the employees in the required classifications. If employees with the required skill, knowledge, experience, etc., indicate a preference for shift work, management will select from among these employees. If insufficient qualified volunteers are available, management will assign the shift work to qualified employees, endeavouring to minimize personal inconvenience.

13.4 Duration of Shift Hours

The employees who may be required to work shifts under this section include both 35 and 40 hour per week positions. They will work a time balanced schedule.

Forty hour per week employees when assigned to shift work will work the same hours as regular shift workers on shift.

Thirty-five hour per week employees when assigned to shift work will normally work seven-hour shifts. This may, at management’s discretion, be increased to eight-hour shifts.

13.5 Special Provisions When on Shift

1. Shift work shall not be implemented for a period of three working days or less. If the working period is three days or less, the appropriate premium rate will be paid for the minimum three-day period.

2. The Company will provide 72 hours' (three calendar days) posted notice of the commencement and termination of a shift. Failure to provide such notice will require a penalty payment of double time for all changed hours of work within the notice period.

3. Such a placing on shift work shall not deprive an employee of his/her total number of normally scheduled weekly hours.

4. Revision to the work schedule shall provide for a minimum of 15 hours off between shifts. Failure to provide such time off will require the penalty payment for the first affected shift.
5. Shift differential shall apply to employees required to work on a three-shift schedule or a two-shift schedule and shall not apply for overtime hours. Regular part-time and temporary part-time employees will not be eligible for shift differential when the shift starts and ends between 0700 and 1800.

6. Work in excess of the total number of normal daily hours will be paid at the appropriate overtime rates.

13.6 Deleted Provisions When on Shift

When an individual is assigned a shift and the provisions of 13.5 are in effect, the following provisions of Part D will not apply:

1. Item 2.0: Hours of Work - General

2. Item 2.1: Hours of Work - Specific

3. Item 2.2: Hours of Work - Outside Head Office
PART E

CONSTRUCTION TECHNICAL
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PART E

CONSTRUCTION
TECHNICAL

The provisions of the Articles of the Agreement as well as the provisions of Part A General Items are applicable to the employees covered by Part E. Specific matters referred to in Part E do not conflict with any item covered under the Articles or Part A General Items of the Agreement.

1.0 HOURS OF WORK
2.0 POSTED VACANCIES
3.0 NEW GENERATION PROJECTS
4.0 MEMBERSHIP LISTS
5.0 POSITIONS EXCLUDED AS PER ARTICLE 1
6.0 CHRISTMAS SHUTDOWN
7.0 SHIFT DIFFERENTIAL AND SHIFT WORK
8.0 BOARD AND LODGING AND SPECIAL ALLOWANCE RECEIPTS
9.0 PROVISION OF MEALS
10.0 NOTICE OF TRANSFER
11.0 RESIDENCE HEADQUARTERS
12.0 OVERTIME
13.0 ACTING POSITIONS
14.0 REST PERIOD
15.0 PERSONAL DEVELOPMENT (TRAINING AND EXPERIENCE)
PART E
TECHNICAL
General Provisions

The following provisions apply to Construction Technical employees.

1.0 HOURS OF WORK

The normal work week for employees shall be 37½ hours per week consisting of eight hours per day Monday through Thursday, and five and one-half hours on Friday.

All hours worked in excess of normal daily hours will be paid for at appropriate overtime rate.

For alternate hours of work arrangements refer to the Bargaining Memorandum of Understanding 1992.

2.0 POSTED VACANCIES

2.1 Posting and Transfer - General

Employees in the construction field forces covered by this Agreement are eligible to apply for vacancies as per Article 10.0.

When a technician vacancy within the construction field forces occurs and additional staff is required, the Company agrees to post such vacancies providing the job will exist for a period of one year or more. Selection to be made or the vacancy cancelled within four months after the posting date of the advertisement.

Application for lateral transfers or voluntary demotions will be considered on the same basis as for other employees (See Article 10).

One copy of the compiled list of applicants for all advertised vacancies will be forwarded to the Union Office.

On request, the Company will explain in writing to any unsuccessful applicant for an advertised position the reason why he/she was not selected for the position. The Union will advise its membership of the particular difficulties involved in this undertaking in order that the delay in complying with the request will be understood.

Within 60 days from the date of selection the successful applicant will be transferred or paid the rate of pay for the new position.

2.2 Notification to Applicants

1. If the decision has been made within five weeks of the closing date of the advertisement, then at that time, the supervisor with the vacancy or his/her human resources manager will be responsible for:

Advising all applicants who have been interviewed of the decision in writing.
Supplying Human Resources with the list of successful applicants for publication. The published list will be considered appropriate notification for those applicants who were not interviewed.

2. If the decision has not been made within five weeks of the closing date of the advertisement, then at that time, the supervisor with the vacancy or his/her human resources manager will be responsible for:

Ensuring that all applicants who do not possess the necessary qualifications are notified that their applications have been considered and they were not successful.

Ensuring that all remaining applicants are informed of the delay, the status of their application and when a decision is likely to be made.

3. When a final decision has been made, the supervisor or his/her human resources manager will ensure that:

The unsuccessful applicants not yet informed are notified of the final decision as soon as possible.
The name of the successful applicant should be given.

The successful applicant and his/her supervisor is notified.

Notify Human Resources of the name of the successful applicant for publication.

2.3 Similar Vacancies

When a similar vacancy occurs beyond four months after the posting date of the advertisement, it must be re-posted and considered separately.

3.0 NEW GENERATION PROJECTS

A pre-job meeting will be arranged by the Company with the Union as far in advance as possible of construction of a new generation project to outline plans of the construction operation and to discuss and review general conditions that may pertain to the new project.

4.0 MEMBERSHIP LISTS

Chief stewards in the construction field forces will be supplied with a semi-annual list of all Union members in their jurisdiction and a monthly list of additions and deletions to the membership. In order to facilitate this, the Union agrees to keep construction management supplied with an up-to-date list of chief stewards and stewards every third month showing the limits of their jurisdiction.
5.0 POSITIONS EXCLUDED AS PER ARTICLE 1

Incumbents in positions excluded under Article 1 perform certain inherent work functions which are part of their normal duties. It is also recognized, however, that such work functions will not be performed for the purpose of reducing staff requirements or deliberately to avoid overtime for employees represented by the Union. If the Union believes that this provision is being abused, it may lodge a grievance under Article 2 of the Collective Agreement.

6.0 CHRISTMAS SHUTDOWN

It is recognized that the Company shall retain the right to designate those positions which require coverage during the shutdown. When a Christmas shutdown is declared by the Company, eligible technical employees shall have the option of repayment by:

1. Applying unused vacation credits from the present year (when a Christmas shutdown period extends into the next calendar year, an employee will have the right to use his/her unused vacation from the previous year).

2. Applying next year's vacation entitlement (restricted to shutdown days only).

3. Requesting time off without pay (restricted to shutdown days only).

4. The use of make-up time at straight time.

The Company will maintain salaries of technical employees who elect to work make-up time. The employee will work make-up time within the following periods:

<table>
<thead>
<tr>
<th>Shutdown Period</th>
<th>Make-up Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 working days or less</td>
<td>October 15th to February 1st</td>
</tr>
<tr>
<td>More than 4 working days</td>
<td>October 1st to March 31st</td>
</tr>
</tbody>
</table>

5. The use of banked overtime hours as per Item 12.2(6.) The selection of option 4. above precludes the use of this option during the make-up period.

Unpaid overtime worked shall be paid to the employee at the appropriate premium rate in the event of his/her transfer or termination prior to receiving the time off with pay during the shutdown period.

The employee will indicate to his/her supervisor his/her selection of the above options prior to the commencement of the make-up period. The employee may change his/her options at any time provided the employee's supervisor authorizes the change.
7.0  SHIFT DIFFERENTIAL AND SHIFT WORK

It is recognized that from time to time it may be necessary, due to the nature of the Company's operations, to place day working employees on shift work. Where this occurs, the following provisions will apply:

1. The Company will normally provide an individual with seven (7) days’ notice of a change from day work to shift work or between shifts with the following exception:

72 hours’ notice is acceptable when:

(a) an individual is transferred from shift work to day work,
(b) shift is required to support critical path work in a planned outage
(c) in emergency situations such as a forced outage, equipment failures or safety reasons.

Notice will include the following:

i. Date of the shift change notice
ii. Reason for the shift change notice
iii. Details of changed hours of work

All lack of notice penalty payments to be paid at premium rate (2x).

2. Such a placing on shift work shall not deprive an employee of his/her normal scheduled weekly total hours of work.

3. All employees on a two- or three-shift per day operation shall be paid time and one-seventh for all standard shift hours worked on the second shift of a two- or three-shift schedule and time and one-fifth for the third shift of a three-shift schedule.

4. The shift differential in 3. above shall not apply to overtime hours.

5. When shifts commence during the following hours, the shift differential rates shall be:

0700 to 1000 - no shift differential
1000 to 1800 - time and one-seventh
1800 to 0700 - time and one-fifth

Regular part-time and temporary part-time employees will not be eligible for shift differential when the shift starts and ends between the hours of 0700 and 1630.

6. A minimum period for a shift is four days. An employee who is required to work shift work shall be entitled to an eight-hour rest period prior to returning to normal scheduled hours. If the rest period extends into the employee’s normal scheduled hours of work, he/she shall be paid at straight time rates for the portion of the rest period which extends into the normal scheduled hours. This is in addition to the shift hours worked.
7. In the case of illness, which would result in a staff shortage, four (4) days’ advance notice will be given when placing an employee on shift.

8. All positive time balances to be paid out at 2X.

8.0 BOARD AND LODGING AND SPECIAL ALLOWANCE RECEIPTS

When entitled to relief under the Income Tax Act, a yearly statement shall be provided to each regular employee of the construction field forces upon request, for all board and lodging or special allowances given or paid to such employees.

9.0 PROVISION OF MEALS

In recognition of the importance of regular meals to an individual’s health and effectiveness on the job, the Company will supply meals as outlined below and when required, will assign an employee to secure the meals.

(a) Employees provide their own meals on regular days of work.

(b) When an employee works overtime on a regular day off, he/she will be expected to provide one meal if 23 hours’ notice has been given.

(c) When an employee works extension overtime before or after normal scheduled hours, all required meals will be provided by the Company. The first meal (or meal allowance) will be provided when two (2) hours of overtime are worked. Subsequent meals or meal allowances will be provided every four (4) hours of overtime worked thereafter.

(d) When meals cannot be reasonably obtained\(^1\), an allowance of $15.00 per meal will be paid.

9.1 Meal Periods

(a) Employees on day work shall take a meal period designated by the Company and shall not be paid for this time (unless otherwise provided for in the Collective Agreement).

(b) Employees on shift work shall eat their meals during the shift hours as conditions permit.

(c) When an employee works extension overtime, no time shall be deducted for eating such meals where the employee eats the meal on the job and in a minimum of time.

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\(^1\) ‘Reasonably obtained’ is to be defined locally by Union and Management.
10.0 NOTICE OF TRANSFER

10.1 Transfer

When employees with more than one month's service are transferred and a change of residence headquarters is involved, a minimum of one month's notice shall be given and where possible two months' notice shall be provided. This shall not apply in the case of an employee being transferred as a result of an advertised vacancy or as a result of the Worksite/Location Redeployment clause of Article 11.0.

When the Company considers a preliminary trip to the new location is necessary for interview of employee or for him/her to seek a house, the time, board and lodging and travelling expenses of the employee may be paid.

Notwithstanding the preceding paragraph where a change in residence headquarters will be greater than 100 km a preliminary trip will be provided and the time, board and lodging and travelling expenses of the employee will be paid.

Following an employee's move to his/her new residence headquarters, and while awaiting the transfer of his/her family, time off may be required in order for him/her to seek a house. For such purposes reasonable time off without loss of earnings may be granted at the Company's discretion. This allowance would normally be expected to supplement efforts made by the employee during non-working hours and as such would not normally exceed a total of one full working day.

10.2 Transfer Other than Change of Residence Headquarters

On a change of work headquarters employees shall be given five days' prior notice of transfer.

This shall apply in all cases except when, due to the lack of prior knowledge by the employee's immediate supervisor, such notification is impossible.

Failure to provide the required notice period will result in double time being paid until the notice period has expired.

10.3 In either 10.1 or 10.2 above, the Company shall continue to transfer employees without partiality.

11.0 RESIDENCE HEADQUARTERS

For those employees who are entitled to moving expenses, where there is a minimum of six months work foreseeable for an employee at an established work headquarters or on a special project, a suitable location or locations at or near that work headquarters or special project will be designated as residence headquarters. In order to seek the Union's input, the Company will advise and meet with the Union to discuss as far in advance as possible the proposed residence headquarters. Following such a meeting, the Company will designate the residence headquarters.

Where the Company deems it appropriate and the employee concurs the assignment of temporary work headquarters may be extended beyond six months (all subsequent changes to work or residence headquarters will be as detailed in Item 11.0). The employee may cancel his/her concurrence to the extension to a temporary headquarters transfer providing he/she gives the Company three months' prior notice in writing.
The employee will then be entitled to a maximum of four months' board allowance (if eligible) on a transfer of residence headquarters.

11.1 Definition of Residence Headquarters

Residence headquarters will be that location or those locations within which or adjacent to which the employee is expected to reside or is assumed by the Company to reside for the purpose of payment of allowances. The residence headquarters may or may not be the same location as the work headquarters.

Establishment of a suitable location or locations for residence headquarters will be dependent upon presence of adequate living facilities at that location or those locations.

Residence headquarters for employees with no spouse or dependents may be any location where there are boarding facilities either the Company or privately owned.

Residence headquarters for employees with a spouse and/or dependents may be any location where there is housing accommodation whether it be the Company or privately owned.

12.0 OVERTIME

Due to the nature of the Company operations, some employees will be required to work overtime. Overtime will be minimized and managed within the limits of corporate effectiveness and customer impact. In recognition of employee well-being and inconvenience, an effort shall be made to equitably distribute overtime amongst all qualified employees. Overtime, as used herein, means that part of the actual working time which is outside the normal scheduled hours and is, therefore, subject to compensation at premium rates.

12.1 Overtime Payments

1. Beyond eight hours/day Monday through Thursday, and beyond five and one-half hours on Friday.

Overtime shall be paid at one and one-half times the employee's basic rate during the first four clock hours after normal quitting time Monday to Friday inclusive.

All work performed outside of the first four clock hours after normal quitting time, and all work performed on a regular day off, Saturdays, Sundays and recognized holidays shall be paid at two times the employee's basic rate.

12.2 Overtime Miscellaneous Provisions

1. In order to alleviate excessive inconvenience, an effort shall be made to equitably distribute overtime amongst all qualified employees. Where employees feel they have been assigned abnormal amounts of overtime, consideration of such cases shall be considered fit matter for discussion at local level.

2. The Company agrees to control excessive authorized overtime by restricting the actual overtime to not more than 12 hours per week, excluding travelling time. Under extraordinary circumstances the Union will consider waiving the restrictive features of this clause.
3. A travelling allowance up to a maximum of one hour shall be paid at the appropriate overtime rate when an employee is called in to work overtime and an extra trip is involved. See also Item 12.3.

4. Because an employee was required to work overtime or because he/she lost time in changing shifts, he/she shall not be prevented from working his/her total number of normal daily hours in any normal scheduled day of work. If the employee cannot be supplied with the work required to make up the eight hours' work in that day, his/her pay shall be adjusted to provide a minimum of eight hours' work.

5. If an employee who has worked overtime and is physically capable and the group of which he/she is ordinarily a member is at work, he/she shall not be deprived of the opportunity of working his/her normal scheduled hours in addition to the overtime he/she may have worked.

6. An employee who has accumulated overtime hours shall receive this, in earnings, calculated at the appropriate premium rate and cannot be required to take time off in lieu of payment. However, the employee may elect to bank one hour for each overtime hour worked for application to the Christmas shutdown. The maximum number of hours that can be banked is equal to the duration of the Christmas shutdown. The premium portion of the overtime worked shall be received in earnings the following pay period.

7. An employee who is required to work continuously for more than 16 hours shall be entitled to an eight hour rest period. Time spent for meals may be deducted from the total elapsed time but is not to be considered as breaking the continuity of the hours worked.

   If the rest period extends into the employee’s normal scheduled hours of work, he/she shall be paid at straight time rates for the portion of the rest period which extends into the normal scheduled hours. This is in addition to the overtime worked.

   Should he/she be required to continue working beyond 16 hours he/she shall be paid two times his/her normal basic rate until an eight hour rest period is granted. Should an employee be released before 16 hours have elapsed, he/she will not be entitled to an eight-hour rest period, and his/her right to continue work at straight time will be governed by Item 12.2 (5.) above.

8. Equivalent time off without pay see Part A, Item 10.2.

12.3 Minimum Payments - Overtime

All overtime arranged for within the employee’s shift and performed as an extension of that same shift requires no minimum payment. All other overtime performed or reported for due to lack of notice of cancellation shall receive a minimum payment of two hours at straight time or the actual time worked at the appropriate premium rate, whichever is the greater.

All overtime arranged for and cancelled within the employee’s same shift requires no minimum payment.

All other overtime cancelled within 24 hours of the designated time of work commencement shall require payment of two hours at straight time.
12.4 **Overtime - Regular Part-Time and Temporary Part-Time Employees**

Overtime is defined as:

(a) Hours worked which are in excess of the normal daily hours of the classification. The premium payment for such work is one and one-half times the employee's basic rate for all work performed during the first four clock hours after the normal quitting time of the classification, and two times the employee's basic rate for all work performed outside of the first four clock hours after the classification's normal quitting time.

and/or

(b) Hours worked in excess of 24 in a week. The premium payment for such work is one and one-half times the employee's basic rate for the first four hours worked in a day. Two times the employee's basic rate for all work performed in excess of four hours in a day.

and/or

(c) Unscheduled hours worked on Saturday and Sunday. The premium payment for unscheduled hours worked on Saturday and Sunday is two times the employee's basic rate.

13.0 **ACTING POSITIONS**

Due to the fluctuating workload resulting in constantly changing staff requirements on construction projects it is permissible to assign employees to a higher classified job for a temporary period, not to exceed six months' accumulative duration in a three-year period, on any given project, during which time the higher salary classification will apply. The Union's Sector Board Chairperson may agree to an extension of an acting position. Acting positions will not be used to circumvent the posting of vacancies.

When an acting position is established, the Company shall notify the Union setting out the reason for the acting position and expected duration. In filling such positions preference will be given to the qualified senior employee within the work group reporting to the first line management Supervisor.

On completion of the temporary assignment and the employee returns to his/her former job (or equivalent classification) he/she will immediately revert to his/her former wage rate.

14.0 **REST PERIOD**

Each employee shall be entitled to a 10 minute rest-period in the first half and second half of each scheduled work day at a time designated by the Company. When working with construction trades employees, rest periods shall be extended to 15 minutes.
15.0 PERSONNEL DEVELOPMENT (TRAINING AND EXPERIENCE)

The benefits of personnel development to the Company and to the individual are recognized.

Also recognized is the emphasis placed on personnel development, when determining qualifications, for promotion purposes. The need for equitable development opportunities and treatment of individuals and groups is clear. Therefore, it is agreed that:

1. Individuals and groups should receive equitable development opportunities and treatment.

2. Disruptions to training will be minimized. Where the work situation, unavoidably, precipitates an inequality of development opportunity and treatment, such inequity will be recognized and will not be allowed to work to the disadvantage of that individual or group.

3. Employees shall receive 100% of approved reimbursable costs, paid for external training which:
   - creates or maintains employee’s capability related to current job performance,
   - creates employee’s capability for a position identified in a succession, retraining or redeployment plan.

Employees shall receive 75% of registration/tuition fees and learning material costs for external training activities which create employee’s capability for future jobs within the Company and provided such training is outside working hours.
PART F

THERMAL GENERATING STATIONS

At the present time, this section will apply to employees included in Part F at Lakeview, Thunder Bay, Lambton, J.C. Keith Generating Station, Nanticoke Generating Station, Lennox Generating Station, Atikokan Generating Station, and R.L. Hearn Generating Station. It shall also apply to Security Guards identified in Article 1 as set out in Section 16.0. When other Thermal generating stations are established, these provisions will not automatically apply but will require review and possible modification at that time.

The provisions of the Articles of the Agreement as well as the provisions of Part A, General Items are applicable to the employees covered by Part F.

The provisions contained in Parts B, C, D, E and G, of the Collective Agreement do not apply to the above employees, except as noted in Section 16.0 herein.
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PART F

THERMAL GENERATING STATIONS

Specific Matters of Agreement

1.0 HOURS OF WORK

Employees will be assigned by management to either Day Work or Shift Work as per the following conditions:

Note: See item 1.2.3 last paragraph with respect to Security Guard shift change times.

1.1 Day Work

Hours: The normal hours of work are 40 hours per week made up of five days of eight hours each performed between the hours of 7:00 am and 6:00 pm, Monday to Friday, inclusive.

Meal Periods: One unpaid meal period designated by the Company will be provided. The duration will be subject to the approval of the supervisor.

Notice Period: Day workers’ hours of work may be changed to the appropriate shift conditions in Items 1.2.1, 1.2.2 and 1.2.3.

A minimum of seven (7) days’ personal notice shall be given when the employee’s hours of work are to be changed.

1.2 Shift Work

Regular part-time and temporary part-time employees will not be eligible for shift differential when the shift starts and ends between the hours of 0700 and 1800.

1.2.1 Eight-Hour Shifts

Applicable to: Fossil Operating Technicians (FOTs), Coal Plant Equipment Operators (CPEOs) and Shift Maintenance Personnel.

Shifts: The normal hours of work for non-time balanced eight hour shifts are 40 per pay week. Shifts may be performed in one, two or three shifts per day, Monday to Sunday, inclusive.

1st shift - 0000 hrs to 0800 hrs
2nd shift - 0800 hrs to 1600 hrs
3rd shift - 1600 hrs to 2400 hrs

The above shift start and stop times may be changed by local agreement between the Station Manager and the Chief Steward.
Shift Differential:

1st shift - 85 cents per hour
2nd shift - no shift differential
3rd shift - 65 cents per hour

Meal Periods: One paid meal period will be included within each shift as conditions permit.

Time Balance: Eight (8) hour shifts may be subject to the time balance provisions of Item 2.7 if these shifts are used in conjunction with ten (10) and/or twelve (12) hour time balance shifts.

Notice Period: A minimum of seven (7) days' personal notice shall be given when an employee's hours of work are to be changed.

In the case of illness, which would result in a staff shortage, four (4) days' advance notice will be given when placing an employee on shift.

1.2.2 Ten-Hour Shifts

Applicable to: CPEOs and Shift Maintenance Personnel.

Shifts: The normal hours of work for non-time balanced ten hour shifts are 40 per pay week. Shifts may be performed in one or two shifts per day, Monday to Sunday, inclusive, and may be performed within the following shift windows:

1st shift - 0600 hrs to 1800 hrs
2nd shift - 1400 hrs to 0200 hrs

Shift Differential:

1st shift - no shift differential
2nd shift - 70 cents per hour

Meal Periods: One paid meal period will be included within each shift.

Time Balance: Ten (10) hour shifts may be subject to the time balance provisions of Item 1.7.

Notice Period: A minimum of seven (7) days' personal notice shall be given when an employee's hours of work are to be changed.

In the case of illness, which would result in a staff shortage, four (4) days' advance notice will be given when placing an employee on shift.

Shift start/stop times and/or shift windows can be changed by local agreement between the Station Manager and the Chief Steward.
1.2.3 Twelve-Hour Shifts

Applicable to: FOTs, CPEOs and Shift Maintenance Personnel.

Shifts: Shifts may be performed in one or two shifts per day, Monday to Sunday, inclusive, and may be performed within the following shift windows:

- 1st shift - 1800 hrs to 0800 hrs
- 2nd shift - 0600 hrs to 2000 hrs

Shift Differential:

- 1st shift - $1.00 per hour
- 2nd shift - no shift differential

Meal Periods: Two paid meal periods will be included within each shift as conditions permit.

Time Balance: Twelve (12) hour shifts will be subject to the time balance provisions of Item 1.7.

Notice Period: A minimum of seven (7) days’ personal notice shall be given when an employee’s hours of work are to be changed.

In the case of illness, which would result in a staff shortage, four (4) days’ advance notice will be given when placing an employee on shift.

It is recognized that Security Guard shift change times should not be at the same time as the plant personnel. Should the shift change time for plant personnel change during the posted shift schedule of Security Guards, then that would trigger an immediate review of the Security Guard schedule with the Chief Steward to ensure appropriateness of shift change overlap. Should the hours of work for Security Guards change due to the review of the shift schedule, then seven (7) days' personal notice will be given.

Shift start/stop times and/or shift windows can be changed by local agreement between the Station Manager and the Chief Steward.

1.3 Work Schedules

The Company will post a work schedule for shift workers showing days, hours of work, position and work headquarters of each employee. The design of the work schedule shall provide for a minimum of sixteen (16) hours off between shifts for eight (8) hour shifts, twelve (12) hours off between shifts for ten (10) and twelve (12) hour shifts. Failure to provide the minimum time off between shifts shall require premium rates to be paid for the first affected shift. Without specific commitment, the Company acknowledges the responsibility that such work schedules shall be posted as far in advance as is practicable and subject to the penalty indicated in Subsection 1.4.4. Until a new work schedule is posted, the existing posted work schedule will remain in effect.
Although the content, preparation, posting and administration of shift schedules is the sole responsibility of the Company, the preference of the majority of shift workers at each station for a particular basic type of schedule will be adopted. Such preferences will be made known to the Company prior to commencement of preparation of a new schedule. However, if in the Company’s opinion, the efficiency of the station or the health of a shift worker could be detrimentally affected by the chosen work schedule, then the Company will provide the Union (chief steward) with reasons or medical opinions why the desired schedule cannot be implemented.

The preference of individual shift workers regarding vacation periods will be considered, providing such preferences are made known prior to commencement of preparation of new schedules.

The following are the recognized criteria of an acceptable shift schedule:

(a) The schedule should equitably rotate among all crews.

(b) The schedule should follow a repeating pattern so that it is easily understood.

Ten-hour non-time balanced shift schedules will be assigned as follows:

- a minimum duration of 4 weeks and;
- a maximum of 5 days of 1st shifts in a row and;
- a maximum of 4 days of 2nd shifts in a row.

1.4 Special Provisions Concerning Notice of Transfer to a Different Work Schedule or Work Headquarters

One day of notice in this item is defined as 24 hours prior to the start of the first affected shift.

1.4.1 When an employee’s hours of work or work headquarters are to be changed, seven (7) days' personal notice will be provided.

1.4.2 When a shift employee is being changed back to his/her normal schedule, he/she shall be given two (2) days' notice if returning to normal schedule within fifteen (15) days of the original change and seven (7) days' notice if returning to normal schedule fifteen (15) days or more after the original change.

1.4.3 Fossil Operator Technicians in Training (FOTITs) and Trades Trainees in Steps 0 and 1 may be changed within a calendar day for training purposes, provided that a notice period of 16 non-working hours is given before the start of the first affected shift.

1.4.4 Failure to provide the required notice period will result in double time being paid until the required notice period has elapsed.
NOTE

Personal notice means the employee will be contacted personally, face to face or by telephone. The contact must be made with the employee, no messages. Personal notice will be followed up within 72 hours with posted notice which will list the time and date the employee was personally contacted. If the notice is not posted within 72 hours, management will pay 4 hours at straight time to the person who was shift changed.

1.5 Special Provisions Concerning Shift Differential

The appropriate shift differential shall be paid for regular shift hours only in accordance with Items 1.2.1, 1.2.2, and 1.2.3 and shall not apply for overtime hours. When premium time is involved for payment of shift work, the premium rate shall be computed on the standard base rate, excluding shift differential.

1.6 Calendar Day for Shift Workers

Premium payments for a regular continuous shift shall be recorded and treated as if they occurred during the calendar day in which the majority of the regular hours are worked.

1.7 Provisions Concerning Time Balance Shift

1.7.1 Time Balance Work Schedules

A current six-month time balance schedule may not be terminated. Either eight-hour, ten-hour or twelve-hour time balance shift work which is in effect for any work group may be terminated by the Sector Vice President / delegate or the Station Manager upon two months' written notice from one authority to the other prior to the end of a current six-month schedule. When the Sector Vice President / delegate has exercised the right to opt out of time balance schedules for any group of employees, no new time balance schedule may be introduced for those employees without mutual agreement of management and the Union.

Time balance shift schedules will only be introduced at any work location providing seventy percent (70%) or more of all eligible employees so desire and vote in favour. That vote will be as determined by a secret ballot, scrutineered jointly by management and the Union.

A six (6) month master work schedule will be posted thirty (30) days prior to its starting date. The time balance period of the six (6) month schedule may be less than six months. The six month schedule may include day work outside the time balance shift period. The schedule will average forty (40) hours per week using either eight, ten or twelve (8, 10 or 12) hour shifts, or any combination of the three. The schedule will indicate the days, hours of work (shifts) and position for each employee. The schedules will end on the last day of the shift cycle closest to April 30th and October 31st or as otherwise agreed to by the Chief Steward.

The hours of work for each employee, as shown on a work schedule, must balance to zero at the end of the shift cycle.

The zero time balance date must be indicated on each posted schedule.
The posted master work schedule should never be far off balance and should reasonably approximate the time off provisions of day work. It follows then that such a schedule should not leave long sequences of work without time off, nor long sequences of time off.

1.7.2 Plus Time Balance

Plus time balances which exists on the time balance date will be paid for at double time. At the time of layoff all positive time balances will be paid out at 2X.

1.7.3 Minus Time Balance

Minus time balances which occur as a result of changes to the master work schedule shall be worked off within two fiscal months of the end of the fiscal month in which the minus balance occurs. Minus balances not worked off within this two-month period will be written off.

1.7.4 Lieu Days

When scheduled work is performed on a statutory holiday, a day off will be scheduled in lieu of the statutory holiday. This lieu day shall be identified on the schedule and will be included when computing time balances. When workload permits, the employee may request that the lieu day be interchanged with another scheduled working day after the statutory holiday.

1.7.5 Provisions Concerning Time Off

(a) The following items will be credited for pay purposes on an hour-for-hour basis. In the application of undernoted Items - 1, 2, 3 and 4, a reference under the appropriate contract provision to "days" entitlement will mean eight (8) hours. Therefore a twelve (12) hour shift will constitute one and one-half (1.5) days deducted from credits and a ten (10) hour shift will constitute one and a quarter (1.25) days deducted from credits.

(1) Vacation
(2) Floating Holiday
(3) Sick Leave
(4) Leave of Absence
(5) Travelling Time Outside Normal Working Hours
(6) Payment for Temporary Supervision
(7) Time Charges and Expenses for employee Union Representatives

(b) When an employee is scheduled to work a ten (10) or twelve (12) hour shift and one of the undernoted conditions occurs, a "day" will be considered to be 10 or 12 hours respectively:

(1) Jury Duty
(2) Funerals
(3) Moving Day
1.7.6 Statutory Holidays and Special Time Off

The basic Statutory Holiday and Special Time Off provisions remain unchanged in that the time off will be calculated on an eight (8) hour basis. **However, employees eligible for Remembrance Day and scheduled to work will get the normally scheduled hours off with pay.**

1.7.7 Assignment to Day Work or Eight Hour Shifts

Shift workers with a plus (+) or a minus (-) time balance assigned to day work or eight hour shifts for an indeterminate period of time may be required to take off, or work a four (4) hour period respectively.

1.7.8 Minimum Available Requirement (MAR) List

Applicable to FOTs, CPEOs and Environment, Chemical and Safety Technicians/Technologists.

In order that a sufficient number of shift employees are on duty to maintain and ensure a continuous operation at any location utilizing eight or twelve hour shifts, the following will apply.

A minimum number of physically capable employees, by job classification and qualifications, will be determined by management. Employees will volunteer their willingness to be called in to work, in this situation, by placing their name on the MAR List under the day(s) they wish to be called. Once an employee’s name appears on the MAR List, he/she agrees to be prepared to report for work on short notice. During the Required Availability Period (RAP), he/she shall be required to wear and respond to a pager where such service is available and proven reliable. RAP will be the period of time commencing two hours prior to, and one hour after each shift change. An employee will not be placed on the MAR List if scheduled to work an adjoining shift.

It is expected that under normal conditions, there would be sufficient volunteer names on the MAR List to ensure that the supervisor would be able to obtain staff on short notice to keep the plant(s) operating. However, there may be occasions when there are insufficient volunteers on the MAR List. In those cases, the supervisor will assign names from each classification to make up the minimum for that classification. The supervisor will ensure that the employee is verbally notified that his/her name has been assigned to the MAR List before the end of his/her last shift.

If an employee assigned by the supervisor to the MAR List cannot be available for the specific RAP period, the employee must arrange to have another employee of the same classification and qualifications substitute for him/her. The substitute employee must accept this change list in place of the original employee.

Volunteering or being assigned to the MAR List for RAP periods does not entitle the employee to any compensation, i.e., on-call pay, etc, nor does it guarantee that overtime will result.
2.0 RELIEF - OPERATOR POSITIONS

2.1

FOTITs in Band II step 0 & 3 who are required to upgrade to an Operator position will be placed on Band II step 5 for the time they are filling a full time Operator position on the schedule.

2.2

Fossil Operating Technicians and Fossil Operating Technicians in Training will require a valid 3rd class stationary engineers ticket in order to progress beyond band III step 5.

2.3

Employees who were SSS’s or SUS’s prior to January 1st, 2002 when relieving for the normal duties of a PSO will receive an additional 5% in recognition of the additional TSSA responsibilities for the operation of the station. The 15% maximum as referenced in Article 8.8.3 will not apply in this case.

3.0 OVERTIME

Due to the nature of the Company’s operations, some employees will be required to work overtime. Overtime will be minimized and managed within the limits of corporate effectiveness and customer impact. In recognition of employee well-being and inconvenience, an effort shall be made to equitably distribute overtime amongst all qualified employees. Overtime, as used herein, means that part of the actual working time which is outside the normal scheduled hours and is, therefore, subject to compensation at premium rates.

3.1 Pay Entitlement

3.1.1 Monday to Friday inclusive

1. Scheduled Day of Work

(a) One and one-half the employee’s basic rate for all overtime work performed during the first four clock hours after normal quitting time.

(b) Two times the employee’s basic rate for all overtime work performed outside the first four clock hours.

2. Unscheduled Day of Work

(a) Two times the employee’s basic rate.

3.1.2 Saturday and Sunday

Two times the employee’s basic rate for all overtime work performed.
3.1.3 Statutory Holidays Monday to Friday

Two times the employee's basic rate for all overtime work performed.

3.1.4 Statutory Holidays Occurring on a Saturday

Two and one-half times the employee's basic rate for all overtime work performed.

3.2 Overtime Cancellation Payments

All overtime cancelled within 44 hours of its scheduled commencement shall result in a cancellation payment of two hours at straight time except in the following circumstances:

1. Overtime arranged during normal scheduled hours as an extension to those normal scheduled hours requires no cancellation payments.

2. Overtime arranged as an extension before the normal hours of work requires no cancellation payment if cancelled with more than 12 hours' notice prior to its commencement.

3.3 Overtime Minimum Payments

All overtime performed or reported for due to lack of notice of cancellation, shall result in a minimum payment of four hours at the appropriate premium rate, except in the following circumstance:

Overtime arranged during normal working hours and worked as an extension before and/or after the employee's normal hours of work requires no minimum payment.

3.4 Special Provisions Concerning Overtime

3.4.1 Time shall be counted from the time the employee reports for overtime work until he/she finishes overtime work at the Station or until his/her normal scheduled hours begin.

3.4.2 When less than 48 hours' notice has been provided and an extra trip to the work location has been made to work overtime, one hour at straight time will be paid for each extra trip.

3.4.3 Because an employee was required to work overtime or because he/she lost time in changing shifts, he/she shall not be prevented from working his/her total number of normal daily hours in any normal scheduled day of work. If the employee cannot be supplied with the work required to make up the eight hours work in that day, his/her pay shall be adjusted to provide a minimum of eight hours' work.

3.4.4 If an employee who has worked overtime and is physically capable and the gang of which he/she is ordinarily a member is at work, he/she shall not be deprived of the opportunity of working his/her normal scheduled hours in addition to the overtime he/she may have worked.
3.4.5 An employee who has accumulated overtime hours shall receive this, in earnings, calculated at the appropriate premium rate and cannot be required to take time off in lieu of payment.

A day worker who has worked overtime on a statutory holiday may elect to defer the statutory holiday portion of the payment (eight hours at straight time) as equivalent time off with pay. The day off will be scheduled at a mutually agreeable time.

3.4.6 An employee who is required to work continuously for more than 16 hours or has accumulated 16 hours working time in any 24-hour period, shall be entitled to an eight-hour rest period. Time spent for meals may be deducted from the total elapsed time but is not to be considered as breaking the continuity of the hours worked.

If the rest period extends into the employee's normal scheduled hours of work he/she shall be paid at straight time rates for the portion of the rest period which extends into the normal scheduled hours. This is in addition to the overtime worked. Should he/she be required to continue working beyond 16 hours he/she shall be paid two times his/her normal basic rate until an eight-hour rest period is granted. Should an employee be released before 16 hours have elapsed, he/she will not be entitled to an eight-hour rest period, and his/her right to continue work at straight time will be governed by Item 3.4.4 above.

3.4.7 An employee assigned to day work or on day shift who has worked overtime during the 8-hour period preceding his/her normal hours of work shall be entitled to an 8-hour rest period starting at the end of the overtime except when:

(i) An employee has worked 4 hours or less of overtime immediately preceding normal hours of work.

(ii) An employee has worked one hour or less of non-extension overtime outside the hours of 01:00 and 06:00.

Any portion of the rest period which extends into the normal scheduled hours of work will be paid at straight time rates.

3.4.8 Equivalent time off without pay - see Part A, Item 10.2.

3.4.9 When overtime is performed at two times the employee's basic rate and the overtime period extends into the following calendar day containing his/her scheduled day off, the employee shall remain at two times until an eight-hour rest period is granted.

3.4.10 CPEOs will wash up during their normal shift hours. If there is a need to have continuous belt operation and it is necessary for CPEOs to remain at their work station until relieved, they will be paid 10 minutes at time and one-half his/her basic rate.
3.4.11 Overtime - Regular Part-Time and Temporary Part-Time Employees

Overtime is defined as: (1) hours worked which are in excess of the normal daily hours of the classification; or (2) hours worked in excess of 24 in a week; or (3) hours worked on a regular day off.

Premium Payment for Overtime:

Extension Overtime: Overtime hours worked within the first four clock hours will be at one and one-half times the employee's basic rate unless the employee works more than 28 hours in a week in which case the hours in excess of 28 will be paid at two times the employee's basic rate.

Non-Extension Overtime: All overtime hours worked that are outside of the first four clock hours after the classification's normal quitting time will be at two times the employee's basic rate.

Regular Day Off: Overtime hours worked on a regular day off will be paid at two times the employees' basic rate.

4.0 PREMIUM PAYMENTS

4.1 Normal Scheduled Hours

1. One and one-half times the employee's basic rate shall be paid for normal scheduled hours of work performed on Saturdays and Sundays.

2. Two times the employee's basic rate shall be paid for normal scheduled hours of work performed on a statutory holiday which occurs on a Monday to Friday. A day off in lieu of this worked holiday shall be scheduled within the following six months. The employee will advise the Company of his/her preferred day off within 30 days after the holiday is worked. If mutual agreement cannot be reached within 30 days of the worked holiday, management may, on seven days' notice, schedule the lieu day off.

3. Two times the employee's basic rate shall be paid for normal scheduled hours of work performed on a statutory holiday which occurs on a Saturday. There is no entitlement to a day off in lieu of this worked holiday.

4. If mutually agreeable, three times the employee's basic rate shall be paid for normal scheduled hours worked on a statutory holiday occurring on a Monday to Friday. No lieu day would be granted.
4.2 Statutory Holidays

4.2.1 Rescheduling Statutory Holidays - Supernumerary

With a minimum of seven days' notice, employees designated as supernumerary may request to observe a statutory holiday which falls on a scheduled day of work on any other scheduled day of work within the same pay period. For pay purposes, the observed day will be considered as the statutory holiday.

4.2.2 Entitlement for Operating Shift Employees

Operating shift employees shall receive entitlement for the same number of statutory holidays as day workers. Therefore, when a statutory holiday falls on a Saturday, statutory holiday credit shall not apply.

5.0 ON-CALL

When an employee is placed "on-call" by his/her supervisor, he/she shall keep him/herself available to report for work within two hours. In addition to any time worked, payments for on-call will be:

1. One half (1/2) hour per day will be paid at the employee’s basic hourly rate on a scheduled day of work and one (1) hour will be paid at the employee’s basic hourly rate on an unscheduled day of work.

**NOTE**

It is not the intent of this clause to schedule employees on-call for the purpose of providing shift coverage.

It is expected management will ask for volunteers before arbitrarily selecting people for on-call.

Management will provide a pool of pagers, cell phones or other electronic devices at each station to be used by employees who are placed on-call provided such service is available and proven reliable.

6.0 MANAGERIAL DUTIES

A management supervisors’ normal duties are supervisory in nature. Under normal circumstances they must not take the place of skilled workers. In the event that an emergency work condition arises, skilled help should be called in. Where suitable skilled help is not available at the required time, supervisors are expected to perform whatever duties are necessary. The foregoing is not intended to prohibit the management supervisor from carrying out appropriate training.
7.0 PAYMENT FOR TEMPORARY SUPERVISION

Supervisory payments are established in Article 8.

Where a group of employees are working at a location on jobs which are independent of one another and planned by a supervisor so that no coordination of their activities is required, additional supervision will not be required.

Where the job requires more than one day to complete or is not pre-planned, or is being performed by four or more employees one of them shall be appointed and paid as a trades supervisor in accordance with Article 8. In such cases if he/she supervises for more than two hours in a day he/she shall be paid the supervisory rate for a minimum of four hours or the actual hours he/she supervises, whichever is greater.

7.1 Level of Supervision

While in receipt of 5% for supervision a tradesperson shall perform supervision for up to 3 days without face to face contact with his/her Union Trades Supervisor. Less frequent contact requires the 10% supervisory payment.

8.0 RELIEVING IN HIGHER-RATED POSITIONS

8.1 Relief in a higher rate position is established in Article 8.

8.2 When an employee acquires a lieu day while relieving or stepped-up in a higher rated classification, the lieu day shall be paid at the relief or stepped-up rate.

Payment for a statutory holiday shall be at the relief rate if it occurs during the specified relief period.

When an employee provides relief in higher-rated classification(s) for more than 50% of the vacation year, he/she shall receive for their full vacation period, the relief rate for the higher-rated position, in which the majority of vacation allowance was earned.

9.0 ACTING IN VACANCIES

All acting positions are to be limited to 90 days unless extensions are agreed to by the Company and the local Chief Steward of the union. Pending the arrival of the successful applicant and his/her assuming of the normal duties, the acting incumbent who is performing the normal duties and responsibilities of an "acting" position shall receive the rate for the position.
10.0 VACATIONS - MINIMUM VACATION PERIOD

Subject to extensions resulting from unforeseen or abnormal conditions, arrangements will be made to provide those shift workers, who are entitled to at least two weeks' vacation, a minimum vacation period of 14 consecutive days within the period May 1st to September 30th.

11.0 CLOTHING

The Company agrees to supply and launder coveralls or shirts and pants for all employees in the following occupations:

- Coal Plant Equipment Operator
- Electrical & Control Tech'n/Technologist
- Fossil Operating Technician
- General Tradesperson
- General Tradesperson Supervisor
- Mechanical Maintainer Journeyperson
- Mechanical Technician/Technologist
- Service Trades Maintainer
- Service Trades Supervisor
- TWE Technician

The amount and system for providing personal clothes shall be determined at the location.

For the following classifications, the Company agrees to supply coveralls or shirts and pants to the following occupations. The above provision is at the rate of 4 sets in a 24-month period:

- Coal Plant Equipment Supervisor
- FGD Supervisor
- Fossil Operating Supervisor
- Materials Support Worker
- Shift Maintenance Personnel

The Company will supply a parka or insulated coveralls every 24 months to employees required to work periods outdoors. The Company will attempt to bulk supply appropriate type parkas if it is more cost effective.

Clothing supply shall be jointly reviewed at the local level to ensure adequate supply and cost effectiveness.

Employees must exercise reasonable care in the use of clothing so supplied.
12.0 PROVISION OF MEALS

In recognition of the importance of regular meals to an individual’s health and effectiveness on the job, the Company will supply meals as outlined below and when required, will assign an employee to secure the meals.

(a) Employees provide their own meals on regular days of work.

(b) When an employee works overtime on a regular day off, he/she will be expected to provide one meal if 23 hours notice has been given.

(c) An employee working a 10 hour shift schedule who works a 10 hour overtime shift will be provided with one meal period.

(d) When an employee works extension overtime before or after normal scheduled hours, all required meals will be provided by the Company. The first meal (or meal allowance) will be provided when two (2) hours of overtime are worked. Subsequent meals or meal allowances will be provided every four (4) hours of overtime worked thereafter.

(e) When meals cannot be reasonably obtained, an allowance of $15.00 per meal will be paid.

12.1 Meal Periods

(a) Employees on day work shall take a meal period designated by the Company and shall not be paid for this time (unless otherwise provided for in the Collective Agreement).

(b) Employees on shift work shall eat their meals during the shift hours as conditions permit.

(c) When an employee works extension overtime, no time shall be deducted for eating such meals where the employee eats the meal on the job and in a minimum of time.

13.0 CERTIFICATION – FOSSIL OPERATING TECHNICIANS AND ENVIRONMENT, CHEMICAL AND SAFETY TECHNICIANS/TECHNOLOGISTS

13.1 Examinations

Fossil Operating Technicians and Environment, Chemical and Safety Technicians/Technologists will be paid at their basic rate, for the time required to write each examination once, up to the maximum number of hours as established by the appropriate Agency/Ministry for each examination.

Fossil Operating Technicians and Environment, Chemical and Safety Technicians/Technologists will write these examinations on an unscheduled day of work. Requests for payment or time off will be made when all examinations for a particular class of certificate have been attempted.

1 ‘Reasonably obtained’ is to be defined locally by Union and Management.
13.2 Certificate Renewals

Fossil Operating Technicians and Environment, Chemical and Safety Technicians/Technologists who are required by the Company to renew their certificate with the Ministry of Commercial and Consumer Relations or Environment and Energy Ministry, will have the cost of such renewal reimbursed.

14.0 TEMPORARY TRANSFERS FOR SHIFT MAINTENANCE PERSONNEL TO NUCLEAR STATIONS

Employees temporarily transferred to Ontario Power Generation Nuclear will adopt the work schedules and associated work schedule provisions of the location to which they have been transferred.

Employees returning to their regular work headquarters will assume the same time balance as their crew. Any minus time balances created due to working at the temporary location will be written off and any plus time balance shall be paid for at double time; however, by mutual agreement, the employee may choose time off on an hour-for-hour basis without pay to be taken within six months.

The following items will apply under the above conditions:

1. Part G, Items 2.1.1, 2.1.3, 2.1.4, 2.1.5, 5.0, 11.0, 14.1 and 14.4 as contained in the Ontario Power Generation Inc. Collective Agreement.

2. The transfer must be to an established nuclear schedule.

3. The employee will be given the schedule before the transfer showing the days, hours of work (shift) and position for each employee.

4. Notification of transfer between a Thermal schedule and a nuclear schedule will require seven days' notice.

5. Failure to give the required notice as indicated in (4.) above shall require the payment at double time for work performed until the notice period has expired.

6. The Company will supply the tools for employees while on temporary transfers.

15.0 EMERGENCY RESPONSE TEAM

15.1 As part of their normal duties, all employees may be required at times to take action in response to emergencies.

15.2 (a) Qualified designated members of the Emergency Response Team shall receive $1350.00 annually on their anniversary of becoming a member of the Emergency Response Team, plus one 8-hour day off to be taken at a mutually agreed upon time within the next 12 months.
(b) Emergency Response Team captains who are not in a supervisory position shall receive an allowance of $1.00 / hour for each paid hour.

(c) Acting captains who are not in a supervisory position shall receive an allowance of $1.00 / hour for each paid hour while acting in the captains position.

15.3 Although membership of the Emergency Response Team is voluntary, the Company reserves the right to appoint members if sufficient volunteers are not available.

15.4 Qualified in 15.2 above means trained in the disciplines of search and rescue, victim stabilization, fire and spill.

16.0 THERMAL SECURITY GUARDS

Note: See Item 1.2.3 last paragraph with respect to Security Guard shift change times.

16.1

The following sections of Parts F and D apply to Thermal Security Guards only. All other sections in Part F or D not referenced below do not apply.

Part F Items:

1.0 Hours of Work
3.0 Overtime
4.0 Premium Payments
5.0 On-Call
10.0 Vacations - Minimum Vacation Period
12.0 Provision of Meals
15.0 Emergency Response Team

Part D Items:

6.2 B Acting in a Vacant Position
7.0 Posting of Vacancies

16.2 Clothing - Security Guards

Where uniform appearance is required, uniforms will be provided. Security staff required to wear uniforms will be reimbursed for two (2) pairs of CSA approved safety footwear per calendar year with a dollar maximum of $125 each. Where uniform appearance is not required, Part A, Item 33.2 will apply.
17.0 Apprentices/Trainees

Effective April 1, 2009 OPG will require Apprentices/Trainees to register with the Ministry of Training, Colleges and Universities (MTCU). However, the completion of the C of A and C of Q is the responsibility of the Apprentice/Trainee. Apprentices/Trainees will be reimbursed for the registration fee charged by the MTCU. Apprentices/Trainees will be reimbursed for the examination fee and paid at their basic rate, for the time required to write each examination once, up to the maximum number of hours established by the appropriate Agency/Ministry for each examination.
PART G

NUCLEAR GENERATING STATIONS

This section shall only apply to Operating and Maintenance Employees and, Control, Chemical, Radiation Control, Planning, and Training Technicians, Regular Guides, Public Education Officers, Technical Inspectors, and Nuclear Technologists (as noted in Items 21.0, 22.0, 23.0, and 24.0) in Ontario Power Generation Inc. (Nuclear). It shall also apply to Security Guards identified in Article 1 as set out in Item 25.0. When other nuclear stations are established, these provisions will not automatically apply, but will require review and possible modification at that time.

The provisions of the Articles of the Agreement as well as the provisions of Part A, General Items are applicable to the employees covered by Part G, Nuclear Generating Stations. The provisions contained in Parts, B, C, D, E and F of the Collective Agreement do not apply to the above employees, except as noted in Sections 22.0, 23.0, 24.0 and 25.0 herein.
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PART G

NUCLEAR GENERATING STATIONS

Specific Matters of Agreement

1.0 WAGES

The wage rates for all employees covered by this section of the Collective Agreement shall be in accordance with Part A, Item 43 and Article 8.

2.0 HOURS OF WORK

2.1 Shift Workers

2.1.1 8, 10 and 12 hour Master Shift Schedule

1. A 12-month schedule will be posted 30 days prior to its starting date. The schedule will average 40 hours per week and will indicate the days, hours of work (shift) and position for each employee. The schedule will end on the last day of the fiscal month of December. The design of the regular schedule shall provide for a minimum of 16 hours off between shifts when working on an eight-hour shift schedule and 12 hours off between shifts when working on a 12-hour shift schedule.

2. The regular schedule will be prepared so that each employee's time is balanced to zero in the case of an eight-hour shift schedule or plus or minus four hours in the case of a 12-hour shift schedule (in this case the plus or minus time will be carried into the next schedule) as of the last day of the schedule.

3. Where it is agreed that the basic type of schedule will continue for the following year the Company will provide it to the Union by June 1st each year. The Union will provide the company with any issues (RDO change etc.) by July 1st.

4. Where a schedule change is required, the content, preparation, posting and administration of the shift schedule is the sole responsibility of the company, the preference of the majority of shift workers at each station for a particular basic type of schedule will be adopted. Such preferences will be made known to the company prior to commencement of preparation of the new schedule. The final schedule will be mutually agreed to with the Sector Representative, unless in the company's opinion, the efficiency of the station or the health of a shift worker could be detrimentally affected by the chosen schedule, then the company will provide the Sector Vice President or delegate with reasons or medical opinions why the desired schedule cannot be implemented.
The preference of individual shift workers regarding vacation periods will be considered, providing such preferences are made known prior to commencement of preparation of new schedules.

The following are the recognized criteria of an acceptable shift schedule:

(a) The schedule should equitably rotate among all crews.

(b) The schedule should follow a repeating pattern so that it is easily understood.

(c) The schedule should never be far off balance and should reasonably approximate the time off provisions of day work. It follows then that a schedule should not leave long sequences of work without time off, nor long sequences of time off. In the case of 12-hour shift schedules, time balances should cycle between +/-36 hours with an additional +/-4 hours as an exception.

(d) Supernumerary shifts shall be indicated on the regular schedule as Monday to Friday day shifts (0800 - 1600 hours) only. Supernumerary shifts for security staff at Pickering may be scheduled as 12 hour day shifts on Monday to Friday provided that such scheduling is the preference of a majority of affected staff.

(e) When scheduling 12-hour shifts, the maximum number of night shifts to be worked in sequence would be three and the maximum number of days to be worked in a sequence would be four.

(f) The 12-hour shift schedule shall provide for at least 48 hours off between each sequence of shifts and at least two regular days off will be scheduled in each week (pay period).

(g) Shifts for security staff at Pickering may be scheduled to start ½ hour before the corresponding shifts for the rest of the shift workers.

(h) At least two consecutive regular days off will be scheduled in each week.

(i) Shifts for Nuclear Operations crews at Pickering and Darlington may be scheduled to start ½ hour before the normal A-E shifts start time (i.e. 07:30 and 19:30)

5. 10 Hour Shifts

Management will identify the criteria for a type of shift schedule required e.g. 5, 6, 7 day coverage, 10 or 20 hours per day, preferred location of double coverage days, etc. and give the affected employees the opportunity to present shift schedules that meet the criteria.
2.1.2 Revisions to the Regular Schedule

A minimum of seven days' notice shall be given when an employee's hours of work, as shown on the regular schedule, are to be changed, with the following exceptions:

1. No shift change notice is required when an employee:
   (a) is working supernumerary days or day work (Part G, Item 2.1.3); and
   (b) is assigned to training (0800 – 1600 hrs) at a location that is within 5 km (radius) of his/her work headquarters, or vice versa; and
   (c) works the same or fewer hours in a day; and
   (d) does not have their start time varied in excess of 60 minutes; and
   (e) is provided a written/electronic notification at least one (1) month in advance of the scheduled change.

   The training hours for a full day of training will constitute the employee’s full shift for that specific day.

2. With three days' notice an employee's hours of work may be changed if a forced unit outage occurs for reasons of equipment failure, or for a safety reason. Refer to Mid-Term Agreement R-7 for definition of unit outage.

   The applicability of the three-day notice period in this clause is dependent upon a shift change notice being issued to the affected employees within 48 hours of the occurrence of the forced unit outage.

3. In the case of illness, which would result in a staff shortage, four (4) days' advance notice will be given when placing an employee on shift.

4. For 12 hour shifts, when work load permits, a supernumerary day may be interchanged with a regular day off at the employee's request.

   When work load permits, regular days off scheduled to correct a plus time balance resulting from a revision to his/her regular schedule may be rescheduled at the employee's request.

   When scheduled work is performed on a statutory holiday, an additional day off will be scheduled in lieu of the statutory holiday. This lieu day shall be identified on the schedule. When work load permits it may be interchanged with another scheduled working day after the statutory holiday at the employee's request.

5. Revisions to the regular schedule will provide the following minimum hours off between shifts:
   (a) Shift change notices between 12-hour shifts will provide at least 12 hours off.
(b) Shift change notices from a 12-hour shift to an eight-hour shift will provide at least 12 hours off.

(c) Shift change notices from an eight-hour shift to a 12-hour shift will provide at least 15 hours off.

(d) Shift change notices between eight-hour shifts will provide at least 15 hours off.

(e) Shift change notices between 10-hour shifts will provide at least 12 hours off.

(f) Shift change notices from a 10-hour shift to a 12-hour shift or vice versa will provide at least 12 hours off.

(g) Shift change notices from a 10-hour shift to an 8-hour shift or vice versa will provide at least 15 hours off.

Failure to provide the above-noted minimum hours off will require that premium rates be paid for the first affected shift.

6. Revisions to the regular schedule while working a 12-hour shift schedule will not result in an employee working more than three night shifts in a row and must provide at least two periods of 24 hours off in a week (pay period). Notwithstanding the foregoing, an additional 12-hour period of work may be worked for MAR coverage (see Mid-Term R-98 Twelve Hour Shifts - Special Conditions OHN).

7. Shift workers with a plus or minus four hours time balance assigned to day work or shift for an indeterminate period of time may be required to take off or work a four-hour period respectively, but no payments, premium or otherwise will apply to such time worked as an extension of a normal eight-hour day to resolve a minus time balance.

8. Plus time balances which still exist as of the last day of the regular schedule shall be paid for at double time. At the time of layoff all positive time balances will be paid out at 2X.

Minus time balances which occur as a result of changes to the regular schedule shall be worked off within two fiscal months of the end of the schedule month in which the minus balance occurs unless it is mutually agreed to between the employee and his/her supervisor to extend this period. Minus balances not worked off within this two-month period will be written off (unless it has been agreed to extend this period).

9. An employee who commences Maternity/Parental leave, or training in excess of 5 weeks may have her/his plus or minus time balance corrected in advance, where mutually agreeable between the employee and his/her supervisor. Uncorrected time balances shall be frozen for the duration of such leave or training.
10. Revisions to the regular schedule that require individuals to be shift changed from supernumerary shifts to night shifts will be paid at two times the employee’s basic rate.

11. Revisions to the regular schedule for individuals assigned to day work that requires working a sequence of either 1, 2, or 3 night shifts will be paid at two times the employee’s basic rate.

2.1.3 Transfer to Day Work

A shift worker may be required to work on day work. In such cases the normal work week shall be 40 hours per week consisting of five days of eight hours (not before 7:00 am and not later than 6:00 pm) Monday to Friday inclusive. All work outside of normal scheduled hours shall be considered overtime and paid at the appropriate premium rate as per Section 4.0. Notification of transfer to or from day work shall be in writing with a minimum of seven days’ notice.

2.1.4 Penalties

Failure to give the required notice as indicated in Subsections 2.1.1, 2.1.2 and 2.1.3 shall require the payment of double time for work performed until the notice has expired.

Revisions to Subsections 2.1.5(3)(i), (iv) and (v) of a shift change notice to correct an error which does not affect hours of work will not be considered as issuing a new shift change notice.

2.1.5 Miscellaneous Scheduling Provisions


2. All inter-crew transfers of a permanent nature will be initiated via a request for volunteers. Transfers will be based on seniority, skills and training status (senior choice / junior force).

3. Definition: Notice as referred to in this section shall be defined as per the following example. One day’s notice shall mean 24 hours prior to the start of the first affected shift.

A notice period shall be deemed to commence coincident with the signing, or verbal notification of posting, where applicable, of the shift change notice.

Verbal notification shall be given when the employee is absent from his/her regular work headquarters and he/she is not scheduled to return before the commencement of the required minimum notice period. In these situations verbal notification will be given directly to the employee in the presence of the Union Steward (where a Union Steward is present at the location) who will subsequently sign on behalf of the notified employee. The employee will be provided a copy of this notice document. The regular schedule for each employee shall be the posted schedule as per Subsection 2.1.1(1.) modified by any shift change notices in effect.
A shift change notice shall be used for all revisions to an employee’s regular schedule except in the following circumstances:

No shift change notice is required when an employee:

(a) is working supernumerary days or day work (Part G, Item 2.1.3); and
(b) is assigned to training (0800 – 1600 hrs) at a location that is within 5 km (radius) of his/her work headquarters, or vice versa; and
(c) works the same or fewer hours in a day; and
(d) does not have their start time varied in excess of 60 minutes; and
(e) is provided a written/electronic notification at least one (1) month in advance of the scheduled change.

The training hours for a full day of training will constitute the employee’s full shift for that specific day.

This shift change notice shall be a standard form containing, but not limited to, the following:

i) Reason for shift change.

ii) Details of changed hours of work.

iii) Details of time balance compared to crew.

iv) Signing or statement of verbal notification (where applicable).

v) Time of notification in signature box.

4. Permanent Location Transfer or Promotion Within a Station: On permanent transfer to a new location or promotion within a station the individual employee is required to assume the existing schedule for the new position without notice or penalty. His/her time balance shall, unless special circumstances prevent, be adjusted before taking over his/her position on the regular schedule, and in any case before the zero balance date of the existing schedule.

5. If employees at the Bruce start shifts at different times the Company will supply buses for each shift or pay travel expenses as per PW-8, subject to the continuation of the existing agreement between the Company and Bruce Power.

6. Following implementation of the 12-hour schedule, such schedule may be cancelled immediately by Management, should either the safe operation of the plant or public safety be adversely affected due to the 12-hour shift schedule.

The 12-hour schedule may be cancelled for other reasons by Management or the Union upon two months’ written notice to the other party.
7. Assignment to/from Training: Normally an employee will receive his/her assignment to and from training as per Part G, Item 2.1.2.

Where mutually agreeable between the employee and his/her supervisor the employee may return to his/her regular shift without notice or penalty.

Management will make reasonable efforts to minimize personal inconvenience or hardship to employees when a change of work headquarters is necessary.

2.1.6 Conditions While Working on a 12-hour Shift Schedule

1. When a regular shift commences before midnight and continues after midnight, all hours during the continuous shift shall, for pay and time balance purposes, be recorded and treated as if they occurred during the calendar day in which the shift ends.


When an employee is scheduled to work a 12-hour shift, the following will apply:

(a) In determining credits used for vacations, floating holidays and sick leave, one and one-half days will be deducted.

(b) In determining pay treatment for

   i) travelling time outside normal working hours

   ii) payment for temporary supervision

   iii) time charges and expenses - employee Union representative calculations will be made on an hour-for-hour basis to a maximum of 12 hours except for (i) where the maximum will be eight hours.

(c) In determining pay treatment for the following items a day will be considered to be 12 hours:

   i) Leave of Absence With Pay, Part A, Item 10.1

   ii) Moving Days
(d) In determining pay treatment for

i) Statutory Holidays

ii) Special Time Off

a day will continue to mean eight hours. **However, employees eligible for Remembrance Day and scheduled to work will get the normally scheduled hours off with pay.**

3. Rest Periods

Each employee shall be entitled to a ten-minute rest period approximately once within every four hours at a time designated by the Company.

### 2.1.7 Conditions While Working on Ten Hour Shifts

**Shifts**

Shifts may be performed in one or two shifts per day, Monday to Sunday, inclusive, and may be performed within the following shift windows:

- 1st shift - 0600 hrs to 1800 hrs
- 2nd shift - 1400 hrs to 0200 hrs

**Shift Differential**

- 1st shift - no shift differential
- 2nd shift - 70 cents per hour

**Meal Periods**

One meal period will be included within each shift.

**Lieu Days**

When scheduled work is performed on a statutory holiday, an additional day off will be scheduled in lieu of the statutory holiday. This lieu day shall be identified on the schedule. When work load permits it may be interchanged with another scheduled working day after the statutory holiday at the employee's request.

**Provision Concerning Time Off**

When an employee is scheduled to work a 10-hour shift, the following will apply:
(a) In determining credits used for vacations, floating holidays and sick leave, one and one-quarter days will be deducted.

(b) In determining pay treatment for

i) travelling time outside normal working hours
ii) payment for temporary supervision
iii) time charges and expenses - employee Union representative

calculations will be made on an hour-for-hour basis to a maximum of 10 hours except for (i) where the maximum will be eight hours.

(c) In determining pay treatment for the following items a day will be considered to be 10 hours:

i) Leave of Absence With Pay, Part A, Item 10.1
ii) Moving Days

(d) In determining pay treatment for

i) Statutory Holidays
ii) Special Time Off

a day will continue to mean eight hours. However, employees eligible for Remembrance Day and scheduled to work will get the normally scheduled hours off with pay.

(e) When a regular shift commences before midnight and continues after midnight, all hours during the continuous shift shall, for pay and time balance purposes, be recorded and treated as if they occurred during the calendar day in which the shift ends.

2.1.8 Change of Work Headquarters

1. In the event a shift employee is assigned to a temporary work headquarters outside his/her residence headquarters he/she shall receive a minimum of seven days notice unless no change in hours of work is required. Failure to give the required notice shall require the payment of double time for work performed at the new work headquarters until the notice period has expired. Management will provide transportation for those employees who have no reasonable transportation available to them.

2. In the event a shift employee is assigned to a temporary work headquarters within his/her residence headquarters he/she shall receive a minimum of three days notice unless:

a) No change in hours of work is required; or
b) An employee:

(a) is working supernumerary days or day work (Part G, Item 2.1.3); and

(b) is assigned to training (0800 – 1600 hrs) at a location that is within 5 km (radius) of his/her work headquarters, or vice versa; and

(c) works the same or fewer hours in a day; and

(d) does not have their start time varied in excess of 60 minutes; and

(e) is provided a written/electronic notification at least one (1) month in advance of the scheduled change.

The training hours for a full day of training will constitute the employee's full shift for that specific day.

Failure to give the required notice shall require the payment of double time for work performed at the new work headquarters until the notice period has expired. Management will provide transportation for those employees who have no reasonable transportation available to them.

3. An early return to his/her regular work headquarters initiated by Management will require a new shift change notice with the appropriate notice as stated in (1) or (2) above.

Failure to give the required notice shall require the payment of double time for work performed at his/her regular work headquarters until the notice period has expired.

4. For the purposes of Part G, Item 2.1.8 Pickering NGS and ENTC are considered one work headquarters. In addition, the Bruce site is considered one work headquarters.

5. A shift employee may be assigned to a temporary work headquarters without notice or penalty, if he/she leaves and returns to his/her work headquarters within a single shift.

2.1.9 Outage Schedules

1. Notwithstanding any other provision of the collective agreement, all classifications can volunteer to work shift in support of outages

2. Volunteers may be required to work 8, 10, or 12 hour outage shift schedules up to a maximum of 60 hours per week.

3. While working outage shift schedules all employees will be paid a weekly minimum of 40 hours per week. All hours scheduled in excess of the individual's regularly scheduled hours per week will be paid at appropriate premium overtime rates. Any outstanding time-balance will be paid out upon completion of the shift assignment at double time.
4. Outage shift schedules will be developed in consultation, in advance (in June of each year) with the Union, but the final decision on the schedules to be worked rests solely with the Company.

5. A bonus will be paid to all those employees that volunteer to work an outage shift schedule. The amount of bonus and the conditions surrounding eligibility will be determined by management and communicated prior to soliciting for volunteers.

6. The Company will solicit volunteers on a seniority basis with the requisite skills/qualifications to staff outage shift schedules.

3.0 SHIFT DIFFERENTIAL

Shift differentials shall apply to employees required to work on a three-shift schedule or a two-shift schedule. The first part of a three-shift or a two-shift schedule shall begin at normal starting time. Regular part-time and temporary part-time employees will not be eligible for shift differential when the shift starts and ends between the hours of 0700 and 1800.

3.1 Eight Hour Shifts

A shift differential of 65 cents per hour shall be paid to employees who are scheduled to work between the hours of 1600 and 2400.

A shift differential of 85 cents per hour shall be paid to employees who are scheduled to work between the hours of 0000 to 0800.

3.2 Twelve Hour Shifts

A shift differential will be paid for the night shift only.

The shift differential will be the sum of the differentials in 3.1 above multiplied by 8/12.

3.3

The appropriate shift differential shall be paid for the first eight/twelve hours of each scheduled shift on any regular scheduled day of work and shall not apply for overtime hours. When premium time is involved for payment of shift work, the premium rate shall be computed on the standard basic rate, excluding shift differential.

3.4 Joint Shift Committee

Goal

To provide a forum for communications between management and employee representatives on shift issues and to develop recommendations to senior management.
for improvements. Recommended actions will receive a written response within thirty (30) days.

Structure

Chair: The chair will rotate on a yearly basis between Management and a PWU representative.

Members:
- 5 PWU representatives
- 5 Management representatives

Functions

- Participate in the identification of problems and issues of significance to shift workers.
- Participate in the development and implementation of approved recommendations affecting shift workers.
- Review Outage Schedules for the coming year.

4.0 OVERTIME

4.1

Due to the nature of the Company operations, some employees will be required to work overtime. Overtime will be minimized and managed within the limits of corporate effectiveness and customer impact. In recognition of employee well-being and inconvenience, an effort shall be made to equitably distribute overtime amongst all qualified employees. Overtime, as used herein, means that part of the actual working time which is outside the normal scheduled hours and is, therefore, subject to compensation at premium rates.

4.2 Pay Entitlement

4.2.1 Monday to Friday Inclusive

1. Scheduled Day of Work

   (a) One and one-half times the employee's basic rate for all overtime work performed during the first four clock hours after normal quitting time.

   (b) Two times the employee's basic rate for all overtime work performed outside the first four clock hours.
2. **Unscheduled Day of Work**

   (a) Two times the employee's basic rate for all overtime work performed.

4.2.2 **Saturday, Sunday**

Two times the employee's basic rate for all overtime work performed.

4.2.3 **Statutory Holidays**

1. **Monday to Friday**

   Two times the employee's basic rate for all work performed plus eight hours at straight time as per Part A, Item 7.1.
   The employee may request time off without pay for the basic statutory holiday hours in addition to any overtime hours worked as per Part A, Item 10.2.

2. **Saturday**

   Two and one-half times the employee's basic rate for all overtime work performed.

4.2.4 **Basic Rate Calculation**

The basic rate is equal to the basic hourly rate of each employee's classification as set out in Part A, Item 43 without any increments, premiums or bonuses.

4.3 **Overtime Cancellation and Minimum Payments**

4.3.1 **Cancellation**

All overtime cancelled within 44 hours of its scheduled commencement shall result in a cancellation payment of four hours at straight time except in the following circumstances:

1. Overtime arranged in the current shift as an extension of the shift, requires no cancellation payments.

2. Overtime arranged as an extension before the normal hours of work requires no cancellation payment if cancelled with more than 12 hours’ notice.

4.3.2 **Minimum Payments**

All overtime performed or reported for due to lack of notice of cancellation shall result in a minimum payment of four hours at the appropriate premium rate except in the following circumstance:

Overtime arranged during the employee's normal working hours and worked as an extension before and/or after the employee's normal hours of work, requires no minimum payment.
4.4 Special Provisions Concerning Overtime

1. Time shall be counted from the time the employee reports for overtime work at the station until he/she finishes overtime work at the station or until his/her normal scheduled hours of work begin subject to 5. below.

2. Because an employee was required to work overtime or because he/she lost time in changing shifts, he/she shall not be prevented from working his/her total number of normal daily hours in any normal scheduled day of work. If the employee cannot be supplied with the work required to make up the eight hours of work in that day, his/her pay shall be adjusted to provide a minimum of eight hours' work.

3. If an employee who has worked overtime and is physically capable and the gang of which he/she is ordinarily a member is at work, he/she shall not be deprived of the opportunity of working his/her normal scheduled hours in addition to the overtime he/she may have worked.

4. An employee who has accumulated overtime hours shall receive this, in earnings, calculated at the appropriate premium rate and cannot be required to take time off in lieu of payment.

5. An employee who is required to work continuously for more than 16 hours or an employee who accumulates 16 hours of working time in any 24-hour period, shall be entitled to an eight-hour rest period. Time spent for meals may be deducted from the total elapsed time but is not to be considered as breaking the continuity of the hours worked.

   If the rest period extends into the employee's normal scheduled hours of work he/she shall be paid at straight time rates for the portion of the rest period which extends into the normal scheduled hours. This is in addition to the overtime worked. Should he/she be required to continue working beyond 16 hours he/she shall be paid two times his/her normal basic rate until an eight-hour rest period is granted. Should an employee be released before 16 hours have elapsed, he/she will not be entitled to an eight-hour rest period, and his/her right to continue work at straight time will be governed by Section 4.4 (3.) above.

6. An employee who is receiving double time while performing overtime work, which extends into the calendar day containing his/her scheduled day off, shall remain at double time until he/she receives an eight-hour rest period.

7. When less than 48 hours' notice of the requirement to work overtime work is given and where an extra trip is required, a traveling allowance of one hour at straight time shall be paid.

8. Equivalent time off without pay see Part A, Item 10.2.
9. At the Bruce where the provided transportation is not available, the cost of special transportation shall be provided. This provision shall be discussed for any future station.

10. Overtime - Regular Part-Time and Temporary Part-Time Employees

Overtime is defined as:

(a) Hours worked which are in excess of the normal daily hours of the classification. The premium payment for such work is one and one-half times the employee's basic rate for all work performed during the first four clock hours after the normal quitting time of the classification, and two times the employee's basic rate for all work performed outside of the first four clock hours after the classification's normal quitting time.

and/or

(b) Hours worked in excess of 24 in a week. The premium payment for such work is one and one-half times the employee's basic rate for the first four hours worked in a day. Two times the employee's basic rate for all work performed in excess of four hours in a day.

and/or

(c) Unscheduled hours worked on Saturday and Sunday. The premium payment for unscheduled hours worked on Saturday and Sunday is two times the employee's basic rate.

5.0 PREMIUM PAYMENTS

The computing of hourly rates for overtime shall be in accordance with the following: The basic rate is equal to the basic hourly rate of each employee's classification as set out in Part A, Item 43 without any increments, premiums or bonuses. Premium payment, for the under noted, shall be as follows:

5.1 Shift Workers

5.1.1 Scheduled Work

1. One and one-half times the employee's basic rate shall be paid for scheduled work performed on Saturdays and Sundays.

2. Two times the employee's basic rate shall be paid for:
(a) Scheduled work performed on a statutory holiday which occurs on Monday to Friday. An additional day off will be scheduled in lieu of the statutory holiday within six months of the end of the posted schedule.

(b) Scheduled work performed on a statutory holiday which occurs on a Saturday. The premium for scheduled Saturday in 1 above shall not apply.

5.1.2 Shift Workers - Cancelled Vacation Days

Any vacation day cancelled at the request of the Company with less than seven days' notice shall be paid for at premium rates of pay. Vacation days cancelled with seven or more days' notice shall be paid for at straight time. Cancelled vacation days will be rescheduled in accordance with Part A, Item 6.0.

Shift workers shall receive entitlement for the same number of statutory holidays as day workers.

5.2 Continuous Driving

Employees given a continuous driving assignment will be paid in accordance with the following:

In each twenty-four hour period each will be paid eight hours at the basic rate, eight hours at the appropriate premium rates and eight hours at no pay (rest period). On Saturdays, Sundays and statutory holidays the appropriate premium rates shall apply.

The total time of the trip shall be determined from the time the employees start work on the day the trip commences till the time the employees finish work on the day the trip ends. (From work headquarters and return to work headquarters.)

With less than three days' notice the appropriate rate for lack of notice shall apply to the first eight hour basic rate period.

6.0 VACATIONS - SHIFT WORKERS

Vacations will be governed by the following: The vacation year shall be from January 1st to December 31st.

Subject to exceptions resulting from unforeseen or emergent conditions, arrangements will be made to provide vacations as under noted.

1. Fourteen consecutive days off within the period May 1st to September 30th (summer schedule).

2. Sixteen consecutive days off including three weekends within the period May 1st to September 30th (summer schedule) to all who qualify for three or more weeks' vacation.
3. Where mutually convenient to the Company and the employees, if an individual so requests, all or part of the vacation allowance may be taken outside the period May 1st to September 30th.

4. A request by an individual for an extension of his/her vacation period may be granted at the Company's discretion by interchanging his/her scheduled vacation days or unused vacation entitlement with days of work, providing qualified relief is available at the location. If it becomes necessary to cancel the additional extension as outlined in this item, the employee granted the extension will be required to return to his/her original schedule without penalty to the Company. If, in any instance and due to unforeseen circumstances, vacation schedules are adversely affected, the Company will use available relief so as to reduce the abnormal period to a minimum. See also Part A, Item 6.0.

**NOTE**

The consecutive days referred to would normally include other than vacation entitlement.

7.0 **POSITIONS EXCLUDED AS PER ARTICLE 1**

It is recognized that from time to time incumbents in positions excluded under Article 1.0 will be performing work functions. It is also recognized, however, that such work functions will not be performed for the purpose of reducing staff requirements or deliberately to avoid overtime for employees represented by the Union. If the Union believes that this provision is being abused, it may lodge a grievance under Article 2 of the Collective Agreement.

8.0 **SUPERVISORY RESPONSIBILITIES**

Supervisory responsibilities are as defined in Article 8.

8.1 **Tradesperson Responsibilities**: A tradesperson is required to exercise judgment and control over his/her own actions so that the assigned work may be performed safely, efficiently, and effectively, and with consideration of its effect on others.

In a work situation, a journeyperson will be responsible only for his/her own work and the work and training of one apprentice or helper. However, for the purpose of training, a journeyperson may be required to teach trade skills of a specific task to more than one apprentice or journeyperson at one time. During such a teaching situation, the journeyperson is responsible only for the demonstration of trade skills and not for the work of the apprentices or journeyperson involved.

Related to the above, a "helper" is a person of lower classification than the tradesperson he/she is assisting; an "apprentice" is a person of lower than journeyperson progression in a trade.
9.0 PAYMENT FOR TEMPORARY SUPERVISION

Supervisory payments are established in Article 8.

Overall supervision of a crew is provided by a supervisor and/or trades supervisor. However, a crew may be assigned a task without a regular supervisor in attendance, in which case a temporary supervisor may be appointed. In such instances, any responsibility for supervision must be assigned, it cannot be assumed. When so assigned, the level of supervision to be performed and paid must be designated in accordance with Article 8.

Where a group of employees are working at a location on jobs which are independent of one another and planned by a supervisor so that no co-ordination of their activities is required, additional supervision will not be required. Where the job requires more than one day to complete or is not preplanned, or is being performed by four or more employees, one of them shall be appointed and paid as trades supervisor. In such cases if he/she supervises for more than two hours in a day he/she shall be paid the supervisory rate for a minimum of four hours or the actual hours he/she supervises, whichever is the greater.

NOTE

Preplanned means planning which is done away from the job site. It does not relate to on the site detailed planning.

10.0 RELIEF WORK

Payment for a statutory holiday shall be at the relief rate if it occurs during the relief period for all classifications.

When an employee acquires a lieu day while relieving in a higher-rated position, the lieu day shall be paid at the higher rate.

10.1 Operators

If an operator, relieving in a higher position falls sick, he/she will be paid sick benefits of the rate of the job in which he/she is relieving only up to the first point on the schedule where he/she would have normally returned to his/her basic rate. From this point onward, sick benefits during this illness will be based on his/her basic classification rate.

In recognition that operators are regularly required and scheduled to provide relief in higher positions, they shall receive for their full vacation period the rate of the higher position when such relief has been provided for 50 percent (50%) or more of a vacation year. Operators relieving in a higher position for less than 50 percent (50%) of the vacation year will be paid the rate of their regular classification during the full vacation period.
To take care of staff development training situations for lower classifications it is recognized that any lower classification may from time to time assume the responsibility of any higher position. This is a strict training situation and must not be used as a substitute for normal relief procedures.

Operators who are required to obtain a Ministry of Commercial and Consumer Relations (MCCR) or Environment Ministry (EEM) certificate will be paid his/her basic rate to write each examination once. Arrangements will be by mutual agreement.

The application of this clause shall not qualify an employee, who works on the day that s/he writes the examination, for premium rates and pay.

Operators who are required by the Company to renew their certificates with the Ministry of Commercial and Consumer Relations or Environment and Energy Minister, will have the cost of such renewal reimbursed.

11.0 SPECIAL CLOTHING

The Company shall supply special wearing apparel where it is required at no cost to the employee. In addition to the provisions of Part A, Item 33.0, clothing will be provided when it is not possible because of special dirt, to have clothes cleaned domestically or commercially. In this case it may be acceptable to provide the cleaning facilities and not the clothes.

Where uniform appearance is required, uniforms will be provided. Security staff required to wear a uniform will be reimbursed for two (2) pairs of CSA approved safety footwear per calendar year with a dollar maximum of $125. Where uniform appearance is not required, Part A, Item 33.2.7 will apply.

12.0 STAFFING

12.1 Selection to/Acting in Vacancies

Selection to be made within 90 days after a vacancy in an existing position occurs, and where there is a qualified applicant. Selection within 90 days is not applicable in staffing new stations.

All acting positions are to be limited to 90 days unless extensions are agreed to by the Company and the Sector Board Chairperson of the Union. Pending the arrival of the successful applicant and his/her assuming of the normal duties, the acting incumbent who is performing the normal duties and responsibilities of an "acting" position shall receive the rate for the position.

12.2 Staffing Nuclear Operator Positions

12.2.1 Supervising Nuclear Operator and Authorized Nuclear Operator vacancies will be filled using Article 10.1.3.A.
12.2.2

Operator positions will be advertised under Article 10. Positions will be advertised stating the required specialization and requisite qualifications, e.g., fuel handling, TRF, Unit 0, and units.

13.0 PROVISION OF MEALS

In recognition of the importance of regular meals to an individual’s health and effectiveness on the job, the Company will supply meals as outlined below and when required, will assign an employee to secure the meals.

(a) Employees provide their own meals on regular days of work.

(b) When an employee works overtime on a regular day off, he/she will be expected to provide one meal if 23 hours notice has been given.

(c) When an employee works extension overtime before or after normal scheduled hours, all required meals will be provided by the Company. The first meal (or meal allowance) will be provided when two (2) hours of overtime are worked. Subsequent meals or meal allowances will be provided every four (4) hours of overtime worked thereafter.

(d) When meals cannot be reasonably obtained\(^1\), an allowance of $15.00 per meal will be paid.

(e) Employees working 10 hour overtime shifts and not receiving 23 hours notice will receive one overtime meal (or meal allowance).

13.1 Meal Periods

(a) Employees on day work shall take a meal period designated by the Company and shall not be paid for this time (unless otherwise provided for in the Collective Agreement).

(b) Employees on shift work shall eat their meals during the shift hours as conditions permit.

(c) When an employee works extension overtime, no time shall be deducted for eating such meals where the employee eats the meal on the job and in a minimum of time.

\(^1\) ‘Reasonably obtained’ is to be defined locally by Union and Management.
14.0 RADIATION

14.1 Personal Property

Reimbursement by the Company for losses of the employee's personal property as a result of radioactive contamination shall be considered and assessed on the individual merits of each case.

14.2 Access to Radiation Records

Each employee shall have access to his/her personal radiation dose records.

14.3 Ionizing Radiation

The Union Office will be supplied with one copy of the Radiation Protection Requirements and one copy of the Radiation Protection Procedures Manual, and all revisions to these Requirements and Procedures.

14.4 Radiation Limits

Employees performing their normal work, who exceed radiological limits requiring them to be removed from certain work locations, shall be given suitable work elsewhere at not less than their basic rate of pay.

14.5 Pregnant Atomic Radiation Workers

Every reasonable effort shall be made to assign a pregnant Nuclear Energy Worker to a location where there is no expected recordable radiation dose above natural background. In relocations of pregnant Nuclear Energy Workers, the normal base rate of pay will be maintained. The relocation period will be extended for a reasonable period of time for female Nuclear Energy Workers who indicate they intend to continue to breast-feed their babies after they return to work.

14.6 Female Atomic Radiation Workers Wishing to Conceive

Every reasonable effort shall be made to re-assign a female Nuclear Energy Worker, at her request, to a location where there is no expected measurable radiation dose while she is attempting to conceive. The purpose of the reassignment is to ensure that the embryo/fetus is not exposed to radiation during the period between conception and confirmation of pregnancy.

The re-assigned female Nuclear Energy Worker shall have her wages maintained under the following conditions:

(a) the re-assignment is six months or less, and
(b) the employee will have no more than three such re-assignments, and
(c) Exceptions to the above may be granted at the discretion of the Company's Chief Physician.
14.7

Although every effort shall be made to minimize disruption to the continued training and development of the employee in her chosen career, it is recognized that re-assignment to a non-related work area may interrupt the training program. In the case where it is interrupted, progression through the training program will be frozen for the duration of the reassignment.

14.8 Dose Limits

The Company is committed to excellence in radiological safety performance. All radiation exposures shall be kept as low as reasonably achievable, consistent with sound operating practices, and with due regard for employee concerns.

The Company will pursue a policy of controlling radiation doses to its employees such that individual doses will not exceed 10 mSv (1 rem) per year averaged over any five (5) year period, provided the total collective dose does not increase as a result.

Each facility shall jointly develop annual targets and implementation plans which will strive to improve on this standard and eliminate unnecessary radiation exposure.

The Grievance process is not intended to apply to Part G, Item 14.8, however, instances where annual targets have been exceeded will be reviewed by the Joint Health and Safety Committee of that facility. Such instances may also be fit matter for discussion by the Joint Committee on Radiation Protection.

15.0 PERSONNEL DEVELOPMENT (TRAINING AND EXPERIENCE)

The benefits of personnel development to the Company and to the individual are recognized.

Also recognized is the emphasis placed on personnel development, when determining qualifications, for promotion purposes. The need for equitable development opportunities and treatment of individuals and groups is clear. Therefore, it is agreed that:

1. Individuals and groups should receive equitable development opportunities and treatment.

2. Disruptions to training will be minimized. Where the work situation, unavoidably, precipitates an inequality of development opportunity and treatment, such inequity will be recognized and will not be allowed to work to the disadvantage of that individual or group.

3. Employees shall receive 100% of approved reimbursable costs, paid for external training which:

   • creates or maintains employee’s capability related to current job performance,
creates employee's capability for a position identified in a succession, retraining or redeployment plan.

Employees shall receive 75% of registration/tuition fees and learning material costs for external training activities which create employee's capability for future jobs within the Company and provided such training is outside working hours.

16.0 RESIDENCE HEADQUARTERS FOR PICKERING NGS, DARLINGTON NGS AND ASSOCIATED WORK HEADQUARTERS

1. The boundary of the residence headquarters for Pickering NGS and Darlington NGS will be determined by the perimeter of a circle of radius 30 km, centered at a point midway between Pickering NGS and Darlington NGS.

2. The residence headquarters defined in 1. will also be the residence headquarters for all work headquarters of Nuclear that are located within it.

3. An employee who is transferred between the work headquarters that are within the designated Pickering - Darlington residence headquarters will be eligible for transportation and moving expenses as per Part A, Item 23.0 of the Collective Agreement, unless the new work headquarters is within a reasonable commuting distance from his/her residence.

17.0 TEMPORARY TRANSFERS OF PART G EMPLOYEES TO PART F - THERMAL GENERATING STATIONS

Employees temporarily transferred to the Thermal Business Unit will adopt the work schedules and associated work schedule provisions of the location to which they have been transferred.

Employees returning to their regular work headquarters will assume the same time balance as their crew. Any minus time balances created due to working at the temporary location will be written off. Plus time balances shall be paid for at double time. In addition, where work load permits, the employee may request time off on an hour for hour basis without pay to be taken within six months.

The following items will apply under the above conditions:

1. Part F, Items 1.0, 1.4, 3.4.9, and 11.0 as contained in the Ontario Power Generation Inc. (Thermal/Hydroelectric) Collective Agreement.

2. The Company will supply the tools for employees while on temporary transfer.
18.0  EMERGENCY RESPONSE TEAMS

18.1

As part of their normal duties, all employees may be required at times to take action in response to emergencies.

18.2

Qualified designated members of the Emergency Response Teams shall receive $1350.00 annually on their anniversary of becoming a member of the Emergency Response Team.

18.3

Although membership of the Emergency Response Team is voluntary, the Company reserves the right to appoint members if sufficient volunteers are not available.

Persons acting as ERT Captains on either drills, training or events shall be paid $1/hr in addition to their normal pay on that shift.

19.0  AUTHORIZED NUCLEAR OPERATORS IN TRAINING

Refer to Mid-Term R-116-5.

19.1  Authorized Nuclear Operator Retention of Authorization Policy

Refer to Mid-Term R-116-5.

19.2  Authorized Nuclear Operators in Training Increasing Capability Compensation Progression Policy

Refer to Mid-Term R-169-4.

20.0  MAINTENANCE ASSESSING

Those who were Regular Maintenance Assessor prior to October 3rd, 2001 will not normally work shift.

21.0  CONTROL TECHNICIANS

The normal hours of work for all control technician positions shall be 40 hours per week.
21.1 Relief

1. Where a shift control technician is required to provide relief in the senior shift control technician position, he/she shall be paid for all such hours worked at the rate for the position as Part A, Item 43 and Article 8.

2. Where a senior shift control technician is required to relieve in a non-union supervisory position for a period of one working day or more, he/she will be paid in accordance with Part A, Item 43 and Article 8.

22.0 SHIFT WORK - RADIATION CONTROL TECHNICIANS, PLANNING COST AND CONTROL TECHNICIANS, TRAINING TECHNICIANS AND NUCLEAR TECHNOLOGISTS

22.1 Applicability

This section covers the following classifications:

Radiation Control Technicians I

Planning Cost and Control Technicians
Training Technicians
Nuclear Technicians

22.2

The following items as set out in Part G shall apply:

(1) Item 7.0, Positions Excluded as per Article 1

(2) Item 14.1, Personal Property

(3) Item 14.2, Access to Radiation Records

(4) Item 14.3, Ionizing Radiation

(5) Item 14.4, Radiation Limits

(6) Item 15.0, Personal Development

(7) Item 18.0, Emergency Response
22.3

All of the provisions of Part D shall apply, with the following exception:

Item 8 – Positions excluded as per Article 1.

22.4 Intent

The intent of this section is to provide a framework within which: (1) employees in the Radiation Control Technician I classifications may be assigned to any of the existing shift schedules for limited periods of time; and (2) employees in the Planning Cost and Control Technician, Training Technician and Nuclear Technologist classifications may be assigned to shift work on a Monday to Friday basis for limited periods of time. The "limited period" is to be less than three months in each year for each employee unless the employee involved specifically consents to an extension.

22.5 Implementation

When shift work is required, management will solicit preferences for shift work from the employees in the required classifications. If employees with the required skill, knowledge, experience, etc., indicate a preference for shift work, management will select from among these employees. If insufficient qualified volunteers are available, management will assign the shift work to qualified employees, endeavouring to minimize personal inconvenience.

22.6 Duration of Shift

The employees who may be required to work shifts under this section include both 35 and 40 hour per week positions. They will work a time balanced schedule. Forty hour per week employees when assigned to shift work will work the same hours as regular shift workers on shift.

Thirty-five hour per week employees when assigned to shift work will normally work seven-hour shifts. This may at management discretion be increased to eight-hour shifts.

22.7 Special Provisions on Shift

1. Shift work shall not be implemented for a period of three working days or less. If the working period is three days or less, the appropriate premium rate will be paid for the minimum three-day period.

2. The Company will provide seven days posted notice of the commencement and termination of a shift. Failure to provide such notice will require a penalty payment of double time for all changed hours of work within the notice period.

In the case of illness, which would result in a staff shortage, four (4) days' advance notice will be given when placing an employee on shift.

3. Such a placing on shift work shall not deprive an employee of his/her total number of normally scheduled weekly hours.
4. Revision to the work schedule shall provide for a minimum of 15 hours off between shifts. Failure to provide such time off will require the penalty payment for the first affected shift.

5. Shift differential shall apply to employees required to work on a three-shift schedule or a two-shift schedule and shall not apply for overtime hours.

6. Work in excess of the total number of normal daily hours will be paid at the appropriate overtime rates.

7. Premium payments for work on weekends and statutory holidays will be as shown in Part G, Item 5.0.

8. Where mutually agreeable between the employee and his/her supervisor, Training Technicians may be assigned for self development to existing shift schedules. Such time shall not exceed three (3) months in a calendar year.

9. When Radiation Control Technicians are required to work 12-hour shifts, the following sections of Item 22 will not apply: 22.6, 22.7(4), 22.7(5), 22.7(6) and 22.7(7). When Planning Cost and Control Technicians or Training Technicians or Nuclear Technologists are required to work 12-hours shifts, Part G, Items 22.6, 22.7 and 22.7.6 will not apply.

The appropriate provisions of Part G, Item 2.1, Shift Workers and Item 3.2, Shift Differential, 12-Hour Shift, will apply. The exception to this is that Part G, Item 2.1.3, Transfer to Day Work, will not apply.

22.8 Deleted Provisions When on Shift

When an individual is assigned a shift and the provisions of 22.7 are in effect, the following provisions of Part D will not apply:

1. Item 2.0: Hours of Work - General
2. Item 2.1: Hours of Work - Specific
3. Item 2.2: Hours of Work - Outside Head Office

23.0 CHEMICAL TECHNICIANS/FLMA RADIATION CONTROL AND RADIATION PROTECTION TECHNICIAN II’S

The normal hours of work for all chemical technician / FLMa radiation control and radiation protection technician II’s positions shall be 40 hours per week.
23.1

The following items as set out in Part G will not apply to the position of chemical technician / FLMa radiation control and radiation protection technician II’s:

1. Items 8.0 and 9.0 - Supervisors.
2. Item 12.1 - Selection to/Acting in Vacancies.

23.2

The following items as set out in Part D will apply to chemical technicians / FLMa radiation control and radiation protection technician II’s:

1. Item 6.0 A - Relief Work.
2. Item 7.0 - Posting of Vacancies.
3. Item 7.1 - Posting Procedures.

24.0 REGULAR GUIDES AND ASSISTANT PUBLIC EDUCATION OFFICERS

24.1

The following items as set out in Part G shall apply:

(1) Item 7, Positions Excluded as per Article 1
(2) Item 14.1, Personal Property
(3) Item 14.2, Access to Radiation Records
(4) Item 14.3, Ionizing Radiation
(5) Item 14.4, Radiation Limits.
(6) Item 15.0, Personal Development

24.2

All of the provisions of Part D shall apply, with the following exception:

Item 8.0 Positions Excluded as per Article 1.
24.3 Hours of Work

A schedule covering a period of not less than one month to be posted 30 days in advance, providing an average of five (seven-hour) days per week scheduled on any day of the week. Hours of work to be scheduled between 8:30 am and 6:00 pm, with a paid lunch period of one-half hour to be taken between 11:00 am and 2:00 pm. Failure to give the required notice shall require the payment of double time for work performed until the notice period has expired.

24.4 Method of Payment

24.4.1 Scheduled Hours

Payment at straight time, Monday to Friday.

Payment at time and one-half for all scheduled hours worked on Saturdays and Sundays.

24.4.2 Overtime

Payment for all work performed outside of scheduled hours to be made in accordance with the overtime provisions of Part D, Item 4.0.

24.4.3 Statutory Holidays - Scheduled Hours

Time and one-half for all scheduled hours worked on a statutory holiday, plus statutory holiday credit, except Saturdays.

24.4.4 Statutory Holidays - Overtime

Double time for all non-scheduled hours worked on a statutory holiday, plus statutory holiday credit.

25.0 NUCLEAR SECURITY OFFICERS

25.1 Applicable Provisions

The following Items of Part G and D apply to Nuclear Security Officers only. All other sections in Part G or D not referenced do not apply.

Part G Items:

1.0 Wages
2.0 Hours of Work
3.0 Shift Differential
4.0 Overtime (Excluding 4.4 (8))
5.0 Premium Payments
6.0 Vacation - Shift Workers
7.0 Positions Excluded as per Article 1
10.0 Relief Work
11.0 Special Clothing
12.1 Selection to/Acting in Vacancies
13.0 Provision of Meals
14.0 Radiation
15.0 Personnel Development (Training and Experience)
16.0 Residence Headquarters for Pickering NGS, Darlington NGS and Associated Work Headquarters

Part D Items:

6.0 A Principles re: Resourcing for Relief, Acting & Temporary Assignments
6.1 A Relief Work
7.0 Posting of Vacancies

25.2 Equivalent Time Off

Employees who work authorized overtime will be paid at the appropriate premium rate or may bank the time at appropriate premium rates to a maximum of forty (40) hours banked. Such banked time may be taken by mutual agreement between the employee and his/her supervisor. Employees can only book ETO after 75% of vacation and floating holidays are booked.

26.0 PART G – PROJECT CREW

1. Project crews will be staffed on a voluntary basis. In the event there are insufficient volunteers the Company may hire employees directly to the project crews.

Once an employee has volunteered they will only be permitted to leave the project crew by exception once a suitable replacement is available, or they have met any of the following:

I. Employees hired as external applicants (including Appendix A) from a temporary position or regular position with less than 2 years seniority, must work a minimum of five years on the project crew.

II. Employees hired from a regular position within the OPG-N bargaining unit, must work a minimum of two years on the project crew, unless they are below top step of the band in which case they must work a minimum of 3 years.

III. Employees hired from a regular position within the OPG-Non Nuclear bargaining unit, with more than two years seniority, must work a minimum of three years on the project crew.²

² Non-Nuclear employees hired to the Radiation Protection Project Crew must work a minimum of 5 years on the Project Crew.
IV. An employee has been selected to a promotion.

Once the above noted criteria have been met, project crew employees will have normal rights under Article 10.

2. Employees on Project Crews are considered to be regular employees with all terms and conditions and benefits as per the collective agreement, except as noted in these provisions.

3. Management will review the proposed use of the Project Crews with the PWU and solicit input on the Project Crew(s) size, composition, source of staff for the crew(s), proposed peak work times, etc.

4. Employees on the Project Crew will be entitled to the same number of yearly hours as a regular employee and be paid for those hours at straight time on the same pay basis as a non Project Crew regular employee.

5. Each employee on the Project Crew may have a different number of hours available to work, due to the application of vacation rights, floating holidays, and statutory holidays. (e.g. 2080 hrs minus statutory holidays 88 hrs, minus 3 floating holidays 24 hrs, and appropriate vacation 2/3/4/5/6 weeks).

6. Employees may be required to work days or shift work on 8/10/12 hour schedules up to 60 hours per week and a minimum of 40 hours per week.

7. Shift differential (identified in Part G, Item 3.0) and payment for scheduled work on weekends and statutory holidays (identified in Part G, Item 5.1) will be paid out on an as worked basis.

8. Management will post the project crew work schedule a minimum of 30 days in advance of its commencement for the year 2003. For each year after 2003 the schedule for the following year will be posted by September 1st. This schedule will illustrate the blocks of time when and where employees will be required to work. This work schedule may be changed by providing the affected employees a minimum of 7 days notice in advance of the change. Failure to provide this notice will result in the payment of double time for only those hours within the notice period that the employee had not previously expected to work.

Employees will be entitled to establish blocks of time when they will be unavailable for work assignment(s). This time off cannot conflict with the likely periods required for them to work.

9. The classifications required for project crews will be determined by the Company. The Company will fill vacant positions on the project crews from amongst the senior employees with the required qualifications. The Company reserves the right to restrict the number of volunteers from a work group at a site where the operation of the work group will be negatively affected.

10. The parties agree that the total number of employees in Project Crews and those in base complement shall exceed the number of employees in base complement.
27.0 Apprentice Hiring and Placement

1. Apprentices will be hired as Regular employees to a site, but shall not form part of any site complement and shall not be deemed to occupy a base position. Apprentice positions will be posted internally and externally. For every three (3) external Apprentice positions, available to external candidates only, OPG Nuclear will make one (1) internal Apprentice position available to a qualified internal candidate. If an Apprentice position is made available for an internal candidate it will count for the purposes of this paragraph whether or not the position is filled. The application of the 3:1 ratio shall be cumulative (every third (3rd) external hire shall trigger one internal vacancy regardless of the time between hiring.

2. If there are no qualified internal candidates for the internal Apprentice position(s) posted as per paragraph 1 above, OPG Nuclear may, at its discretion, fill the position(s) with an external applicant(s).

3. Journeypersons are ineligible to apply for an Apprenticeship in their own discipline.

4. Those employed as Apprentices are not eligible to apply for any other opportunities within OPG, including rotations and posted vacancies, until they have served four years in their apprenticeship. Upon completion of their fourth (4th) year of the Apprenticeship, those employees will be allocated to the site assigned in paragraph 1 and will be automatically placed in an ongoing Regular position without the necessity of a posting.

5. OPG Nuclear will offer one (1) Journeyperson position at Darlington available for transfer to a qualified Journeyperson from Nuclear for every one (1) Apprentice hired and assigned to Darlington in the same discipline. The Journeyperson position will be made available when the Apprentice successfully completes four (4) years in their Apprenticeship.

6. To count for the purposes of the ratios in paragraphs 1 and 5, OPG Nuclear will not block the senior qualified Journeyperson who elects to transfer to Darlington as per the terms of paragraph 1, 5 or 8.

7. If the application of paragraph 5 has required Darlington to make a Journeyperson position available for transfer, it will count for the purposes of paragraph 5, whether or not the position is filled.

8. If the application of paragraph 5 has required Darlington to make a Journeyperson position available for transfer, the number of Journeypersons hired at Darlington on a going forward basis from the date of this agreement will each count as a position made available for transfer in paragraph 5.

9. Co-op students who are hired into full time Apprentice positions will receive credit for their Co-op term(s) towards their Apprenticeship time, and service credit for any portion of their co-op term(s) served with OPG.

10. Requests from Darlington Mechanical Maintainers and Control Maintainers for mutual transfer(s) that arise as a result of this provision, as outlined in paragraph 5 will be
accommodated by the Company. Transportation and moving expenses will not normally apply.

11. Effective April 1st, 2009 OPG will require Apprentices/Trainees to register with the Ministry of Training, Colleges and Universities (MTCU). However, the completion of the C of A and C of Q is the responsibility of the Apprentice/Trainee. Apprentices/Trainees will be reimbursed for the registration fee charged by the MTCU. Apprentices/Trainees will be reimbursed for the examination fee and paid at their basic rate, for the time required to write each examination once, up to the maximum number of hours established by the appropriate Agency/Ministry for each examination.

28.0 OPG Nuclear Apprentice Hiring & Joint Apprenticeship Committee

The purpose of the Joint Apprenticeship Committee (JAC) is to deal with issues, in the spirit of cooperation and trust, relating to staffing and training apprentices.

The JAC will be comprised of 4 OPG representatives, including the representative for staffing and training, as well as 4 PWU representatives, including a PWU Staff Officer.

The Committee will meet quarterly or as required at the request of either party.

Key Principle

The hiring and retention of Apprentices is in the best interests of both parties and both parties will strive to come to mutually acceptable ways of balancing this goal with the interests of regular employees.

- If there are major disagreements, they are to be presented to Sector Vice President PWU-Nuclear and CNO for resolution.

29.0 Nuclear Operators Committee

Goal:

To provide a forum for communications between Ontario Power Generation and the Power Workers’ Union to discuss and resolve Nuclear Operator issues and concerns, and to provide consistency, wherever applicable between the sites.

Membership:

Power Workers’ Union

- Operator Chief Steward (Pickering)
- Operator Chief Steward (Darlington)
- OPG Sector Representative
- PWU Staff Officer
Ontario Power Generation

- Director Operations Support Corporate, or delegate
- Manager Operations Support Pickering A,B and Darlington or delegates
- Human Resource Representative

Meeting Frequency

The committee will meet a minimum of quarterly or on an as need basis.

Function

To discuss and resolve issues that are specific to Nuclear Operators, such as, but not limited to the following: training, safety, hours of work, hiring, staff movements and assignments, issues arising under Mid-Term Nuc R-1026 etc. It is not intended to be a forum for individual grievance resolution.

The PWU and OPG will provide each other with advanced notice of all issues to be discussed at coming meetings. The committee is required to produce a record of all issues raised and discussed and the associated dispositions. This record is to be provided to the Operations Peer Team, and where a disposition is required the Operations Peer Team will provide a timely response in advance of the next quarterly meeting.

Unresolved Issues

Any unresolved issues will be escalated to the PWU Sector 1 Vice President and CNO for early resolution.

30.0 Janitor Wage Rates

<table>
<thead>
<tr>
<th>Date</th>
<th>Percentage</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 1, 2012</td>
<td>2.75%</td>
<td>24.21</td>
</tr>
<tr>
<td>April 1, 2013</td>
<td>2.75%</td>
<td>24.88</td>
</tr>
<tr>
<td>April 1, 2014</td>
<td>2.75%</td>
<td>25.56</td>
</tr>
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</table>

NOTES:

All Progressions shall be in accordance with Part A, Item 3.

Applicable to employees hired or reclassified on or after October 3rd, 2001.
APPENDIX A

Nuclear ONLY
APPENDIX “A”
FOR SUPPLEMENTARY MAINTENANCE, REPAIR
AND OTHER PWU ASSIGNED WORK

1.0 Interface with Chestnut Park Accord Addendum (CPAA)

1.1 This Appendix does not alter the CPAA in any manner and all applicable provisions of the CPAA continue to apply to the determination and assignment of trades’ work. Disputes regarding the applicability of this Appendix versus the applicability of the CPAA as they may apply to the assignment of work, remittances to the appropriate BTU, and referral rights of the BTUs shall be referred to the process under Article 6 of the CPAA.

2.0 Scope

2.1 OPGN recognizes the PWU as the sole bargaining agent for all employees of OPGN who perform supplementary maintenance, repair, and other PWU assigned work save and except that work which is performed by PWU regular employees as defined in the collective agreement. All trades work shall be performed by the classifications listed below:

Control Technician (Electrical Trades)
Mechanical Maintainer (Mechanical Trades)
Civil Maintainer I
Civil Maintainer III

2.2 At the request of the OPG Vice President of Labour Relations or the PWU Vice President, the parties will meet to discuss the merits of adding any new classification(s).

The parties will consider adding a classification when:

1. Work is required in the classification and
2. Regular employees are not available to perform the work and
3. The work is not ongoing in nature.

3.0 Principles and Process

3.1 It is intended that this Appendix shall not interfere with the principle that work of a continuing nature (including the work of Project Crews where utilized by Management) be done by regular employees.

3.2 OPGN shall share with the PWU all related information for making an assignment as far in advance of the work as possible.

3.3 The designated OPGN representative and the PWU Vice President or delegate will agree upon the proposed assignment prior to the assignment being made by the Company. An agreement on the assignment of work shall not be used in a grievance to establish work of a continuing nature except where:

a) A single project/outage at a site lasts twelve (12) months or more; or
b) A series of individual projects/outages at a site last twenty-four (24) months or more without a break.
In such cases the PWU shall retain the right to grieve work of a continuing nature.

For the sake of clarity, “a site” shall be Pickering, including Pickering A and B. Darlington is also, “a site.” Similarly the OPG operations at the Bruce will be, “a site.”

3.4 Should the parties fail to agree on the assignment of work to employees hired pursuant to Appendix “A”, the issue will be referred to Mr. Martin Teplitsky, or his designate, who shall act as the sole arbitrator for expedited resolution of the dispute and shall have all the powers of the Chief Arbitrator under the Collective Agreement. This hearing will resolve both the Appendix “A” issue(s) and any issue(s) related to contracting or subcontracting of work. The arbitrator will decide whether the business case warrants the contracting or subcontracting of work.

3.5 The arbitrator will hear the dispute within three (3) days of the dispute being referred to arbitration. The arbitration may be conducted by conference call.

3.6 Briefs shall be prepared by each party, which will include a statement of facts, a brief argument, and any other information and/or documents relevant to the issue. Briefs will be exchanged by the parties and provided to the arbitrator at least twenty-four (24) hours before the arbitration hearing begins. Witnesses may be called with the leave of the arbitrator.

3.7 The decision of the arbitrator shall be final and binding.

3.8 For outage work programs of less than 50,000 person-hours, and project work less than 5,000 person hours, OPGN may hire Temporary Employees pursuant to this Appendix without seeking approval from the Union.

4.0 Employment

4.1 Referral of employees will be in accordance with the CPAA. Employees will be hired pursuant to the applicable employment provisions from the appropriate Building Trades Union as permitted by the relevant BTU Collective Agreement (e.g. name hire, recall etc).

4.2 OPGN shall have the right to transfer employees from site to site on a senior-choice, junior-force basis. Junior employees may be laid off for refusal to accept a transfer. Travel time and mileage will be paid on the first day of transfer and the last day (where a return trip occurs). No mileage will be paid where an employee qualifies for a travel allowance.

4.3 Crew supervision may be performed by regular PWU or Appendix “A” employees, and Appendix “A” employees may be intermingled with regular crews. When selecting supervisors for intermingled crews, first consideration will be given to PWU Regular Employees.

4.4 The Union may designate stewards under Appendix “A” on the basis of one steward per classification per site. The Union may designate one of these stewards per site as senior steward who shall not be laid off or transferred to another site, provided he/she is qualified to perform the remaining work. The PWU Vice President may, however, at his sole discretion consent to the transfer of a senior steward. In no case shall the employment of a senior steward be used to advance a work of a continuous nature grievance.
4.5 The Employer will provide notice to the appropriate Chief Steward when Appendix “A” employees are hired and when their employment is terminated.

5.0 Terms and Conditions of Employment

5.1 Employees under Appendix “A” shall be considered to be Temporary Employees under the PWU/OPGN collective agreement. All provisions and practices in the PWU/OPGN collective agreement with respect to Temporary Employees as of the effective date of this Appendix continue to apply save and except the provisions of Appendix “A” which include the following:

5.2 All trades work done by classifications listed in Appendix “C” of the CPAA shall be carried out by the following classifications at the following wage rates

<table>
<thead>
<tr>
<th>Classification</th>
<th>April 1/12</th>
<th>April 1/13</th>
<th>April 1/14</th>
</tr>
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<tbody>
<tr>
<td>Control Tech</td>
<td>$49.48</td>
<td>$50.84</td>
<td>$52.24</td>
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<tr>
<td>Mechanical Maintainer</td>
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<td>$50.13</td>
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<td>Civil Maintainer I</td>
<td>$45.15</td>
<td>$46.39</td>
<td>$47.67</td>
</tr>
<tr>
<td>Civil Maintainer III</td>
<td>$28.28</td>
<td>$29.06</td>
<td>$29.86</td>
</tr>
</tbody>
</table>

Cost of Living Allowance (COLA) applicable to regular employees will also apply to Appendix “A” employees.

5.3 Remittance for retirement, benefits and Union funds shall be deducted from the total package and sent to the appropriate union on a monthly basis. Remittances shall be based on hours earned as opposed to hours worked.

5.4 PWU dues shall be established by the PWU and will be collected by OPGN and remitted to the PWU on a monthly basis.

5.5 Part A, Item 16 of the collective agreement does not apply to employees under Appendix “A”.

5.6 Part A, Item 31 (Eye Protection) and 33 (Special Clothing) will not apply to Appendix “A” employees. However, personal protective equipment and gloves, rainwear and coveralls will be provided in appropriate circumstances. In addition, where the Company does not provide radiation safety footwear, new employees will be provided with a coupon at the time of hire-on to be redeemed for one pair of work boots for the life of the Collective Agreement (to a maximum of $150) from the boot truck.
5.7 Part G, Section 2.1.4 will not apply to Appendix “A” employees however shift arrangements that are compatible with regular crew shifts will be established. Premium rates will be paid for that part of the actual working time which is outside the normal scheduled hours.

5.8 All Appendix “A” employees shall be members of the PWU and shall maintain such membership in good standing as a condition of employment.

5.9 All Appendix “A” employees once hired by OPGN will be required to “Skill Broaden”. Employees may be required to perform additional tasks where there are no formal trades training required. The normal referral process of employees through the CPAA will not be affected.

5.10 Unless otherwise agreed to in future rounds of collective bargaining the Daily Travel Allowance and Subsistence Allowance will be increased by the same percentage and at the same times as PWU wage rates.

5.11 **Daily Travel Allowance**

The daily travel allowance will be paid by the Employer to its employees who are not living in camp or receiving a subsistence allowance as defined herein, on the following basis:

(a) If an employee lives within 40 radius kilometers of the work site no travel allowance will be paid.

(b) If an employee lives within 40-56 radius kilometers of the work site they shall receive $21.70 per day (effective April 1, 2013, $22.30, effective April 1, 2014, $22.91) as travel allowance for each day worked or reported for.

(c) If an employee lives within 56-80 radius kilometers of the work site they shall receive $25.93 per day (effective April 1, 2013, $26.64, effective April 1, 2014, $27.37) as travel allowance for each day worked or reported for.

(d) If an employee lives within 80-97 radius kilometers of the work site they shall receive $30.20 per day (effective April 1, 2013, $31.03, effective April 1, 2014, $31.88) as travel allowance for each day worked or reported for.

(e) If an employee lives greater than 97 radius kilometers from the work site and does not qualify for subsistence allowance they shall receive $35.50 per day (effective April 1, 2013, $36.48, effective April 1, 2014, $37.48) as travel allowance for each day worked or reported for.

(f) When an employee is directed to report to a work site that involves travelling around a natural barrier, the distance around the natural barrier shall be the shortest distance measured by a series of straight lines. The sum of the distance of these straight lines shall be applied to the ring concept to establish the employee’s travel allowance entitlement, board allowance entitlement and initial and return allowance entitlement.

(g) A natural barrier is defined as any obstruction or impediment which creates an unreasonable relationship between radius kilometres and actual kilometres travelled.
5.12 Room and Board Allowance (Subsistence)

(a) The following conditions will apply for employees whose regular residence* is more than 97 radius kilometres from the work site:

(1) The Employer may supply either:

   (i) free room and board in camp or a good standard of board and lodging;

   or

   (ii) subsistence allowance; or

(2) An employee may exercise his/her option not to stay in a camp or accept free room and board. An employee who exercises this option shall receive a subsistence allowance as follows:

Bruce Site

(i) When an employee's regular residence is more than 97 radius kilometres from the work site and the employee maintains temporary accommodations at or near the Bruce work site the employee shall be paid a subsistence allowance of $79.95 (effective April 1, 2013, $82.15, effective April 1, 2014, $84.41) per day for each day worked or reported for.

Sites Other Than Bruce

(ii) When an employee's regular residence is more than 97 radius kilometres from the work site and the employee maintains temporary accommodations at or near the work site the employee shall be paid a subsistence allowance of $35.50 (effective April 1, 2013, $36.48, effective April 1, 2014, $37.48).

All Sites

(iii) When an employee’s residence is more than 500 kilometres from the work site and the employee is working a four (4) day by ten (10) hour per day shift or working twelve (12) hour shifts, the employee will be paid one (1) additional day’s subsistence allowance.

(b) An employee shall not qualify for daily travel allowance or room and board allowance as provided for in 5.11 and 5.12, Item (a) above, when such employee reports for work but does not remain at work for his/her scheduled daily hours unless excused by an authorized representative of his/her Employer. Such permission shall not be unreasonably denied.

(c) Upon application, payment of Room and Board/Travel Allowance will be issued for the first two pay periods. Failure to provide satisfactory proof of eligibility during this period will result in cessation of payments and the recovery in two equal amounts. In the event
of termination for any reason before full recovery, any balance owing will be deducted from the final pay.

*For the purpose of this Section, "regular residence" is defined as:

1. The place where the employee maintains a self-contained, domestic establishment (a dwelling house, apartment or similar place of residence where a person generally eats and sleeps and for which he/she can show proof of financial commitment). This is in contrast to a boarding house facility which is not self-contained; and

2. The employee normally resides in the residence except for those periods of time when, because of the location of the work, the employee obtains temporary accommodation for that work location.

3. For metropolitan areas (Toronto and Hamilton) the calculation of distance shall be the employee's regular residence.

4. For all other areas, the calculation of distance shall be based on the location of the city or town hall of the municipality where an employee maintains a self-contained domestic establishment described above. In those municipalities where a city or town hall does not exist, then the post office serving his/her self-contained domestic establishment will apply.

6.0 **Grievance and Arbitration**

The following expedited grievance and arbitration mechanism applies to employees governed by Appendix “A”.

(a) OPGN shall appoint employees beyond the jurisdiction of the Union to act as contact supervisor. Each contact supervisor shall be responsible for giving or securing a decision on any grievance submitted to him/her by a union representative on behalf of any employee or group of employees under his/her supervisor. Grievances will be referred to the contact supervisor within 30 days of the discovery of the event giving rise to the grievance. If a supervisory decision is not made by the contact supervisor within 48 hours, the union representative may, within 30 days, refer the grievance to arbitration.

(b) The referral to arbitration shall be made to one of the following single arbitrators on a rotating basis.

   a) Jules Bloch  
   b) Rob Herman  
   c) Louisa Davie

(c) The arbitrator shall set a hearing date to take place within ten (10) working days of the date of the referral and shall render a decision on the case within 30 days of the completion of the hearing of the matter. The parties agree that they will facilitate to the greatest extent possible the expeditious completion of the hearing process.
(d) The decision of the arbitrator shall be final and binding on the parties. The arbitrator shall not have jurisdiction to alter or overrule this agreement or to make any decision inconsistent with this agreement.

(e) The arbitrator shall have all the power and authority of a regular arbitrator under Article 3 of the collective agreement.

(f) Maintenance of normal earnings shall be provided by OPGN for all Union representatives, attending at the grievance process, including the arbitration hearing. Arbitrator costs will be shared.
COLLECTIVE AGREEMENT
BETWEEN

ONTARIO POWER GENERATION INC.

AND

THE SOCIETY OF ENERGY PROFESSIONALS

JANUARY 1, 2011 – DECEMBER 31, 2012
IN WITNESS THEREOF the parties hereto have caused the Agreement to be
executed by their proper officers duly authorized in that behalf at Toronto,
Ontario.

Scott Martin – Vice President
Labour Relations, Safety, Wellness
& Corporate Security
OntarioPower Generation Inc.

Joe Fierro – Vice President
OPG Bargaining Group
The Society of Energy Professionals
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38.5 FOR SIXTEEN TO TWENTY-FOUR YEARS OF SERVICE

38.6 FOR TWENTY-FIVE OR MORE YEARS OF SERVICE

38.7 EXTERNAL EXPERIENCE CREDIT

38.8 VACATION CREDIT FOR PRIOR SERVICE

38.9 VACATION WITHOUT PAY

38.10 USE OF VACATION CREDITS OF SUCCEEDING YEAR AT CHRISTMAS

38.11 BANKED VACATION

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38.13 VACATION ENTITLEMENT ON RETIREMENT/Termination

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PART I - PREAMBLE

1 Society and Corporate Interests

The object of this Agreement is to promote harmonious relations between Ontario Power Generation Inc. (OPG) and employees consistent with the preamble of the Ontario Labour Relations Act and the Canada Labour Code and in recognition of the need for the successful accomplishment of the public purposes for which OPG has been established.

The objective of the parties is to facilitate the peaceful adjustment of salaries and benefits, working conditions, issues of fair treatment, all disputes and grievances, and to prevent inefficiencies and avoidable expenses and to reduce unnecessary delays.

OPG's mission is to contribute to the enhancement of the quality of life of the people of Ontario by serving their energy needs. The Society's mission is to strive to ensure the best rewards, career opportunities and working conditions for its members. The Society recognizes a responsibility for providing an essential service to the people of Ontario and in working towards the continued viability and continuity of OPG. Both parties recognize the fundamental importance of service to OPG customers.

The parties recognize that situations may arise where their missions, objectives, or actions come into conflict. These conflicts may impact on the bargaining unit and particularly on supervisory employees represented by The Society. The parties agree that supervisors will be able to participate fully as members and perform supervisory responsibilities without fear of reprisal or recrimination by either party.

1.1 Principles

OPG and The Society agree to make their best efforts to adhere to the principle statements found in the Articles of the Collective Agreement in a balanced way, recognizing that some principles may compete with others. With the exception of the Principles of Agreement found in the Tripartite Agreement on Health and Safety Committees in Article 89, the parties agree that these principle statements are not subject to the grievance/arbitration procedure on their own standing.

1.2 The following principles were developed by the Joint Society Management Committee (JSMC) to guide its conduct in negotiations and in its ongoing relationship. OPG is encouraged to use these principles at the local level.

1.2.1 Issues and interpretations will be dealt with in an open way with the earliest possible involvement of each party.

1.2.2 Each party will deal with the other in such a way that it effectively demonstrates respect for each individual's contribution and point-of-view.
1.2.3 Bilateral meetings will be conducted on the premise that such meetings are a "safe zone", with no rank within the room, and in an atmosphere where everyone is free to participate and no one dominates.

1.2.4 Common goals/needs will be identified, and both parties will work together to achieve them.

1.2.5 The primary focus of the parties will be the customer (Customer means OPG’s customers, together with Society members. Customer focus also includes being sensitive to the environment - economic, political, environmental, and social).

1.2.6 Processes will be designed with the involvement of the people who have the knowledge of the problem or issue. The processes will encourage the resolution of the problem/issue at the level closest to the source.

1.2.7 An honest attempt will be made to resolve all problems/issues internally.

1.2.8 By virtue of adherence to the above principles, the JSMC will endeavour to act as an example to the whole organization to show how using those principles, can create a harmonious relationship, while at the same time making the customer the primary focus.

1.3 Partnership Principles

OPG and The Society are committed to a union-management partnership to mutually explore, discuss, and implement new ways to improve business operations, customer satisfaction, the way we work, and quality of work life.

PART II - RECOGNITION

2 Recognition Clause

2.1 Provincial Jurisdiction

Ontario Power Generation Inc. (OPG) recognizes The Society as the exclusive bargaining agent for a bargaining unit comprised of:

All employees employed in Ontario Power Generation, including Ontario Power Generation Inc. - Nuclear, hereinafter known as OPGI, in the Province of Ontario employed as supervisors, professional engineers, engineers-in-training, scientists, and professional, administrative and associated employees, save and except for persons who perform managerial functions as distinct from supervisory functions; persons employed in a confidential capacity with respect to labour relations; and persons in bargaining units for which any trade union held bargaining rights as of November 13, 1991.

2.2 Federal Jurisdiction

The Society was certified in May 1995 under the Canada Labour Code for a bargaining unit comprised of the following:

All employees Ontario Power Generation employed by Ontario Power Generation Inc - Nuclear in the Province of Ontario employed as supervisors, professional engineers, engineers-in-training, scientists, and professional, administrative and associated employees, save and except for persons who perform managerial functions as distinct from supervisory functions; persons employed in a confidential capacity with respect to labour relations; and persons in bargaining units for which any trade union held bargaining rights as of November 13, 1991.

On April 1, 1998, jurisdiction for labour relations for the above-noted federal bargaining unit was delegated to the Province of Ontario.

2.3 Clarity Notes

2.3.1 For the purposes of clarity, the bargaining units set out above include:

   a) all regular, probationary, graduate students, reduced-hours and temporary employees whose functions are included in the classifications paid from Salary Schedules 01, 02, 03, 04, 05, 08, 09, 10, 11, 12, 13, and 15.

   b) employees in OPGI whose full-time duties are security staff work performing the same security work as Security Staff who were formerly OSS staff paid from schedules 05 and 15 and
who are paid from Salary Schedule 01, 03, 09 or 11 (Security Staff).

2.3.1.2 Exclude:

a) those persons who perform managerial functions as distinct from supervisory functions. An employee is performing managerial functions if:

i) he/she performs managerial functions such as hiring, promotion, performance increase, discharge, etc., over other employees in the bargaining unit; and

he/she is required to spend the majority of his/her time performing managerial duties; and

he/she supervises at least seven (7) employees (directly and indirectly) on a regular and continuous basis; or

ii) he/she supervises persons who are excluded from The Society’s bargaining unit by reason of performing managerial functions or being employed in a confidential capacity with respect to labour relations.

2.3.1.3 For greater certainty, it is understood that Article 2.1 incorporates the agreement of the parties to combine what had been two (2) separate Collective Agreements into one (1) Agreement. Prior to the execution of this Agreement, there had been separate Agreements covering OPGI’s nuclear and non-nuclear facilities. With the execution of this Agreement, it is agreed that there is now one (1) Agreement covering all such facilities.

2.3.2 Definitions

a) “Supervisors” means employees who primarily perform supervisory functions, including the requirement to make recommendations regarding any staff or personnel matter. These staff or personnel matters include, but are not limited to, such areas as selection, promotion, appraisal, discipline, transfer, staffing needs, work methods, changes in terms and conditions of employment, grievances, or the interpretation and administration of the applicable Collective Agreement. “Supervisors” includes employees in other employee classifications who perform supervisory functions.

b) “Professional engineer” means either: a) an employee who is a member of the engineering profession entitled to practice in Ontario and employed in a professional capacity; or b) an employee with equivalent credentials who is in a position that requires engineering expertise and specialized knowledge. This definition includes all employee categories included under the heading of “Professional Engineer” listed in
Attachment A to Appendix I “Utilization and Advancement of Professional Engineers and Scientists” in this Agreement. “Professional engineers” includes employees who satisfy these criteria and who are required to perform supervisory functions.

c) “Engineers-in-training” means an employee who has completed a course of specialized instruction in engineering sciences and graduated from a university or similar institution, who has not satisfied all the requirements for practicing as a professional engineer and who is on a structured training program to partially satisfy these requirements.

d) “Scientists” means employees who are university graduates in the Natural Sciences, the Applied Sciences, Mathematics or Computer Sciences, who are not classified as professional engineers, and who are engaged in the application of this specialized knowledge in the course of their employment. This definition includes all incumbents in positions identified under the heading of “Scientists” listed in Attachment A to Appendix I entitled “Utilization and Advancement of Professional Engineers and Scientists” in this Agreement. “Scientists” includes employees who satisfy these criteria and who are required to perform supervisory functions.

e) “Professional employee” means an employee who:

i) in the course of his/her employment is engaged in the application of specialized knowledge ordinarily acquired by a course of instruction and study resulting in graduation from a university or similar institution; and

ii) is eligible to be a member of a professional organization that is authorized by statute to establish the qualifications for membership in the organization; or

iii) performs the functions, but lacks the qualifications of a professional employee.

“Professional employees” include employees who satisfy these criteria and who are required to perform supervisory functions.

f) “Administrative employee” means an employee who normally supervises persons engaged in office administration, construction, security or maintenance work who are represented by another trade union. This definition includes employees who share a community of interest with “supervisors”.

g) “Associated employees” means employees in positions which normally require a university degree or equivalent education or
experience. This definition encompasses employees who share a community of interest with "professional engineers", "scientists" or "professionals" and includes, but is not limited to, Nurses and System Control Operators. “Associated employees” includes employees who satisfy these criteria and who are required to perform supervisory functions.

2.4 Supervisory Employees - Code of Ethics

OPG agrees to include supervisory employees in the bargaining unit on the condition that the parties recognize that supervisory employees will continue to exercise key functions in the control and operation of OPG. As members of OPG managerial staff, supervisors use judgment to express and make operative the decisions of Management. They are responsible for fostering a healthy work environment. The parties recognize the responsibility of supervisors to discharge their supervisory duties in good faith. The Society and OPG will identify, minimize and/or avoid the conflicts/perceived conflicts of interest that may arise concerning the relationship between supervisors, The Society and OPG.

It is recognized that supervisory employees may be disciplined for failure to act in good faith as a representative of Management and fulfilling their responsibilities including abuse of supervisory position and breach of trust.

2.5 Conflict of Interest - Security Staff

The Society recognizes that the inclusion of security staff in this Collective Agreement may create the possibility of a conflict of interest between the responsibilities to their duties and their membership in The Society. The Society will not impede security staff from performing any of their job duties. These provisions are intended to permit security staff to perform their duties unfettered and to preserve the confidentiality of their work. Security staff are sometimes required to take action with respect to other employees. It is the intent of these provisions that security staff will fulfill their duties irrespective of whether the other employees involved are or are not represented by The Society. OPG agrees that all security staff represented by The Society will have normal access to Society representation.

The Society agrees not to pursue any internal disciplinary actions against security staff for performing their duties.

Any conflict of interest involving security staff will be subject to an expeditious internal confidential review/resolution process. If the internal resolution process is not capable of resolving the conflict of interest, then an expeditious external process will be activated.

The Society Board of Directors clearly recognizes the unique position of security staff regarding their relationship with other Society represented employees and will strive to ensure that any conflict of interest which may arise is handled sensitively and expeditiously.
### 2.6 Exclusions Process

OPG and The Society agree to the following process for the purpose of excluding new and changed positions from The Society’s jurisdiction.

1. The following new or changed job documents or their electronic equivalents in Scenarios A to D will be sent to The Society for their review:

   - **A - Society Jobs**
   - **B - “Society Equivalent” MG Jobs** (Formerly MF)
   - **C - Borderline Society/ESR Jobs**
   - **D - Borderline Society/PWU Jobs**
   - **E - “PWU Equivalent” MG Jobs** (Formerly MS)

#### Scenario Table:

<table>
<thead>
<tr>
<th>Scenario</th>
<th>New Jobs</th>
<th>Revised Jobs</th>
</tr>
</thead>
</table>
| A        | Documents will be sent to The Society after finalization.                | i) If job leaves Society jurisdiction, documents will be sent to The Society before finalization.  
|          |                                                                         | ii) If Society jurisdiction does not change, documents will be sent to The Society after finalization. |
| B        | Documents for new “Society Equivalent” MG (formerly MF) jobs will be sent to The Society before finalization. | If jurisdiction changes to Society bargaining unit, documents will be sent to The Society after finalization. |
| C        | Documents for new first-level ESR jobs will be sent to The Society before finalization. | If jurisdiction changes to Society bargaining unit, documents will be sent to The Society after finalization. |
| D        | Documents for the following new jobs not established as PWU jobs in the past will be sent to The Society before finalization:  
|          |   i) supervisory jobs, and  
|          |   ii) non-supervisory jobs which report to a Society- represented position and are paid at the final step rate at or above MP2 Step 9. | If jurisdiction changes to Society bargaining unit, documents will be sent to The Society after finalization. |
2. If there is disagreement concerning jurisdiction of a position, The Society will notify Labour Relations, OPG Human Resources within 10 working days of having received the document. The two parties will use the 10 working days to attempt to resolve the dispute.

3. If the two parties are not able to resolve the dispute, Management reserves the right to implement the position with the jurisdiction as proposed. At the same time, The Society has the right to file a grievance over the jurisdiction of the position.

4. Management will notify The Society office of any jurisdictional grievance filed by another trade union against a Society-represented position and will advise The Society of any change in status (e.g., referred to next step, resolved, withdrawn).

5. Attachment 1 is the exclusion form which will be used in accordance with this process. The Society’s agreement to exclude any position under this process is without prejudice to its position in any proceedings and will not limit The Society’s right to challenge the exclusion at a later point in time.
**ATTACHMENT 1 - Request for Society Exclusion**

*Note: Before an occupation code can be issued, completion of the shaded areas by Line Management and/or Human Resources is mandatory.*

<table>
<thead>
<tr>
<th>Date</th>
<th>Job Title</th>
<th>Schedule/Grade</th>
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<table>
<thead>
<tr>
<th>Business unit</th>
<th>Division</th>
<th>Department</th>
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</tbody>
</table>

This is a: [ ] new document

code: [ ] revised and previously excluded document - existing occupation

code: [ ] revised and previously included document - existing occupation

☐ Managerial Exclusion ☐ Confidential Exclusion

☐ Within Another Trade Union ☐ Greater than 335 points

**SOCIETY UNIT DIRECTOR**

<table>
<thead>
<tr>
<th>Agreed</th>
<th>Disagreed</th>
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</thead>
<tbody>
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</tbody>
</table>

If disagreed, why?

________________________________________

________________________________________

Society Unit Director (signature)

Date: ____________________________

**SOCIETY STAFF OFFICER**

<table>
<thead>
<tr>
<th>Agreed</th>
<th>Disagreed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

If disagreed, why?

________________________________________

________________________________________

Society Staff Officer (signature)

Date: ____________________________

*(The Society’s agreement to exclude any position from its jurisdiction is without prejudice to challenge this exclusion at a later point.)*

<table>
<thead>
<tr>
<th>Line Management (signature)</th>
<th>Human Resources Department (signature)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

Date: ____________________________

Date: ____________________________

*Note: See Article 2 of The Society-OPG Collective Agreement for the complete Recognition Clause and Appendix VIII & IX. For clarification or information regarding exclusion, please contact your Human Resources Officer or Labour Relations - Corporate HR or The Society Office or a Society Unit Director.*
2.7 Successor Rights

2.7.1 OPG agrees that it will not directly or indirectly request government to exempt the Company or The Society from the successor rights provisions of the applicable labour relations legislation.

2.7.2 The successor rights provisions of the applicable labour relations statute shall be incorporated by reference into this Collective Agreement. No board of arbitration established pursuant to the grievance and arbitration provisions of this contract has jurisdiction to make any decision within the jurisdiction of the Labour Relations Board and nothing herein is intended to affect the jurisdiction of the Labour Board to resolve disputes related to the application of the provisions of the statute. For purposes of s.48 of the Ontario Labour Relations Act and s. 57 of the Canada Labour Code, the Ontario Labour Relations Board or the Canada Labour Relations Board shall be deemed to be a Board of Arbitration for the resolution of disputes related to the interpretation, application, administration or alleged violation of this provision of the Collective Agreement. The remedial powers of the Labour Board shall be as set out in the relevant statutory provisions governing successor rights.

3 Employee Classifications

3.1 Probationary Employees

A probationary employee is an employee, who is hired on a trial basis with the prospect of being reclassified as a regular employee, if the employee's performance satisfactorily meets the job requirements. The probation period is normally a minimum of three months and a maximum of six (6) months. After six (6) months, the employee will either be made regular, transferred to another probationary position or terminated unless there is an expectation that a longer probationary period will result in improvement in a specific area which has been identified to the employee (e.g. completion of a training course or a specific work assignment, interrupted probationary period as a result of parental leave, etc.) The employee's benefits and working conditions are the same as regular employees with exceptions identified in the provisions where different treatment has been agreed to.

3.2 Regular Employees

A regular employee is an employee who has either served the required probationary term or has previously been employed in one of the other categories and has satisfactorily met the job requirements. The employee occupies a position that is considered part of the ongoing organization of OPG.
3.2.1 Reduced Hours of Work Regular Employees

A reduced hours of work regular employee is an employee who has regular status but works less than the base hours for a full-time position. The employee's benefits and working conditions are pro-rated and based on the entitlements of the regular employees. The pro-rating is described in Article 71 (Reduced Hours of Work).

3.3 Temporary Employees

3.3.1 A temporary employee is an employee who is hired for short-term work assignment which is not ongoing (i.e. normally 12 months or less and not extending beyond 24 months). The employee's benefits and working conditions are as per Article 34 (Temporary Employees).

3.3.2 Reduced Hours of Work Temporary Employees

A reduced hours of work temporary employee is an employee who has temporary status but works less than the base hours for a full-time position. The employee's benefits and working conditions are pro-rated as per Article 34 (Temporary Employees).

3.3.3 Student Employees

A student employee is an employee who is hired for short-term work which is not ongoing. He/she is normally in the process of completing his/her post-graduate studies and is expected to return to his/her studies after an agreed employment period. The employee's benefits and working conditions are as per Article 34 (Temporary Employees).

4 Service Credit Definitions

Service credits shall be based on all previous full-time (regular, temporary and casual) service and part-time/reduced hours (regular and temporary) unless otherwise specified. (See Article 9.3 Transition Provisions of the 2006-2010 Collective Agreement).

4.1 Established Commencement Date (ECD)

The "ECD" represents the latest date of hire, subject to authorized adjustments for previous service as detailed below.

a) Regular

The ECD for regular employees is calculated by giving service credits for:

- probationary employment;
• 100% of employment service in an acquired Company;

• previous regular and temporary (full-time and reduced hours employment), if there has been no break in service exceeding twelve (12) months;

• previous casual construction employment if there was no break in employment exceeding three (3) months (or 12 months for casual construction employees on the Pension and Insurance Plan).

(The ECD has an impact on sick leave and severance pay.)

b) Temporary

The ECD for temporary employees is calculated by giving service credits for:

• previous temporary employment, if there has been no break in service exceeding 3 months and employee has less than 12 months service;

• previous temporary employment, if there has been no break in service exceeding 12 months and employee has greater than 12 months service.

(The ECD has an impact on statutory holidays and floating holidays.)

4.2 Vacation Credit Date (VCD)

The VCD represents all service regardless of breaks. While a regular employee, service credits shall be based on the current ECD and adjusted for all previous periods of OPG employment. All employees who currently work reduced hours or have done so in the past, will have such service calculated as if were full-time.

(VCD is used to determine vacation bonus.)

4.3 External Experience Value (EEV)

The EEV represents a vacation credit quantity expressed in number of years, months and days for external work experience granted to qualifying regular employees (Section 38.7). The EEV and VCD determine total years credit for vacation entitlement (days) and the length of service based search notice period (Section 64.21 - Search Notice Period).

EEV is only applicable to the initial hire with either Ontario Hydro or Ontario Power Generation and does not apply to any rehire, save and except those employees that have been forced to another employer through a “Change
of Employer” under Part C of Article 64, formerly Article 102, on or after January 1, 2005 and have been rehired after 3 years.

4.4 Service Recognition Date (SRD)

The SRD for regular employees represents all service while an OPG employee on payroll regardless of breaks in employment. Service credits shall be based on the last hire date and adjusted for all previous periods of OPG employment. All employees who currently work reduced hours or have done so in the past, will have such service calculated as if it were full-time (it should never be pro-rated).

Authorized Adjustments:

a) Personal Leaves of Absence

SRD includes the time an employee is on "leave", if the employee is on a:

- personal leave of absence with pay; or
- personal leave of absence without pay which is less than 15 working days; or
- personal leave of absence without pay which is more than 15 working days and which was started on or after April 15, 1993 -- only that portion which was taken during the period from April 15, 1993 to August 31, 1997.
- prepaid leave of absence, under the enhanced leaves of absence policy dated April 16, 1993, greater than eight (8) weeks.

b) Pregnancy/Parental Leaves

SRD includes the time an employee is on a pregnancy/parental leave (previously referred to as normal or extended maternity/adoption leave).

c) Job Sharing

SRD is calculated as if the employee is working full-time hours.

d) Work Sharing

SRD is calculated as if the employee is working full-time hours.

(SRD has an impact on recognition of employee service at years 25 and 40, Quarter Century Club Membership and seniority (Article 64).)
4.5 “Eligibility Service” or “Continuous Employment” for Pension Purposes

Generally, it is the number of years (including a portion of a year) a pension plan member has been continuously employed in which there has been no break in employment exceeding 12 months. It includes previous OPG pensionable service which has been reinstated; external service which has been transferred into the pension plan under a reciprocal pension transfer agreement; and periods of pregnancy/parental leave. It may include certain types of non-regular service purchased under special provisions. It generally excludes leaves of absence without pay except where the employee elects to pay the pension contribution. The exceptions are detailed in the pension rules.

Eligibility Service (ES) is used as an eligibility criteria for early retirement and the associated early retirement discounts; and in conjunction with Membership Service (i.e., the service subsequent to the date actually joining/started contributing to the Plan) and Age, to determine death and termination benefit entitlements.

5 Temporary Assignments

There may be instances when employees are temporarily removed from their normal duties to perform work outside of The Society’s bargaining unit. Likewise, employees from outside of the bargaining unit may be assigned temporarily to work within The Society’s bargaining unit.

In such instances, the parties agree that:

5.1 Employees Temporarily Excluded from Society Jurisdiction

5.1.1 The Society shall be given prior notice of any temporary assignment exceeding three months’ duration that OPG considers outside the bargaining unit, along with a rationale for the proposed exclusion.

5.1.2 The Society shall continue to represent employees who have been temporarily removed from their regular positions to perform work outside the bargaining unit for the first three months of the temporary assignment. Dues shall be deducted and remitted to The Society for the entire period of the temporary assignment of a Society member while performing work outside the bargaining unit.

5.1.3 Except where otherwise specified in this Agreement, Society-represented employees who are temporarily assigned to positions outside the bargaining unit shall have access to all benefits, plans or entitlements under Part IX (Health Benefits), Part X (Pension and Insurance), Part XI (Relocation Assistance), and Articles 64
5.2 Employees Temporarily Included in Society Jurisdiction

5.2.1 OPG personnel from outside The Society’s bargaining unit who are temporarily assigned work within Society jurisdiction shall be represented by The Society for that portion of the assignment extending beyond three months, and dues shall be deducted for the period beyond three months.

5.2.2 During the period of Society representation, temporarily included employees shall be subject to the provisions of the Collective Agreement, but the following shall not apply:

- Article 20 (Performance Appraisals and Reduced Pay Standing Complaints), 21 (Performance Appraisal Feedback and Advanced Warning of Reduced Pay Standing) excluding 21.4, 32 (Re-earnable Incentive Plan), 33 (Progression-In-Place Plans)
- Part VIII (Absence from Work)
- Part IX (Health Benefits)
- Part X (Pension and Insurance)
- Part XI (Relocation Assistance), except for Article 55 (Compensation when Assigned to Temporary Work Headquarters)
- Article 63 (Compensation for Authorization as a Nuclear Shift Supervisor)
- Part XIII (Working Conditions)
- Other provisions or Agreements to the extent they concern the above

5.3 Grievance

The Society’s Complaint and Grievance/Arbitration procedure shall apply to any dispute relating to an applicable provision of The Society’s Collective Agreement, including any dispute as to whether the Collective Agreement is applicable in the circumstances. The employee and/or the employee’s bargaining agent retain any rights in respect of terms and conditions of employment to which The Society’s Collective Agreement does not apply.

6 Employees on Temporary Out-of-Province Assignment

6.1 Terms and Conditions of Employment During Assignment

a) When a Society-represented employee accepts a temporary assignment outside Ontario, the employee:

a) retains his/her status as an employee of OPG;
b) continues to accrue service credit for all purposes under Article 4, Service Credit Definitions, of the Collective Agreement;

c) is required to pay Society dues during the term of any assignment.

6.1.2 The employee remains represented by The Society until he/she begins this assignment. When an employee accepts a personal services contract, that contract together with this Article shall constitute the employee’s complete terms and conditions of employment for the full term of the assignment. OPG will advise The Society after a personal services contract with a Society-represented employee is signed.

6.1.3 OPG will indemnify, or cause to be indemnified, each employee who, in the course of work on temporary out-of-province assignment, becomes subject to a claim made against him/her or to a threat of discipline from an association with statutory power to apply professional standards. OPG’s “Employee Indemnification Policy” (08-03-01) will apply unless indemnification provisions specific to a given contract or project are identified in the personal services contract.

6.2 Filling the Pre-Assignment Position

Before the employee commits to the assignment, Management will determine whether it intends to fill the position on a temporary or regular basis and discuss the decision and rationale with the employee. OPG will inform the employee of any intent to change this plan while the employee is on an out-of-province assignment.

6.3 Redeployment Upon Completion of Assignment

6.3.1 The line manager in the employee’s pre-assignment Business Unit shall provide or shall identify appropriate personnel to provide the returning employee with employment-related information and assistance and to carry out the provisions of this Subsection upon completion of the assignment and return to Ontario.

6.3.2 When the employee’s pre-assignment position with OPG continues to exist and has not been filled or has been filled temporarily, the employee shall return to that position.

6.3.3 When the employee’s pre-assignment position with OPG no longer exists or has been filled regularly, and the employee is not surplus by operation of Article 64, the employee shall be placed in an OPG vacancy for which he/she is qualified, in the following order:

   a) a lateral vacancy within the employee’s pre-assignment Business Unit at the pre-assignment location;
b) within the pre-assignment Business Unit, a choice of a lateral vacancy at a new location, or a vacancy within two salary grades lower at the pre-assignment location;

c) within the pre-assignment Business Unit, a vacancy within two salary grades lower, in a new location;

d) redeployment in accordance with Article 64.

6.3.4 Placements under Subsection 6.3.3 (a), (b) or (c) above are exceptions to OPGI posting requirements, consistent with Subsection 65.6.1 (b).

6.3.5 When there is a reasonable expectation that an employee will be placed in a different position upon return from a temporary out-of-province assignment, OPG will identify and notify the employee of potential placements. An employee who is not placed within 30 days of completion of the assignment and return to Ontario shall have the right to be redeployed in accordance with Article 64.

6.4 Employment Continuity During Temporary Out-of-Province Assignment

6.4.1 Employees on temporary out-of-province assignments will be neither advantaged nor disadvantaged with respect to rights under Employment Continuity upon return from the assignment. When an employee’s pre-assignment position has been included in a Unit of Application for redeployment under Article 64, the employee will be redeployed in accordance with Article 64.

The Joint Redeployment Planning Team (JRPT) will consider issues such as:

- the number of employees within the unit of application who are on temporary out-of-province assignments;
- the duration of the assignments;
- the seniority of the affected employees;
- the qualifications of the affected employees;
- the ability to factor the employee into the ongoing joint planning efforts (i.e., will the employee be returning during or shortly after the joint planning process);
- the ability to fill positions in the new organization on a temporary assignment basis in order to accommodate a returning employee;
• the need to fill positions in the new organization on a continuing basis;
• the need to keep employees apprised of developments within their unit of application that may impact on their job status during the assignment.

6.4.2 If an employee is declared surplus while he/she is on temporary out-of-province assignment, the employee will be notified and all surplus entitlements will be deferred until the employee completes the assignment and returns to Ontario.

6.4.3 An employee on temporary out-of-province assignment who is subject to redeployment under Article 64 in his/her absence and the JRPT determines:

a) the employee would have been matched to a position by virtue of seniority and qualifications and is, therefore, deemed not surplus; and

b) the employee will not be matched in the redeployment; then the employee will be entitled to treatment under Section 6.3 above.

7 Mid-Term Agreements - Business Units

This article has been deleted.
PART III - VOLUNTARY RECOGNITION AGREEMENT

8 VRA Amendments

A Voluntary Recognition Agreement (VRA) between Ontario Hydro and The Society came into effect on January 14, 1992. A complete text of the VRA between Ontario Hydro and The Society is found in Appendix IX. The VRA, as amended in this Article, is applicable to OPG. The VRA shall remain in effect thereafter except for Sections 4.0 and 5.0 of the VRA (outlined in Articles 14 and 15 of this Agreement) which may be terminated by written notice by either party not less than twelve months prior to the expiry of the Collective Agreement in operation on January 1, 2016 or any subsequent Collective Agreement. In the event that The Society provides notice of termination of Sections 4.0 and 5.0 of the VRA, OPG may require that the supervisors defined in Section 8.1 form a separate bargaining unit for which The Society shall be recognized as the bargaining agent and for which there shall be a separate Collective Agreement. In addition, The Society shall continue to be recognized as the bargaining agent for non supervisory staff defined in the VRA. Disputes on the identification of supervisors shall be submitted to a mutually acceptable arbitrator for settlement. If the parties fail to agree to appoint an arbitrator, either party may refer the matter to the Minister of Labour (provincial or federal) or the Chief Justice of the Ontario Court of Justice who shall appoint a single arbitrator. The arbitrator will have the power accorded arbitrators under the Ontario Labour Relations Act and the Canada Labour Code. If OPG provides notice of termination of Sections 4.0 and 5.0 of the VRA, it shall continue to recognize The Society as representing all employees in one bargaining unit as per the VRA and ensuing Collective Agreements.

In the event that either party desires to amend the VRA on or after January 1, 2016, it must notify the other party in writing not less than twelve months prior to the expiry of the Collective Agreement in effect on January 1, 2016 or thereafter twelve months prior to the expiration of any subsequent Collective Agreement. In such circumstances the parties will have the right, if either party so chooses, to appoint a mutually agreeable mediator for the purpose of reaching a settlement of the issues and where there is mutual agreement the mediator shall arbitrate outstanding matters in dispute.

Notwithstanding the above, the parties may mutually agree to amend the VRA at any time.

8.1 Supervisory Employees

For the purposes of this Article, the parties agree that Supervisory positions are those that are not excluded under Article 2.0 above and that satisfy the following criteria:

a) Employees on Salary Schedule 01, 03, 09 or 11 who under Plan A "Nature of Supervision" have either Degree 3 (or higher) or its equivalent;

b) Employees on Schedules 02, 03, 09, 05, 08, 10, 11, 12, 13, 15 on condition they normally supervise other employees.
PART IV - COLLECTIVE AGREEMENT TERM - NO STRIKE/NO LOCKOUT

9 Collective Agreement Term - No Strike/No Lockout

9.1 This Collective Agreement shall remain in effect from January 1, 2011 to December 31, 2012 inclusive and, thereafter, shall be renewed automatically from year to year, subject to Section 4.0 of the Voluntary Recognition Agreement (VRA) as amended in the Collective Agreement, unless either Party notifies the other in writing not less than 90 days prior to the expiration of the Collective Agreement that it desires to amend the Collective Agreement. As long as Sections 4.0 as amended and 5.0 of the VRA remain in effect, where notice to amend the Collective Agreement is given, the provisions of this Collective Agreement shall continue in force until a new Collective Agreement is signed.

9.2 No Strike/No Lockout

The Society, employees within the scope of the bargaining unit, and OPG are pledged to the effective and efficient operation of OPG and they pledge themselves, individually and collectively, to refrain from taking part in strikes, lockouts or sympathy strikes and other interference with work or production as long as the terms and conditions in Section 4.0 of the VRA continue.

Nothing in this Collective Agreement is intended to interfere with the exercise of lawful economic sanctions under the Ontario Labour Relations Act and the Canada Labour Code by any member of the bargaining unit or bargaining units as the case may be or by The Society itself should either party to the Agreement elect to terminate Sections 4.0 and 5.0 of the Voluntary Recognition Agreement.
PART V - UNION SECURITY

10 Society Membership and Dues Deduction

10.1 Membership in The Society

The Society agrees to permit members to withdraw from membership in The Society.

10.2 Dues Deduction (Rand Formula)

Society dues, as prescribed by The Society Constitution, or an equivalent amount, shall be deducted monthly (or more frequently if agreed) by OPG by compulsory payroll deductions from all Society-represented employees and shall be forwarded to The Society on their behalf with a list of appropriate employee information.

The Society confirms it will respect the applicable provisions of the Ontario Labour Relations Act (RSO 1990) and the Canada Labour Code with respect to bona fide religious convictions or beliefs.

10.3 Bargaining Unit Information

Management agrees to provide The Society with the following, on a regular basis:

a) A copy of the appointment letter, for employees selected to Society represented vacancies, will be copied to the appropriate Unit Director, within a reasonable period of time
b) Detailed records of dues deducted
c) Detailed information on the membership, including:
   - Occupation Code, Job Title, Salary Schedule, Salary Grade, Organization (e.g. Business Unit/Division/Department), Mailing Location, Phone Number
d) Upon written request provide to a Unit Director applicant information to specified Society represented vacancies.

11 Principles Regarding Involvement With Respect to Successor Rights

Consistent with the parties' commitment to deal with issues in an open and co-operative manner with the earliest possible involvement of each party, the parties have developed the following principles and intent:

a) Prior to the finalization of negotiations that could lead to the sale of all or part of the business, privatization of all or part of a Business Unit, the creation of joint ventures or partnerships or other enterprises which could adversely impact on The Society's bargaining rights or the contractual rights of its members, The Society will be consulted to the extent that
circumstances reasonably permit. The Society agrees that confidentiality will be maintained.

b) The parties agree to attempt to minimize the negative impacts on OPG employees in these circumstances. Where it is in the mutual interests of the parties, they will make their best efforts to identify and investigate new opportunities to spin-off parts of OPG.

c) OPG agrees to apprise any external third party involved in negotiations that OPG has employees represented by The Society and OPG will undertake to provide The Society with an opportunity to present its interests to the third party.
PART VI - DISPUTE RESOLUTION PROCESSES

12 No Discrimination

12.1 Human Rights

Every employee has a right to be free of harassment and discrimination in the workplace on the basis of prohibited grounds, as outlined in the OPG Human Rights Policy. An employee who has a harassment or discrimination complaint on the basis of these grounds will have access to OPG Human Rights and Complaints resolution process.

Any Society-represented employee involved in OPG Human Rights and Complaints process may consult with and be accompanied by a Society representative if he/she chooses to do so. No record of a complaint will be maintained in an employee’s personnel file, except in the case of individuals who have received disciplinary action. Any person against whom a formal complaint is filed must be given particulars of the complaint.

As long as an employee has an active complaint of discrimination or harassment on the basis of prohibited grounds, either under OPG’s Human Rights and Complaints process or with the Human Rights Commission, The Society will not make such a complaint or OPG process the subject of a grievance on the employee’s behalf.

12.2 Union Activity

OPG shall not discriminate against an employee on the basis of membership or activity in The Society. An employee who has a complaint of such discrimination shall have the right to seek redress under the Grievance and Arbitration Procedure.

13 Employee Indemnification

13.1 OPG will provide assistance and financial indemnification to an employee who, as a consequence of performing the normal duties of his/her job for OPG, is made, or threatened to be made, a party to a civil action or a criminal proceeding (other than for offenses under the Criminal Code of Canada) or quasi-criminal proceeding, or other administrative proceeding (such as formal complaint filed with the Human Rights Commission), or is subject to a threat of discipline or actual discipline from an association that is empowered by statute to regulate professional standards.

Notwithstanding the above paragraph, OPG will not provide financial indemnification to an employee considered by OPG to have acted with dishonesty, bad faith, or with intentional or reckless disregard for the best interests of OPG.
An employee who is subject to prosecution under criminal law (Criminal Code of Canada) as a consequence of performing the normal duties of his/her job and found to be not guilty, or against whom charges have been dropped, may receive financial indemnification. More details are found in the OPG policy.

14 Voluntary Recognition Agreement Disputes

14.1 Enforcement

The primary method of enforcement of the Voluntary Recognition Agreement shall be pursuant to the grievance and arbitration provision in this Collective Agreement. However, should the Collective Agreement not be in operation or applicable to the dispute, either party shall have the right to refer to final and binding arbitration any differences between the parties arising from the interpretation, application, administration or alleged violation of the Voluntary Recognition Agreement, including any question as to whether a matter is arbitrable.

Subject to the conditions of this Agreement, if a mediator or arbitrator is not appointed within 30 days of a matter being referred to mediation and/or arbitration, either The Society or OPG shall have the right to refer the matter to the Minister of Labour (provincial or federal) or the Chief Justice of the Ontario Court of Justice and the Minister or Chief Justice shall appoint a mediator and/or arbitrator. The arbitrator will have the power accorded under the Ontario Labour Relations Act and the Canada Labour Code.

14.2 Selection of Mediators and Arbitrators

Mediators and arbitrators shall be selected from the list of mutually acceptable persons which include those set out below and the costs of using them will be shared equally by OPG and The Society.

List of Mediators and Arbitrators (incomplete)

The parties submit the following individuals to be used as mediators/arbitrators if mutually agreed to:

Kevin Burkett  
Pamela Picher  
Michel Picher  
Robert Howe  
Professor Ken Swan  
George Adams  
Jane Devlin
15 Collective Agreement Negotiation Disputes

Future contract negotiations disputes shall be resolved by binding arbitration.

The dispute resolution process shall be mediation-arbitration using the same individual as both the mediator and arbitrator. The negotiating process is set out in full in Appendix VII.

The mediator-arbitrator shall consider the following issues as relevant to the determination of the award on monetary issues:

a) a balanced assessment of internal relativities, general economic conditions, external relativities;

b) OPG’s need to retain, motivate and recruit qualified staff;

c) the cost of changes and their impact on total compensation;

d) the financial soundness of OPG and its ability to pay.

A mediator-arbitrator shall have the power to settle or decide such matters as are referred to mediation-arbitration in any way he/she deems fair and reasonable based on the evidence presented by representatives of OPG or The Society in light of the criteria in items (a) to (d) and his/her decision shall be final and binding.

16 Complaint and Grievance/Arbitration Procedure

16.1 Preamble and Principles of Operation

The following dispute resolution procedure consists of three steps: a complaint process (Step 1), a Joint Grievance Resolution Committee (JGRC) (Step 2) and an expedited or regular arbitration (Step 3A or 3B). These processes will be used by the Parties in order to resolve complaints and grievances submitted by Society-represented staff, The Society, or OPG unless the parties have expressly agreed elsewhere in this Agreement on alternate dispute resolution processes to limit the scope of the grievance/arbitration procedure.

Early discussions and resolutions at the lowest level possible are encouraged because this leads to addressing issues before a grievance is lodged, and are key to maintaining a positive working relationship.

The Parties recognize the need to share information and openly discuss options for resolution at all levels of the complaint and grievance process. This is to ensure a common understanding of all the facts and will enhance the chance of a mutually acceptable resolution. It is understood that proposals for settlement discussed during Steps 1 and 2, or during attempts at mediated resolutions, will not prejudice either party at the arbitration stage.
This process should have the flexibility to respond to the advantages gained through a problem-solving approach to dispute resolution.

This process is designed to be simple, efficient, and understandable for all parties involved.

16.2 Definitions

a) Employee Complaint

An employee complaint is a claim of unfair treatment that an employee has requested The Society to present on the employee's behalf. An employee complaint, which does not meet the criteria of an employee grievance, shall not be subject for the grievance/arbitration procedure.

b) Employee Grievance

An employee grievance is defined as any dispute between OPG and The Society arising from the application, administration, interpretation or alleged violation of the Collective Agreement, or unreasonable exercise of Management discretion in the administration and application of the Collective Agreement. An employee grievance shall be filed at Step 2, normally following consideration of an employee complaint at Step 1.

c) Group Grievance

A Group grievance is defined as any dispute between OPG and The Society arising from the application, administration or alleged violation of the Collective Agreement, or unreasonable exercise of Management discretion in the administration and application of the Collective Agreement relating to the same dispute by more than one employee. A Group grievance shall be filed at Step 2. Grouped complaints will normally be considered at the Complaint Step if the employees report to a single supervisor.

d) Policy Grievance

A Policy grievance is defined as any dispute between OPG and The Society arising from matters of application, administration, interpretation, or alleged violation of the Collective Agreement. A policy grievance shall be filed at Step 2, and must be filed within 60 days after the circumstances giving rise to the grievance have come or ought to have reasonably come to the attention of The Society.

e) Management Grievance

OPG may present to the Joint Society-Management Committee any complaint with respect to the conduct of The Society. If such
a complaint is not resolved, it may be treated as a grievance and referred to arbitration under the provisions of this Article.

16.3 Scope Notes

Job evaluation complaints shall be processed in accordance with this Article.

Disputes concerning Article 90 “Authority to Stop Work” relating to the Occupational Health and Safety Act or Part II of the Canada Labour Code will normally be referred to the Ministry of Labour consistent with Article 91 “Health and Safety Disputes”.

The scope of the Complaint and Grievance/Arbitration process includes policies listed in Article 97 “Status of Certain Policies and Procedures”.

The grievance/arbitration procedure may be used to challenge any unreasonable, arbitrary or bad faith action taken by OPG which results in the exclusion of any employee or position from the bargaining unit. The Parties will attempt to resolve disputes expeditiously. The Society may initiate an unresolved dispute as a Policy Grievance.

16.4 Timeliness

The grievance procedure shall proceed without unnecessary delay. It is recognized that in some cases strictly enforced time limitations may interfere with a mutually acceptable process of fact finding or problem resolution. However, either Party may invoke a time limitation upon five (5) days’ written notice to the other Party. Except by mutual agreement, time limits for initiating a complaint/grievance, however, must be adhered to.

16.5 Step 1: Employee Complaint

a) A Society Unit Director or Delegate must file an employee’s complaint with the complainant’s supervisor within 30 working days of the date the employee should reasonably have been aware of the action or decision-giving rise to the complaint. The Society Office will provide a form outlining the grievor’s complaint, proposed resolution and identifying the employee’s Society representative. Management’s representative will be identified by the local Human Resources Office.

b) Employee complaints must normally be raised with the employee’s supervisor and/or Society Delegate and every effort should be made to resolve it informally. OPG will provide independent facilitation where the Parties agree that this is a reasonable approach to resolving the complaint.

c) Where mutually agreeable, The Society may initiate an employee grievance arising from disciplinary suspension or discharge directly at Step 2. Benefits grievances shall be initiated at Step 2.
d) Local management and The Society representative will meet to attempt resolution within ten (10) working days of the date that the complaint is filed. Where mutually agreeable, the employee may attend the Step 1 meeting. Any resolution at Step 1 will be without prejudice and will not constitute a precedent in any other matter between the Parties except by written agreement.

16.6 Step 2: Meetings of the Joint Grievance Resolution Committee

a) The Society may file an employee grievance at Step 2, within ten (10) working days of the Step 1 meeting. A Policy grievance shall be initiated at Step 2. A grievance must be filed by letter from a Vice-President of The Society, or designate, to a management designate. This letter will outline the grievance and proposed resolution. Management will keep The Society apprised at all times as to the management designates for the purposes of receiving Step 2 letters.

b) Prior to 2nd Step the Parties will use their best efforts to identify the issue(s), the basis of the grievance and areas of agreement and disagreement. One week before each Step 2 meeting, the parties will exchange briefs outlining the issues, providing the facts and information relevant to the grievance, and containing proposals for settlement of the grievances scheduled for the meeting.

c) The parties will form a standing Joint Grievance Resolution Committee that will meet on a pre-booked, bi-monthly basis. Each party will appoint two standing members to this Committee. These appointees must be representatives with decision-making authority.

d) A Step 2 grievance may be resolved by written agreement of the JGRC. Such resolution shall be final and binding on the Parties. The JGRC may, on consensus, refer a grievance back to local parties for resolution with additional guidance and/or information. Nevertheless, if resolution is not achieved before the date of the next Step 3A meeting, the grievance will be automatically referred to arbitration.

16.7 Step 3 - Grievance Mediation and/or Arbitration

a) Where resolution is not achieved at Step 2, the Society may refer a grievance to Step 3A (expedited arbitration) or Step 3B (regular arbitration) within 30 working days. Grievances not referred within the time limits above shall be considered to be withdrawn.

b) Grievances will advance to expedited mediation/arbitration (Step 3A) unless based on:
   - Termination or Discipline
   - Harassment or discrimination
   - Policy Grievances
Grievances excluded per the above will proceed to regular Arbitration unless both parties agree that the expedited process is appropriate.

c) In all cases a single Mediator and/or Arbitrator will be used. The parties will agree, on an annual basis, to arbitrators for both the expedited (Step 3A) and regular (Step 3B) arbitration procedures, and may on joint agreement engage other arbitrators on a case by case basis. A back up arbitrator will be agreed on for the Step 3A process.

d) The parties will agree on a special arbitrator to hear all grievances related to benefits.

e) Dates will be arranged as follows:
   - expedited mediation/arbitration will be scheduled, in advance, bi-monthly
   - regular arbitration hearings will be scheduled, in advance, tri-monthly

f) For expedited Arbitration, the parties will exchange briefs one week prior to the Hearing, with a copy to the Arbitrator, outlining their respective positions and proposed resolution. Normally no witnesses will be called unless the Arbitrator so directs. The parties may submit a joint statement of facts. The arbitrator’s award shall be delivered within 10 working days following the hearing. Each Party shall assume its own costs of the arbitration proceedings and shall share equally the cost of the arbitrator.

g) If either party requests an arbitrated outcome at Step 3A, this will be the joint direction to the mediator/arbitrator. Failure to achieve a mediated settlement will not be a consideration in any way at the subsequent arbitration.

h) An arbitrator shall consider any difference which arises between the parties relating to the interpretation, application or administration of this Agreement, including any question as to whether a matter is arbitrable, or where an allegation is made that this Agreement has been violated. An arbitrator shall also consider any matter of interpretation, application, and administration of policy and practice as may be referred to him/her by employee grievance. An arbitrator shall consider only such evidence as is presented to him/her by representatives of OPG or The Society.

i) The arbitrator shall have the power to settle or decide such matters as are referred to him/her in a fair and equitable manner, and the arbitrator’s decision shall be final and binding. An arbitrator shall not have the power to amend or terminate this Agreement, policies, or procedures save only any policies and procedures which may conflict with the terms of this Agreement.
### 16.8 Employment File

a) Documents communicating discipline and discharge will be maintained in the employee’s official employment file (normally 901 file).

b) Unless otherwise agreed to, after documents communicating discipline have been on an employee’s file for a maximum of two years, and there have been no further disciplinary occurrences, then the documents communicating discipline will be removed.

### 16.9 Society Representatives

A Society representative will be granted reasonable time off from normal duties and have normal base earnings maintained while acting as a Society representative in any of the steps of the grievance procedure or when required by Management to be a participant in arbitration proceedings under Articles 16 “Complaint/Grievance Arbitration Procedure”, 19 “Job Challenges”, 20 “Performance Appraisals and reduced Pay Standing Complaints”, and 64 “Employment Continuity”. Requests for time off will be made to the employee’s supervisor.

### 16.10 Mediators/Arbitrators

The following are agreed to arbitrators under Article 16. With mutual agreement the parties may use other arbitrators who are not found on these lists:

<table>
<thead>
<tr>
<th>Expedited Arbitration</th>
<th>Regular Arbitration</th>
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<tbody>
<tr>
<td>- Jules Bloch</td>
<td>- Owen Shime</td>
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<tr>
<td>- William Kaplan</td>
<td>- Ken Swan</td>
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<tr>
<td>- Owen Shime</td>
<td>- Louisa Davie</td>
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<td>- Chris Albertyn</td>
<td>- Jane Devlin</td>
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<td>- George Surdykowski</td>
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<td>- Rob Herman</td>
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### 16.11 Expediting Redeployment Grievances and Arbitrations

#### 16.11.1 Complaint and Grievance Procedure

a) This Article, Expediting Redeployment Grievances and Arbitration, applies to grievances arising from the administration of Employment Continuity provisions of the Collective Agreement (Article 64.3), including the redeployment process in each Unit of Application, non-selection to positions in the mix and match and non-selection of employees entitled to priority placement in the search/notice period, and to decisions of JROTs.

b) Except as specified in this Article 16.11 Expediting Redeployment Grievances and Arbitration, all provisions and practices established in
relation to the Complaint and Grievance/Arbitration Procedure apply to these grievances.

c) An employee’s complaint must be submitted no later than 20 working days after completion of the Mix and Match, e.g. final approval of the JRPT Second Report or equivalent, the JROT decision, or the selection process that includes the decision he/she feels is unfair.

d) At Step 1 of the grievance procedure, The Society will submit complaints within the scope of Article 16.11 Expediting Redeployment Grievances and Arbitrations to the relevant JRPT, JROT, and/or line management through Labour Relations. Management and The Society will be given 10 working days to attempt to resolve the grievance. The Society’s position on the grievance is not prejudiced by that of Society members of JRPTs or JROTs.

e) Failing resolution at Step 1, The Society may advance the grievance to Step 2 of the grievance procedure within a further 10 working days.

f) The Parties will appoint regular and backup members to at least one Standing Redeployment Grievance Team, which will act as a Second Step Grievance Committee according to the terms of the Collective Agreement. The Committee will meet within ten days of a grievance being filed to attempt to resolve the grievance.

g) Failing resolution at Step 2, The Society may refer the grievance to arbitration within 20 working days. The Parties will designate and retain one arbitrator for grievances under Article 16.11 Expediting Redeployment Grievances and Arbitrations.

16.11.2 Arbitration

a) The parties will review case by case the appropriateness of the following expedited arbitration process for grievances arising from the Expedited Redeployment Grievance process.

b) An arbitrator acceptable to the parties, will be retained as arbitrator for Employment Continuity grievances and he will be asked to deal with agreed-upon cases according to the terms (c) below. The arbitrator shall control the proceedings and retain jurisdiction to require further submissions of fact or argument as he deems necessary to determine the matter.

c) The expedited arbitration process will require the following:

i. each grievance can be heard on one day, more than one grievance may be scheduled per day subject to the arbitrator’s direction.

ii. the parties will prepare and sign a Joint Statement of the facts giving rise to the dispute, the facts in dispute (to the extent practicable), and any agreement as to the issues to be decided by...
the arbitrator. The Joint Statement must be developed prior to scheduling the hearing date.

iii. each party will present three copies of a Case Statement at the outset of the hearing. The Case Statement will state the issues to be determined, the facts on which the party relies, and a summary of the position of the party, supported by documentary exhibits and references to the Collective Agreement, jurisprudence or other authorities.

iv. witnesses may be called where the arbitrator rules that there is a material factual dispute and determines which parts of the evidence sought to be called appear relevant and material to the determination of the grievance. Witnesses will be under oath and subject to examination and cross-examination.

v. oral argument will be limited to the position of the party set out in the Case Statement and the rebuttal of the other party’s argument.

vi. the arbitrator will determine the matter as soon as possible, with a written decision issued to the parties within ten working days of the hearing date. Failure to meet a time limitation under this process will be deemed a technicality that does not invalidate the proceedings or the award.

d) Where the parties do not agree that a case is appropriate for this procedure, it will be dealt with by the same arbitrator as a conventional referral to arbitration.

17 Discipline and Discharge

17.1 No employee, except as noted below, shall be disciplined or discharged without just cause.

When disciplining or discharging probationary employees for just cause, it is recognized that the probationary period is an extension of the selection process and that these employees have short service. Therefore, the threshold for discipline and discharge may be less than that of a regular employee in similar circumstances.

17.2

17.2.1 Prior to the imposition of any disciplinary penalty, the employer shall conduct a disciplinary interview.

17.2.2 Where an employee is required to participate in an interview in circumstances where discipline is likely to follow for such employee, the employee shall be advised of his/her right to have a Society representative present, and to have such a representative present during the interview if he/she chooses.
17.3 The employer shall provide the Society Unit Director and the employee with an email or written notice two (2) business days in advance of any interview where discipline is likely to follow for such employee. Such notice shall indicate:

a) his/her right to be accompanied by a Society representative;
b) the purpose of the meeting including a general outline of the issues;

An email notice will be sent to the Society Office. This shall be considered a confirmation of receipt of the notice above.

17.4 Disciplinary penalties resulting in a suspension without pay will not be imposed until a final decision (agreement between the Society and Management, or an arbitrator's decision) has been reached.

The above is contingent upon the following:

a) The case is heard at the next JGRC, respecting timelines for brief exchange
b) If unresolved, heard at the next available arbitration date

18 Principle and Process of Prior Involvement in Jurisdictional Issues/Disputes

18.1 OPG should advise The Society and provide an opportunity for its involvement at the appropriate organizational level (e.g., OPG, Business Unit, Division, Station) prior to making any final decision which could adversely affect The Society’s jurisdiction.

The Society’s jurisdiction may be adversely impacted by an organizational or operational changes, including technological changes, workload changes, and business process re-engineering. The Society’s jurisdiction is adversely impacted by any assignment of functions customarily done by Society-represented employees to persons or employees outside of its bargaining unit and/or reduces the proportion of work customarily performed by Society-represented employees relative to that done by persons or employees outside of its jurisdiction.

18.2 Prior to making a final decision that could adversely impact The Society’s jurisdiction, at the request of either party, OPG will establish a joint team with The Society which will review relevant facts and issues. In the event that the jurisdiction of another union is affected by this decision, The Society and OPG will strive to include a representative of this union in the review team. The criteria considered by the joint or tripartite review team will include the following:

- representational rights
- skill and training
- safety
- economy and efficiency
The parties agree to make their best efforts to reach consensus on issues affecting The Society’s jurisdiction which will form the basis of recommendations to Senior Management.

In the event that consensus is not reached on issues affecting The Society's jurisdiction or Senior Management rejects the joint/tripartite team’s recommendation(s), OPG will make the final decision and will provide written rationale for the decision to The Society.

The principle and process set out in 18.1 to 18.4 are not grievable with the exception of OPG final decision. The recommendations of joint tripartite teams are without prejudice and cannot be relied upon at grievance/arbitration or before any labour relations board.

19 Job Challenges

Job Challenge disputes not resolved through the normal process or through the process outlined below will be subject to the Arbitration provisions (Step 3) of Article 16 of the Collective Agreement, for final and binding resolution.

19.1 Employee Initiated Job Reviews

a) An employee or group of employees may request a job review through The Society, indicating a desired rating for the position(s) in question along with a justification for the new rating.

b) Management has 30 days from the date of the request to decide whether to perform a job review. If management agrees to perform a job review then it must complete the job review within 60 days of the date of agreement.

c) If management decides not to perform the job review, or the job review results in a classification unsatisfactory to the employees involved, the Society may file a grievance within 10 working days of the communication of the decision. All such grievances will be filed at Step 2 of the Society/OPG grievance procedure contained in Complaint and Grievance/Arbitration Procedure in Article 16 of the Collective Agreement.

d) In the case where a grievance is filed, the parties commit to have a fact-finding pre-meeting to share information and discuss possible resolutions. The parties, with the aid of job evaluation experts, will exchange information on out-standing job challenges.

e) If there is no resolution of the grievance, a Step 2 meeting will be held on the next regularly scheduled standing Step 2 meeting (as specified in the Complaint and Grievance/Arbitration Procedure in Article 16 of the Collective Agreement.)
Any unresolved issues will proceed through the grievance/arbitration process in the Complaint and Grievance/Arbitration Procedure in Article 16 of the Collective Agreement at Step 3.

20 Performance Appraisals and Pay Standing Complaints

20.1 Complaints concerning the interpretation or application of Article 21 ("Performance Appraisal Feedback and Advanced Warning of Reduced Pay Standing") and any warning of reduced pay standing may be processed through the grievance/arbitration procedure in accordance with Article 16.

20.2 Complaints concerning any disagreement of the assessment in an employee's performance appraisal will be heard through an internal resolution process. This process consists of the following three consecutive steps:

Step 1: After a 24 to 48 hour buffer period of receiving the assessment, an employee who disagrees with the assessment should meet with his/her supervisor to attempt to resolve the disagreement.

Step 2: Failing resolution at Step 1, the employee should meet with his/her supervisor, the second-level supervisor and the Human Resources Officer. The Society Delegate (or his/her alternate) may attend this meeting if the employee wishes.

Step 3: Failing resolution at Step 2, if the employee wishes to continue the process, he/she and his/her direct supervisor will make a presentation to the Line Director and The Society Unit Director (or his/her alternate). The Line Director and The Society Unit Director will make every effort to resolve the problem within five (5) working days of the presentation. If a joint resolution cannot be reached, the performance assessment, which includes the employee's comments, will stand as a record of that year's appraisal.

The parties shall endeavour to resolve issues at the lowest possible level.

21 Performance Appraisal Feedback and Advanced Warning of Reduced Pay Standing

21.1 Principles

21.1.1 Supervisors are expected to ensure all employees understand what is expected of them, encourage ambitious goal setting, stress accountability for results, and tolerate honest mistakes but not poor performance.

21.1.2 The Performance Appraisal process will be conducted in an atmosphere of mutual respect and empathy to encourage a positive two-way communication session. The employee should be given adequate notice and time to prepare.
21.1.3 The supervisor will endeavour to provide recognition to employees commensurate with contribution and performance. Performance expectations should be guided by the job document, work program of the unit and the employee's length of service in the job.

21.1.4 The supervisor should communicate on an ongoing basis and counsel the employee toward improved performance. Also, opportunities for improvement, training, performance counseling, assistance and sufficient opportunity and time to raise performance to the level required, should be part of the building blocks for the future.

21.1.5 The employee is responsible for recognizing that a problem exists and making a joint commitment to improve performance, or to jointly look at other alternatives, such as job skill match, etc.

21.2 Every employee has the right to an annual assessment with written feedback of his/her work over the preceding twelve (12) months.

21.3 Employees must be provided with a written record of the performance appraisal. Employees should receive written confirmation that the performance appraisal has taken place.

21.4 If an employee's performance may result in a reduction in step on the band, the employee will be given written notice at least six (6) months in advance of any contemplated action, setting out as precisely as possible:

  a) the unsatisfactory performance;
  b) what is required to rectify the unsatisfactory performance;
  c) the actions that may be taken if improvement does not occur.

22 Role of Supervisors

22.1 As members of OPG managerial staff, supervisory employees have a role to play in the resolution of disputes in their work units before they reach the grievance/arbitration procedure. In the event that a dispute reaches the grievance/arbitration procedure, The Society agrees not to discriminate against supervisors who represent Management in Society grievances.

22.2 The Society will exclude supervisors directly involved in a particular grievance from the decisions on the referral of the grievance through the grievance/arbitration procedure. Supervisors will not act on behalf of The Society in matters associated with a particular grievance where the grievance has been lodged by another member(s) who reports to the particular supervisor.
23 Salary Schedules and Progression

23.1 Salary rates shall be in accordance with Salary Schedules 01, 02, 03, 04, 05, 08, 09, 11 and 12 that are part of this Agreement.

The top of the band for Salary Schedules 03 and 09 is the cap for all employees except for grandfathered employees. Similarly, no employee shall be placed below the initial step of the bands.

23.2 Employees hired on or after January 1, 2006 will be placed directly on the applicable Salary Schedule (03 or 09) and annual progression shall be in accordance with Article 23.7 and 23.9. For greater clarity, all employees who are either hired into or enter a Progression-In-Place Plan position on or after January 1, 2006 will be placed on the MP-4 band.

23.3 Those employees at or above 103% at the time of placement on the bands, in 2007, will be green circled. For greater clarity these employees will be entitled to all negotiated economic increases.

23.4 The Salary Schedules shall be increased effective January 1, 2011 by 3.0%.

23.5 The Salary Schedules shall be increased effective January 1, 2012 by 2.0%.

23.6 The Salary Schedules shall be increased effective April 1, 2012 by 1.0%.

23.7 Employees on Schedules 03 and 09 will normally progress from step to step on an annual basis on the date they were placed on the Band/Step unless otherwise specified in this Article.

The annual progression dates for employees are set as follows:

a) Employees who were transitioned to Salary Schedules 03 and 09 in January 2007 as set out in Article 23.4 in the 2006-2010 Collective Agreement will have their progression date set to the date of transition.

b) Employees placed on the bands in 2006 per LOU #177 (Treatment of Schedule 04 Management and Professional Trainees) will have their progression date set per LOU #177.

c) Hire dates will be used for employees hired on or after January 1, 2006.
d) Not withstanding Article 23.7 a), b) and c) above, job changes resulting in a change of step and/or band will reset the annual progression date to the effective date in the position.

23.8 Movement through the band can be restricted where:

a) the employer demonstrates a performance problem. For clarity progression restrictions are grievable;

b) for employees who are in a Progression-In-Place they will not be able to progress beyond the Qualifying Accomplishment Step unless they have met the Qualifying Accomplishments;

23.9 Movement through the band can be accelerated where management deems it appropriate.

23.10 Band N (Nuclear Operations) Payroll are excluded from the above noted provisions save and except for applying the indicated base salary increase on the same dates as identified in 23.4, 23.5 and 23.6.

24 Escalator Clause

24.1 In the event that Ontario Power Generation and the Society negotiate a Collective Agreement for a term of more than one year, a Cost of Living Adjustment (COLA) escalator clause shall become part of such an Agreement and shall be applicable to all employees covered by that Agreement.

24.2 During the term of the Agreement, (January 1, 2011 to December 31, 2012), apply the following formula:

1. This escalator clause may generate a maximum of two lump sum payments, as soon as practical following December 31, 2011 and December 31, 2012.

2. From January 1, 2011 to December 31, 2011, the following formula shall apply:

   a) An increase of more than 3.0% in the Ontario All Items index (1992 = 100) published by Statistics Canada in November, 2011 (published in December, 2011) over the index for November 2010 (published in December 2010) will activate the escalator clause.

   b) The lump sum payment will be an amount equivalent to the amount by which the increase in the Index exceeds a full 0.5% increment over the activation point specified in (a) above in the 12 month period specified in (a) above. But in no case shall...
the amount of such increases exceed 1%. For further clarity lump sum payments shall be in increments of 0.5% only.

e.g.  Annual Index = 3.4%, payment = 0.0%;  
      Annual Index = 3.7%, payment = 0.5%  
      Annual Index = 4.1%, payment = 1.0%

3. **From January 1, 2012 to December 31, 2012**, the following formula shall apply:

   a) An increase of more than 3.0% in the Ontario All Items index (1992 = 100) published by Statistics Canada in November, **2012** (published in December, **2012**) over the index for November **2011** (published in December **2011**) will activate the escalator clause.

   b) The lump sum payment will be an amount equivalent to the amount by which the increase in the Index exceeds a full 0.5% increment over the activation point specified in (a) above in the 12 month period specified in (a) above. But in no case shall the amount of such increases exceed 1%. For further clarity lump sum payments shall be in increments of 0.5% only.

   e.g.  Annual Index = 3.4%, payment = 0.0%;  
      Annual Index = 3.7%, payment = 0.5%  
      Annual Index = 4.1%, payment = 1.0%

24.3 In the calculation of fractions, the simple 5/4 method of rounding will be used. That is, .00001 to .00499 rounds down and .00500 to .00999 rounds up. This rounding methodology is to be used in the calculation of wage rates.

The availability of the escalator shall depend upon the continued availability of the Index calculated on its present base and in its present form. If the Index is not available, the parties will meet and agree on an appropriate alternative conversion of the Index.
## Compensation & Benefits

Effective: January 1, 2011

Note: This schedule is applicable to positions established as having a 35-hour basic workweek.
### SALARY SCHEDULE 09

#### STANDARD 40 HOURS PER WEEK SCHEDULE

**DOLLARS PER WEEK**

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**Note:** This schedule is applicable to positions established as having a 40-hour basic workweek.

**Compensation & Benefits**

**Effective:** January 1, 2011
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**Note:** This schedule is applicable to positions established as having a 35-hour basic workweek.

**Effective:** January 1, 2012

**Compensation & Benefits**
## ONTARIO POWER GENERATION INC.

### SALARY SCHEDULE 09

#### STANDARD 40 HOURS PER WEEK SCHEDULE

#### DOLLARS PER WEEK

#### SALARY BAND

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**Note:** This schedule is applicable to positions established as having a 40-hour basic workweek.

**Effective:** January 1, 2012

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**Filed:** 2014-03-19
**EB-2013-0321**
**Exhibit L**
**Tab 6.8**
**Schedule 17 SEC-107**
**Attachment 2**
## SALARY SCHEDULE 03

### STANDARD 35 HOURS PER WEEK SCHEDULE

**Dollars Per Week**

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**Note:** This schedule is applicable to positions established as having a 35-hour basic workweek.

**Effective:** April 1, 2012
### Salary Schedule 09

**Standard 40 Hours Per Week Schedule**

**Dollars Per Week**

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**Note:** This schedule is applicable to positions established as having a 40-hour basic workweek.

**Effective:** April 1, 2012
25.1 Individuals with advanced degrees or some applicable experience may be given an appropriate time credit when they are placed on either step 1 or 2 of the MP 2, MP 3 or MP 4 bands.

25.2 Management may appoint individuals to a regular position upon successful completion of Step 2. Such individuals will be given a letter (copy to the Society) six (6) months prior to the completion of the training program indicating the location of their final appointment.

25.3 Employees who have reached Step 3 and have not yet been appointed to an M&P or FM&P job will be treated as special cases to be dealt with on an individual basis by line management.

25.4 Progression from step 1 to step 3 of MP2, MP3 or MP4 will be dependent upon satisfactory performance. A progression step may be withheld where OPG can demonstrate unsatisfactory performance. In such cases the employee's performance will be reviewed in six months and, if performance has been satisfactory, the employee will progress to the next step. If progression must be withheld due to unsatisfactory performance for a twelve month period, there may be cause for termination. If the employee's performance is satisfactory for one year following the withholding of a progression step the employee will be awarded any withheld step increase, thus restoring his/her original progression pattern.

25.5 An absence greater than one month due to illness, pregnancy, parental leave, etc., may result in an extension of a step in the progression process. The original progression dates may be reinstated if satisfactory progress can be shown to have been made during an extension period.

25.6 Vacation provisions that apply to M & P staff will also apply to employees on steps 1 or 2 of either the MP 2, MP 3 or MP 4 Bands.

25.7 Articles contained in Part XI (Relocation Assistance) will apply to employees paid from Steps one or two when they are appointed to an M&P or FM&P job or are progressed to Step 3 on either the MP 2, MP 3, or MP 4 bands.

25.8 Eligibility for other benefits and allowances which apply to regular staff will be granted to employees on steps one or two when they are granted regular employee status.

25.9 Shift compensation rates for developmental staff are as follows:
For work on Saturdays and Sundays:
In 2011: $20.76/hour worked
January 1, 2012: $21.18
April 1, 2012: $21.39

For work on statutory holidays:
In 2011: $41.52/hour worked
January 1, 2012: $42.35
April 1, 2012: $42.77

Beyond December 31, 2012 the shift premiums are subject to the same general base wage increases that are applied to wage schedules.

25.10 Student employees will be paid at either Step 1 or 2 of the MP 2 Band.

26 FM&P Salary Schedule 02
This Article has been deleted

27 Office Supervisory and Services (OSS) Salary Schedule 05
This Article has been deleted.

28 Trades Management Supervisors/Trades Supervisors (TMS/TS) Salary Schedule 08
This Article has been deleted

29 Short-Term Absences
Payment for short-term absences (e.g., vacation, sick leave) will be based on the normal rate paid for scheduled job hours, except as stated elsewhere in this Agreement.

30 Article 30 has been deleted

31 Job Evaluation Plans
Job evaluation plans which are used to rate Society-represented jobs form part of this Collective Agreement. These plans are:

31.1 Plan A (revised January, 1988), used to classify all M&P jobs;
31.2 Field Management and Professional Job Evaluation Plan (revised July, 1988), used to classify all FM&P jobs;

31.3 Trades Management Supervisors Job Evaluation Manual (April, 1986), used to classify all TMS jobs;

- TMS Job Evaluation Manual - delete criteria “(a) qualify for exclusion from union jurisdiction” on page 2.
- The parties agree that the Trades Management Supervisors Job Evaluation Plan will be deleted effective January 4, 2007
- The parties recognize that Trades Management Supervisor (TMS) positions that were moved to Schedule 09 on January 4, 2007 are struck rates and neither party will seek to re-evaluate these positions under the current Plan A and further that these positions cannot be used as benchmarks for M&P jobs.

32 Re-earnable Incentive Plan

This Article has been deleted.

33 Progression-In-Place Plans

33.1 Definition

A “progression-in-place plan” (PIP) means a developmental plan involving a hierarchy of related jobs, in which employees who meet defined criteria will be progressed without advertising, and where it is the normal expectation that employees will reach the end position.

33.2 Principles

33.2.1 The Society should be involved in the development and periodic review of PIPs.

33.2.2 Either The Society or Management may initiate discussions on PIP proposals.

33.3 Conditions

33.3.1 All new and revised PIPs must have the joint agreement of the JSMC. During the term of the Collective Agreement, a catalogue of existing PIPs will be developed and the JSMC will determine the schedule for their review upon request by either party.
33.3.2 Salary treatment upon progression for employees who are in PIPs and are on Salary Schedule 03 or 09, will be as per Article 23, Salary Schedules, with the exception of progressions from steps 9 to 10 and 11 to 12 which are subject to meeting defined criteria as per 33.4 f).

33.3.3 Employment continuity treatment of employees with respect to PIPs will be in accordance with Article 64.11, Employment Continuity.

33.3.4 Vacancies for PIP jobs will be advertised in accordance with Article 65.6.1 (e).

33.3.5 All jobs in a PIP must be evaluated under the applicable job evaluation plan.

33.4 Standard Features

All PIPs must have the following features:

a) based on a developmental plan to an end position;

b) based on the expectation that normally employees in PIP jobs will reach the end position;

c) a sunset clause;

d) joint Society-Management Agreement on progression criteria consistent with the PIP;

e) For employees on annual step based progression: progression from steps 9 to 10 and 11 to 12 within PIP is based upon the employee meeting defined criteria (e.g., performance measures, experience, breadth of assignments). For employees who meet the defined criteria for progression to step 10 or 12 prior to reaching the indicated step, that employee will not be required to re-qualify upon reaching said step;

f) targeted to have sufficient staff in the higher level positions for unit viability;

g) specification of the normal expected time period an employee should take to progress through the various stages of the PIP;

h) provision for employees to have a reasonable opportunity to fulfill requirements to qualify for progression within the normal expected time frame.

33.5 There will be separate MP-2, MP-3 and MP-4 designation/Job Documents for all purposes under the Collective Agreement, but employees in a PIP position will be placed on the MP-4 band.
33.6 There will be no promotional increase when an employee is progressed-in-place. Annual progressions are not accelerated nor steps skipped when an employee achieves the Qualifying Accomplishments for transition to the next level of the PIP.

33.7 Employees may be either promoted or hired into a PIP at any step.
34  Temporary Employees

Intent: Temporary employees are employees hired for short-term work assignments which are not ongoing and/or where there are no available qualified regular employees to perform the work. Such work assignments are not expected to go beyond 12 months, but may be extended up to a maximum period of 24 months with The Society's Agreement. The impact on employment continuity should be an important consideration in the decision to hire temporary employees.

34.1  Society Notification

OPG will discuss the circumstances with the local Society representative prior to hiring a temporary employee. The Society will be informed of the job skill needs, the salary classification for the position, the expected job duties, and the duration of the assignment.

Assignment extension beyond 12 months requires the agreement of The Society. At 24 months, OPG will either terminate the employee, advertise the position if there is an ongoing staff requirement, or obtain the agreement of The Society for a further extension. If the position is advertised, and the temporary employee is not selected for the vacancy, the employee will be terminated.

Temporary employees will have their applications for vacancies considered in accordance with Article 65.6.3.

Notwithstanding the above, OPG may utilize a temporary employee for up to 36 months with the approval of the appropriate Society Unit Director.

34.2  Temporary Employees with Less than 12 Months' Service

34.2.1  Compensation and Benefits Treatment

i)  Vacations: payment of the prorated amount of 15 days adjusted earnings or 4%, whichever is greater.

ii)  Statutory Holidays:
      a)  Provincially regulated employees: pay for statutory holidays provided the employee has more than three months' accumulated service.
      b)  Federally regulated employees: pay for statutory holidays provided the employee has more than 30 calendar days' service.

iii)  Floating Holidays: three floating holidays after 20 weeks' continuous service.

iv)  Sick Leave: credits for one-half day at 100% pay for each month of accumulated service.

v)  Semi-Private and EHB Plan: optional at employee's cost.

vi)  Remembrance Day; Personal Time Off; Parental Leave (excluding the SUB Plan); Jury Duty; Special Time Off at Christmas: same as regular employees.

vii)  Kilometre Rates: same as regular employees.
viii) Personal Travel and Accident Benefits: same as regular employees.

ix) Temporary employees are entitled to annual progressions.

34.2.2 Termination

When a temporary employee with less than 12 months' service is terminated for other than cause, he/she will receive at least two weeks' notice in writing.

34.3 Temporary Employees with More than 12 Months' Service

Temporary employees with more than 12 months' service are entitled to sick leave credits equal to eight days at 100% and 15 days at 75% per annum, performance appraisals, Incremental Pay Step, and severance pay equal to two weeks' base salary per continuous year of service. All items in Section 34.2 above, except for 34.2.1 (iv), will also apply to these employees.

34.4 Temporary Employees Working Reduced Hours

Temporary employees who work reduced hours will have the items listed in Sections 34.2.1 and 34.2.2 pro-rated in accordance with the provisions outlined in Article 71 (Reduced Hours of Work).
PART VIII - ABSENCE FROM WORK

35  Paid/Unpaid Time Off

Intent: It is recognized that from time-to-time, an employee will be faced with situations that may require him/her to be absent from his/her work. Such time will be either with or without pay, or a combination of both, and will be granted where there is an entitlement under this Agreement, a clear legal or statutory requirement, or where, in the supervisor's judgment, such time off is warranted by specific circumstances. It is further recognized that it is the employee's responsibility to balance his/her need for a leave of absence with the work requirements of his/her unit.

Where the granting of the absence is discretionary, considerations would include: factors beyond an employee's control that prevent him/her from attending work; severity or nature of circumstance; workload of the unit.

The exact amount of time off is at the discretion of Management; however, the entitlements of employees in specific circumstances include those described below.

35.1  Jury Duty/Required Attendance at Court

For the duration of the Jury Duty, or required attendance at an Inquest or court (subpoenaed witness), the employee's normal base earnings and benefits will be maintained. The employee is responsible for informing his/her supervisor as to the probable duration of the jury duty.

35.2  Funeral Leave

a)  Provincially Regulated Employees

In the event of the death of a family member, including parent, parent-in-law, brother, brother-in-law, sister, sister-in-law, husband, wife, son, son-in-law, daughter, daughter-in-law, grandparents, grandparents-in-law, and grandchildren, an employee may be granted leave of absence with pay. The supervisor will take into consideration the relationship of the deceased, the distance that the employee has to travel, and the need for the employee to attend to arrangements when deciding how much time is to be granted. Usually a period of up to three days is an adequate amount of time. In the event of the death of a fellow employee, time off with pay may be granted to attend the funeral.

b)  Federally Regulated Employees

i)  An employee will be granted leave of absence on any of his/her normal working days during the three days immediately following the death of a member of his/her "immediate" family. Base earnings will be maintained for
employees who have completed at least 3 consecutive months of continuous service.

“Immediate” family shall be as defined in the Canada Labour Code: spouse, including common-law; father and mother of employee; spouse of father and mother, including common-law; children; brothers and sisters; father-in-law; mother-in-law; spouse of father-in-law and of mother-in-law, including common law and relative of employee who resides permanently in the employee’s household or with whom the employee resides.

ii) An employee may be granted leave of absence with pay of up to 3 days in the event of the death of the following family members: brother-in-law, sister-in-law, son-in-law, daughter-in-law, grandparents, grandparents-in-law, and grandchildren.

iii) In the event of the death of a fellow employee, time off with pay may be granted to attend the funeral.

35.3 Medical and Dental Appointments

An employee may attend a medical consultation, receive dental treatment or be absent because of sickness for less than one-half day without reduction of sick leave credits and/or pay.

35.4 Family Care

An employee is entitled to take time off for family care. Normally, up to five (5) days a year may be taken for this purpose. By mutual agreement with his/her supervisor, the employee may pay for this time by using his/her banked overtime, by working back the time over a reasonable period of time, or by taking the time off without pay.

36 Employees Hired as Society Staff

At the request of The Society, a leave of absence may be granted to an employee who is offered a Society staff position. During this period The Society will assume:

- Cost of salary;
- OPG's cost of contributions to the Pension and Insurance Plan, and the LTD Plan;
- The responsibility and cost of providing Health, Dental and Sick Leave Insurance/coverage;
- The responsibility for any other employee contributions related to employee wages and benefits provided by The Society.
At the end of the leave of absence, OPG is obligated to relocate the employee within OPG at a salary classification as close as possible to the position held at the time the leave of absence was granted. An employee on leave will be neither advantaged nor disadvantaged in a surplus situation.

37 Release of Society Representatives

Note: Please also see Letter Re: Clarification of Article 37 in Appendix XIV.

37.1 Intent

OPG will grant elected Society representatives reasonable paid time off from normal duties for purposes of involvement in joint processes and business related to Society/Management relations under this Agreement.

OPG recognizes and appreciates the dual responsibility employees elected to hold Society office have to their job and to Society members. Society representatives and their supervisors (those excluded from The Society) are encouraged to pursue a mutually acceptable and cooperative approach to managing the requirement for absences as a result of this dual role. Management recognizes that the need for time off from normal duties will vary with the position that the employee holds within The Society. The higher up in The Society the more will be the demands for time off.

37.2 Specific Circumstances

37.2.1 Absence from work due to The Society representative's involvement in joint processes, tripartite processes or with respect to other business related to Society/Management relations under this Agreement, should not negatively impact on his/her performance appraisal.

37.2.2 In the expectation that the joint problem solving approach based on the JSMC principles outlined in Article 1.2 will be mutually beneficial to the relationship between OPG and The Society, Management agrees to continue its practice of maintaining base salaries for Society representatives involved in all joint processes up to but not including arbitration unless required by Management to attend.

37.2.3 Society Delegates and members of the Board of Directors will be permitted two (2) days per year at their normal base rates to attend Delegates' Council meetings or for attending Elected Representative training. Members of the Board of Directors will be permitted up to 12 additional days per calendar year at their normal base rates, to attend Society Board meetings.

37.2.4 OPG will release elected Society representatives from their normal duties without pay for other Society business. The Society will
give Management reasonable notice of such releases, and Management will normally release such representatives. From time-to-time there may be unexpected events that prevent such a release, but such situations will be the exception.

37.2.5 When employees are released from their regular positions under this Article, these employees will retain the position they had subject to applicable provisions of the Collective Agreement. In addition, such employees are entitled to such reasonable training or reskilling to return to normal duties as is feasible. In the event a Society representative is declared surplus, Society responsibilities will be factored in for the purposes of clause 64.21.2 (Interruption of Search/Notice Period).

38 Vacations

38.1 Vacation Entitlement

The combination of Vacation Commencement (VCD) plus External Experience Value (EEV) determines service for vacation entitlement for the purpose of this Article.

38.2 Less Than One Year of Service by June 30

One and one-half (1-1/2) days vacation for each full month of service completed between June 30 of the previous year and July 1 of the current year to a maximum of three (3) weeks (15 working days).

38.3 One to Seven Years of Service

Fifteen (15) working days (three weeks) annually when an employee has completed from one (1) to seven (7) years of service by the end of the calendar year.

38.4 From Eight to Fifteen Years of Service

Twenty (20) working days (four weeks) annually when an employee has completed from eight (8) to fifteen (15) years of service by the end of the calendar year.

38.5 For Sixteen to Twenty-Four Years of Service

Twenty-five (25) working days (five weeks) annually when an employee has completed sixteen (16) years to twenty-four (24) years of service by the end of the calendar year.

In the year in which the employee is first eligible for 25 working days’ vacation, he/she shall be granted it in one continuous period if he/she so requests.
38.6 For Twenty-Five or More Years of Service

Thirty (30) working days (six weeks) annually in the calendar year in which an employee completes twenty-five (25) years of service and in each succeeding year.

38.7 External Experience Credit

(Applicable to 4, 5, and 6 Weeks Vacation Entitlement)

38.7.1 Appointments to Positions Paid from Salary Schedules 01, 02, 03, 08, 09, 11 and 12

Employees who were or are hired directly into, or within one year of their ECD were, or are, appointed to a Society-represented position and paid from the new Salary Schedules will receive the following vacation credits for external experience, applicable to four, five, and six weeks vacation entitlement. Credits are based upon the highest salary band attained within one year of hiring and are translated into an External Experience Value (EEV).

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38.7.2 Management and Professional Trainees

An employee hired as a Management and Professional Trainee pursuant to Article 25 will receive one year's vacation credit.²

38.8 Vacation Credit for Prior Service

Employees will be entitled to vacation credits for all prior service, including casual employment, regardless of breaks in service. (See Section 9.3 Transition Provisions of the 2006-2010 Collective Agreement).

38.9 Vacation Without Pay

Up to one week off without pay may be taken by employees for vacation purposes.

¹ Relevant work experience of two years or more is required to receive this credit.
² Relevant work experience of one year or more is required to receive this credit.
38.10 Use of Vacation Credits of Succeeding Year at Christmas

For purposes of taking time off at Christmas (December 15 to December 31), employees will be permitted to utilize earned vacation credits for the succeeding year.

38.11 Banked Vacation

Upon eligibility for 25 working days (five weeks) of annual vacation, employees may defer and accumulate any vacation entitlement beyond 15 days per year. A maximum of 30 weeks' vacation may be banked. Banked vacation may be taken at a later date, subject to the supervisor's approval, or may be taken as a cash payment upon retirement.

38.12 Vacation Bonus

Employees shall receive one day's base pay (or adjusted earnings) for each year of service beyond twenty-five (25) years, to a maximum of ten (10) days' pay.

38.13 Vacation Carryover

Employees will be allowed to carry over two (2) weeks of vacation per year with the approval of the manager. Any such request will not be unreasonably withheld.

38.14 Vacation Entitlement on Retirement/Termination

Retirement

A retiring employee may take part/all of earned vacation for the year in which he/she retires, plus authorized carryover from previous years and banked vacation, or receive cash payment in lieu, plus any vacation bonus.

38.15 Vacation Pay on Retirement/Termination is as follows:

a) If an employee terminates between July 1, and December 31, he/she receives the following:

   i) pay for any unused vacation days earned up to June 30, and not taken during the current calendar year; plus

   ii) 4% of accumulated earnings from July 1, to the date of termination, or the appropriate percentage (determined by vacation entitlement) of base earnings from July 1, to the date of termination; whichever is greater.

b) If an employee terminates between January 1, and June 30, he/she receives the following:
i) 4% accumulated earnings from July 1, to date of termination, or the appropriate percentage (determined by vacation entitlement) of base earnings from July 1, to the date of termination; whichever is greater; minus

ii) vacation taken in the current calendar year.

"Base earnings" in this Section refers to base pensionable earnings for normal scheduled hours of work.

"Accumulated earnings" in this Section refers to base earnings, plus overtime pay, shift allowances, etc.

The appropriate percentages determined by vacation entitlement are as follows:

- 4% of accumulated wages if entitlement is 10 working days or less annually;
- 6% of base earnings or adjusted earnings to date if entitlement is 15 working days annually;
- 8% of base earnings or adjusted earnings to date if entitlement is 20 working days annually;
- 10% of base earnings or adjusted earnings to date if entitlement is 25 working days annually plus any vacation bonus;
- 12% of base earnings or adjusted earnings to date if entitlement is 30 working days annually plus any vacation bonus.

If the reason for termination is the death of an employee, the payment will be made to the estate or beneficiary.

For calculation purposes, the termination date is the employee's last day of work. The employee is removed from payroll on this date.

In cases where the termination is due to causes other than death, the termination date must not be extended to permit use of outstanding vacation credits or lieu days which are paid for in cash on termination.

38.16  Deferment or Interruption of Vacations

38.16.1  Reimbursement will be made for out-of-pocket expenses incurred by an employee who, at the request of OPG,
either defers an approved vacation or returns before the
vacation has expired.

38.16.2 When an employee is called back from vacation or when
an employee's vacation is cancelled at the request of
OPG, the employee shall receive premium rates of pay
for all normal hours worked on cancelled vacation days
for which seven calendar days' notice has not been given
up to a maximum of seven calendar days.

38.16.3 Deferred or interrupted vacation days will be rescheduled
at a later date.

39 Statutory Holidays and Floating Holidays

For federally regulated employees, the parties agree that Article 39 meets the
requirements of Part III, Division V, General Holidays of the Canada Labour Code
and that the Civic Holiday is substituted for November 11 (Remembrance Day).

39.1 The following days are recognized by OPG as statutory holidays:

| New Year's Day | Christmas Day | Good Friday |
| Boxing Day     | Victoria Day  | Labour Day  |
| Canada Day     | Thanksgiving Day | Civic Holiday |
| Easter Monday  | Family Day     |

If a statutory holiday falls on a day when an employee is off on sick leave,
pay is not charged against sick leave credits for that day. A statutory
holiday falling within an employee's vacation period is not counted as part
of the vacation, but is taken as an extra day of holiday.

Payment for statutory holidays will be on the basis of straight time for the
normal hours of work per day.

39.1.1 When Canada Day falls on a Saturday or Sunday, it shall be
observed on the following Monday.

39.1.2 When Christmas falls on a Friday and Boxing Day on Saturday, a
half holiday will be granted on the preceding Thursday. The days
of observance will not be moved.

When Christmas falls on a Saturday and Boxing Day on a Sunday,
a half holiday will be granted on the preceding Friday. Christmas
will be observed on Saturday. Boxing day will be observed on
Monday.

If Christmas Day falls on a Sunday, it shall be observed on
Monday and Boxing Day on Tuesday.

When Christmas Day falls on a Tuesday, Boxing Day shall be
observed on Monday.
When Christmas falls on a Wednesday and Boxing Day falls on Thursday, the Friday following Boxing Day will be granted as an additional holiday. The days of observance will not be moved.

39.1.3 When New Year's Day falls on a Saturday, an additional holiday shall be granted on either the preceding Friday, or the following Monday. The day of observance will not be moved.

When New Year's day falls on a Sunday, it shall be observed on Monday.

39.1.4 Holiday Shutdown

OPG may authorize a shutdown over the Christmas - New Year period. In order to encourage employees to voluntarily take this time off, employees will be allowed to use up earned vacation from the following calendar year in order to cover the shutdown period.

39.2 Floating Holidays

Employees who have completed 20 weeks of continuous service in any calendar year are entitled to three floating holidays. Such days will be taken on dates mutually agreeable to the employee and the supervisor. Floating holidays must be taken in the year they are earned (i.e. there is no carryover for floating holidays).

If an employee terminates after completing 20 weeks of continuous service in a calendar year, OPG will make a cash payment in lieu of any unused floating holiday credits.

If an employee terminates prior to the completion of 20 weeks of continuous service in a calendar year, entitlement is as follows:

- An employee not entitled to floating holidays in the previous calendar year is not entitled to floating holidays in the current calendar year. If an employee has been granted a floating holiday(s), OPG will recover one day's pay for each floating holiday taken.
- For an employee entitled to floating holidays in the previous calendar year, entitlement will be prorated based on the number of weeks of continuous service in the year of termination. OPG will either make a cash payment for any unused floating holiday credit or recover the value of any unearned portion taken.

39.3 Remembrance Day

39.3 Not withstanding article 39.1, the following employees will be eligible for time off and/or payments as described in 39.3.1.

a) Those employees who are serving or have served in the Canadian Armed Forces including those who are currently
active in the reserve component, or who were deployed as part of the Canadian Armed Forces.

39.3.1 Remembrance Day Payment and Time Off Provisions

If on Remembrance Day eligible employees as described in 39.3 a) are:

1. Normally scheduled to work, eligible employees shall be allowed time off with pay, at straight time for scheduled hours as far as work schedules will permit.

2. Scheduled to work and they are required to work, they shall be paid at the rate that normally applies for that day and given equivalent time off with pay, at straight time up to a maximum of normal scheduled hours, within the following six months.

3. Not normally scheduled to work and they are required to work, they shall be paid at the rate normally received for overtime work.

4. Shift workers on a seven-day coverage who are on a regular day off, shall be allowed equivalent time off with pay within the following six months.

40 Unemployment Insurance Commission Rebate

The value of any Unemployment Insurance Commission (UIC) rebate shall accrue to OPG.

41 Pregnancy/Parental Leave

The entitlements in this article are generally described in the brochure "Pregnancy and Parental Leaves – All Society Represented Performance Paid Staff" (April 1, 1999). The Brochure is under revision to reflect the provisions below.

Definitions

Pregnancy leave means a leave of absence of up to 17 weeks for a pregnant employee who has been employed by OPG for at least 13 weeks immediately preceding the expected birth date. Unless provided for in this Article, this leave is without pay.

Parental leave means a leave of absence for an employee who has been employed by OPG for at least 13 weeks and who is the parent of a child. This employee is entitled to a leave of absence following the birth of the child, or the coming of the child into the custody, care and control of the parent for the first time. Unless provided for in this Article, this leave is without pay.
For an employee who takes pregnancy leave, the leave of absence is for a period of up to 35 weeks. For an employee who does not take pregnancy leave, the leave of absence is for a period of up to 37 weeks.

In the event that the Employment Standards Act parental leave provisions are reduced below 35 weeks, OPG agrees to reinstate an extension in the same magnitude as the reduction for all categories in Article 41. The maximum reinstated extension will not exceed 4 weeks.

**41.1 Pregnancy Leave**

a) **Start Date:** Pregnancy leave may begin at any time during the 17 weeks immediately preceding the expected date of delivery.

b) **End Date:** Pregnancy leave normally ends 17 weeks after the pregnancy leave began.

c) **Notice:** The employee must give OPG as much notice as possible and a certificate from a legally-qualified medical practitioner stating the expected birth date. In no case, however, will the employee provide less than two weeks' written notice of the day the leave is to begin.

d) **Reinstatement:** At the end of pregnancy leave, the employee will be eligible to return to the position the employee had prior to the leave, if it still exists, or to a comparable position, if it does not.

e) **Benefits:** OPG will continue to pay the OPG portion of the contributions for Group Dental, Extended Health Benefits, Pension Plan, Life Insurance, and any other type of benefit plan related to the employee's employment as prescribed by the Employment Standards Act for provincially regulated employees, and the Canada Labour Code for federally regulated employees, for the duration of the pregnancy leave, unless the employee gives OPG written notice that the employee does not intend to pay the employee portion of the contributions, if any.

f) **Service Credits:** Employees on pregnancy leave shall be entitled to normal accumulation of service credits for the duration of the pregnancy leave.

g) A pregnant employee may continue to work during a normal pregnancy until such time as the duties of her position cannot be reasonably performed.

h) An employee on pregnancy leave does not qualify for sick leave.

**41.2 Parental Leave**

a) **Start Date:** The parental leave must begin no later than 52 weeks after the day the child is born or comes into the custody, care and
control of the parent for the first time for provincially or federally regulated employees. The parental leave of an employee who takes a pregnancy leave must begin when the pregnancy leave ends unless the child has not yet come into the care and control of the parent for the first time.

b) **End Date**: Parental leave normally ends 35 weeks after the parental leave began for an employee who also took pregnancy leave or 37 weeks for an employee who did not take pregnancy leave.

c) **Notice**: The employee must give OPG as much notice as possible but in no case will there be less than two weeks' written notice of the date the leave is to begin.

d) **Reinstatement**: At the end of parental leave, the employee will be eligible to return to the position the employee had prior to the leave, if it still exists, or to a comparable position, if it does not.

e) **Benefits**: OPG will continue to pay the employer portion of the contributions for Group Dental, Extended Health Benefits, Pension Plan, Life Insurance, and any other type of benefit plan related to the employee's employment as prescribed by the Employment Standards Act for provincially regulated employees, and the Canada Labour Code for federally regulated employees, for the duration of the parental leave, unless the employee gives OPG written notice that the employee does not intend to pay the employee portion of the contributions, if any.

f) **Service Credits**: Employees on parental leave shall be entitled to normal accumulation of service credits for the duration of the parental leave.

g) An employee on parental leave does not qualify for sick leave.

### 41.3 Benefits Under the Supplementary Unemployment Benefit (SUB) Plan

a) In order to be paid a leave benefit in accordance with the Supplementary Unemployment Benefit Plan, the employee:

i) must provide OPG with proof that she/he has applied for, and is eligible to receive unemployment insurance benefits pursuant to the Employment Insurance Act; and,

ii) must be regular and employed by OPG for at least 13 weeks immediately preceding the date of delivery/adoption; and,

iii) must (a) be on pregnancy leave, or (b) be on parental leave.
b) According to the Supplementary Unemployment Benefit Plan, payments will consist of the following:

i) for the first two (2) weeks, payments equivalent to ninety-three percent (93%) of the employee's base pay (pregnancy leaves only, not parental leaves); and

ii) when receiving EI benefits, the employee is eligible to receive payments equivalent to the difference between the EI benefits and ninety-three percent (93%) of the employee's base pay for up to fifteen (15) weeks while on pregnancy leave and for up to three (3) weeks while on parental leave. Where the employee's base salary exceeds 1.5 times the Years Maximum Insurable Earnings, the employee will receive an additional $300 as a lump sum as full compensation if a clawback is required by Canada Customs and Revenue Agency or any other government agency.

iii) where an employee becomes eligible for an annual increment/salary schedule adjustment during the period of pregnancy/parental leave, payments under 41.3(b)(i) and 41.3(b)(ii) shall be adjusted accordingly.

c) An employee who qualifies under Section 41.3(a) shall sign an agreement with OPG providing:

i) that she/he will return to work and remain in OPG’s employ for a period of six (6) months from the date of return to work;

ii) that she/he will return to work on the date of the expiry of pregnancy/parental leave, unless this date is modified with OPG’s consent or unless the employee is then entitled to a leave extension provided for in this Article;

iii) that should the employee fail to return to work as per the provisions of Subsections 41.3(c)(i) and 41.3(c)(ii), the employee recognizes that she/he is indebted to OPG for the amount received under the SUB plan.

PREGNANCY/PARENTAL LEAVES - TIME LINES

*Only maximum entitlements available are shown:

Time lines show maximum lengths of leaves which may be available, providing qualifiers/conditions of specific legislation/agreements/policies are met.
EI Benefits show maximum amounts which may be available. Employees should be referred to the nearest EI Office to determine their specific entitlements.
SUB Plan Benefits show maximum amounts which may be available, providing qualifiers/conditions of specific agreements/policies are met.
PROVINCIAL AND FEDERAL EMPLOYEES

Birth Mothers:

<table>
<thead>
<tr>
<th>Pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 wks</td>
</tr>
<tr>
<td>93%</td>
</tr>
</tbody>
</table>

Plus Parental Leave as outlined below.

All parents who are entitled to Parental Leave and EI benefits in accordance with Employment Standards Act or Canada Labour Code

<table>
<thead>
<tr>
<th>Parental Leave</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 week waiting period (If required*)</td>
</tr>
<tr>
<td>unpaid</td>
</tr>
<tr>
<td>32 weeks maximum</td>
</tr>
</tbody>
</table>

Duration of Parental Leave is maximum 35 weeks if the employee has preceded their Parental Leave with Pregnancy Leave. Otherwise, the maximum is 37 weeks.

* Note: A waiting period is not always required, should parents choose to share parental benefits, the parent filing the second claim would not be required to serve a two-week waiting period. There would be one waiting period per birth or adoption.

All parents who are entitled to Parental Leave in accordance with Employment Standards Act or Canada Labour Code, but who are not eligible for EI benefits

<table>
<thead>
<tr>
<th>Parental Leave (Maximum 35 weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpaid</td>
</tr>
</tbody>
</table>

42 **Sick Leave Plan for employees hired prior to January 1, 2001 or covered by the transition provisions in Article 9.3 of the 2006-2010 Collective Agreement**

42.1 The Sick Leave Plan provides for maintenance of an employee's income when he/she is absent from work due to illness or non-occupational injury.

42.2 Employees are granted 23 days of sick leave a year - eight (8) days at full pay and 15 days at three-quarter pay. These grants accumulate continuously each year if not used, up to a maximum of 200 days at three-quarter pay and no limit to the number of days at full pay.

42.3 In the year in which an employee completes six years of service, all sick leave used in the first year of service will be restored. In the 7th year of service, all sick leave used in the 22nd year of service will be restored. This will continue until the employee has completed 15 years of service. In the 16th year of service, all sick leave used in the 11th through to the 15th years
of service will be restored. In every year after 16 years of service, sick leave credits will be restored at the end of the year following the year in which they were used. There will be no payout of unused sick leave credits when an employee leaves the service of OPG.

Employees who have been approved for LTD (Article 43) shall be entitled to receive one re-accumulation prior to receiving LTD benefits. When an employee returns from any approved LTD they shall re-accumulate their sick leave in the normal fashion.

42.4 An employee will be reimbursed for any doctor’s note required by OPG.

42.5 In keeping with Article 2.4, Society Supervisors will be responsible for the administration of the sick leave plan. However, the final determination with regard to discipline related to misuse of sick leave will be the responsibility of management.

42A Sick Leave Plan (For Employees Hired On Or After January 1, 2001)

42A.1 The Company’s Sick Leave Plan will provide probationary and regular employees with substantial income protection regardless of their seniority. Probationary and Regular Employees will accumulate 8 sick leave credits (a credit equals 8 hours, 7.5 or 7 hours, whichever applies to the employee) per year of service at 100% of the employee’s base pay.

42A.2 When employees have exhausted their sick leave credits and are on sick leave, they will be paid at 75% of their base rate for a period of up to 6 months.

42A.3 Employees who are on continuous sick leave for 6 months and who qualify will be placed on Long Term Disability (LTD).

42A.4 In the event of denial of LTD benefits, the employee will have their wages maintained at 75% of base wages until completion of an LTD appeal process.

42A.5 Employees will be required to submit all Major Medical Absence forms required by management through their personal physician. The Company will compensate the employee for the cost associated with completion of these forms up to a maximum of $20.00. It is the responsibility of the employee to ensure that the employer receives these forms within a reasonable period of time. If there is an issue with the receipt of this form, the supervisor will contact the employee’s Society delegate and the delegate will work with the employee to provide the documentation as soon as possible. If the Major Medical Absence form is still not forthcoming, then the supervisor may discontinue the sick leave entitlement until the form is received.

Employees will be reimbursed for any additional doctor’s notes required by OPG.
42A.6 Regular part-time employees shall receive a pro-rated number of sick leave credits.

42A.7 In keeping with Article 2.4, Society Supervisors will be responsible for the administration of the sick leave plan. However, the final determination with regard to discipline related to misuse of sick leave will be the responsibility of management.

43 Long Term Disability for employees hired prior to January 1, 2001 or covered by the transition provisions in Article 9.3 of the 2006-2010 Collective Agreement

The Long Term Disability Plan provides financial security and rehabilitative employment features to regular employees during their absence from work due to extended sickness or injury. The benefits and terms and conditions of benefit entitlement of the Long Term Disability Plan are as described in: the Collective Agreement; the brochure entitled “Sick Leave and Long Term Disability Plans, updated April 10, 2000”; and sections 1 through 7 of “Exhibit A” of the Administrative Services Agreement, dated April 1, 1999 between the company and the carrier. These documents, by reference, form part of the Collective Agreement. The benefits and terms and conditions of benefit entitlement as described in the above documents can be changed by mutual consent only.

43.1 Qualifying Period

The qualifying period is defined as the period six calendar months from the starting date of the employee’s continuous absence due to disability; or a total of six months in accumulative authorized medical absences in the year prior to the date sick leave expires due to the same progressively deteriorating disability; or the expiration of sick leave whichever is longer.

43.2 Disability Period

The period in which an employee cannot continuously perform the essential duties of any position available in accordance with the priority placement criteria of the Rehabilitation and Re-employment Procedure.

43.3 Benefits

During the disability period, the plan will provide an income equal to the lesser of:

43.3.1 Sixty-five percent (65%) of base earnings at the end of the qualifying period for LTD benefits, or

43.3.2 Seventy-five percent (75%) of base earnings at the end of the qualifying period for LTD benefits less any pension entitlement and/or any supplement from the Workers' Compensation Board (excluding the Non-Economic Loss
A person who runs out of sick leave credits during the qualifying period will be granted a leave of absence without pay until such time as the LTD qualifying period elapses. The employee will continue to receive service credit during this period and have coverage maintained in, but will not be required to contribute to, the Ontario Power Generation Inc. Pension Plan, Health and Dental benefits, and the Group Life Insurance Plan.

### 43.4 Other Conditions

#### 43.4.1
OPG and/or the insurance carrier reserve the right to periodically obtain necessary proof of continued disability. If at any time an individual who has been declared disabled and placed on LTD is capable of returning to any further service with OPG, OPG will request and The Society will normally grant a waiver of posting requirements except in the case of redeployment under Employment Continuity.

#### 43.4.2
Employees who are in receipt of LTD benefits will have their LTD benefit levels adjusted by the indexation increase which is applied to the OPG Pension Plan.

#### 43.4.3
Where a position is identified that both OPG and the employee on LTD agree he/she can become qualified for through educational retraining, OPG will pay tuition fees associated with the retraining, up to a maximum of three years.

#### 43.4.4
Employees on LTD must apply for CPP disability benefits after an appropriate period (6 months) unless there are compelling (e.g., medical) reasons that prevent the employee from doing so.

### 43A Long Term Disability (For Employees Hired On Or After January 1, 2001)

The Long Term Disability (LTD) Plan provides financial security and rehabilitative employment features to regular employees during their absence from work due to extended sickness or injury. The detailed information is included in the Insurance policy and generally described in the brochure "Sick Leave and Long Term Disability Plans - Society Represented Employees - Updated April 10, 2000"

#### 43A.1 Qualifying Period

The qualifying period is defined as the period six calendar months from the starting date of the employee's continuous absence due to disability; or a total of six months in accumulative authorized medical absences in the
year prior to the date sick leave expires due to the same progressively deteriorating disability.

43A.2 Disability Period

The period in which an employee cannot continuously perform the essential duties of any position available in accordance with the priority placement criteria of the Rehabilitation and Re-employment Procedure.

43A.3 Benefits

During the disability period, the plan will provide an income equal to the lesser of:

43A.3.1 Sixty-five percent (65%) of base earnings at the end of the qualifying period for LTD benefits, or

43A.3.2 Seventy-five percent (75%) of base earnings at the end of the qualifying period for LTD benefits less any pension entitlement and/or any supplement from the Workers' Compensation Board (excluding the Non-Economic Loss award) and or the Canada Pension Plan, excluding benefits for dependents.

A person who runs out of sick leave credits during the qualifying period will be placed on 75% of their base pay until the LTD qualifying period elapses. The employee will continue to receive service credit during this period and have coverage maintained in, but will not be required to contribute to, the Ontario Power Generation Inc. Pension Plan, Health and Dental benefits, and the Group Life Insurance Plan.

43A.4 Other Conditions

43A.4.1 OPG and/or the insurance carrier reserve the right to periodically obtain necessary proof of continued disability. If at any time an individual who has been declared disabled and placed on LTD is capable of returning to any further service with OPG, OPG will request and The Society will normally grant a waiver of posting requirements except in the case of redeployment under Employment Continuity.

43A.4.2 Employees who are in receipt of LTD benefits will have their LTD benefit levels adjusted by the indexation increase, which is applied to OPG's Pension Plan.

43A.4.3 Where a position is identified that both OPG and the employee on LTD agree he/she can become qualified for through educational retraining, OPG will pay tuition fees associated with the retraining, up to a maximum of three years.
43A.4.4 Employees on LTD must apply for CPP disability benefits after an appropriate period (6 months) unless there are compelling (e.g., medical) reasons that prevent the employee from doing so.

44 Workers’ Compensation Leave

An employee awarded a Workers’ Compensation grant shall be granted a compensable disability leave with compensation made up of a tax-free Workplace Safety Insurance Board award, and a taxable top-up grant for the duration of Workers’ Compensation Disability benefits. The top-up grant will ensure an employee’s net pay is maintained.

If the employee is awarded a Future Economic Loss (FEL) award and is unable to perform the essential duties of any available job, the leave and top-up grant will be extended for the first 24 months of the FEL award. If an employee is unable to return to work during the first two years of a FEL award, an application for LTD should be submitted. The qualifying period is waived in these cases, and LTD benefits will be payable at the expiry of the first FEL for a qualifying employee.

Pending a decision of the Workers’ Compensation Board regarding the legitimacy of a claim the employee will receive sick leave. Employees who are receiving Workers’ Compensation benefits for claims or injuries suffered while in the employ of an Employer other than OPG are required to notify OPG of being in receipt of those benefits in order to qualify for the top up grant. These employees will not be eligible for sick leave while receiving Workers’ Compensation benefits for the top-up grant.

The top-up grant for compensable disability leave will be withheld if the employee refuses a medically suitable position that she/he is capable of performing, pursuant to the provisions of Article 45 ("Rehabilitation and Re-Employment") of the Collective Agreement. The grant may also be withheld where an employee is subject to appropriate discipline or discharge for cause pursuant to Article 17 ("Discipline and Discharge").

Authority for withholding the supplementary grant is vested in Directors.

45 Rehabilitation and Re-Employment

45.1 Application

This Article applies to OPG employees who either have qualified for Long Term Disability (LTD) Plan benefits or have been approved for a Workers’ Compensation (WCB) award, and, regular employees who have medical disabilities that prevent them from performing the essential duties of their jobs.
45.2 Policy

The parties seek to ensure that timely vocational rehabilitation and placement assistance is provided to affected employees whose medical impairments prevent performance of the essential duties of their jobs. The goal is re-employment in a continuing capacity which will make maximum use of these employees’ capabilities.

Entitlements to rehabilitation and re-employment will be provided pursuant to the terms of the OPG Policy 04-03-04, "Rehabilitation and Re-employment", dated August 1991. As applied to Society-represented employees, the Policy will be subject to other provisions of this Collective Agreement and to relevant legislation, and may not be altered except by mutual agreement. The Society will be provided with notice in all circumstances in which notice is given to “the Union” under the Policy.

45.3 Rehabilitation

An employee who is eligible for rehabilitation and is capable of rehabilitative employment is entitled to placement in a medically suitable position.

45.4 Re-employment

An employee who is eligible for re-employment must be given a reasonable job offer in accordance with placement priorities under the Policy. Where more than one job is available, the employee will be offered the job nearest the salary level of the pre-disability position. The job offered should be no more than two salary levels below the pre-disability position. When an employee is placed in a lower rated position following rehabilitative employment, OPG will maintain the base salary and benefits of the pre-disability position until the employee’s Incremental Pay Step in the new position exceeds that in the pre-disability position.

45.5 Termination of Employment

In the event an eligible employee refuses reasonable rehabilitative employment or a reasonable job offer for re-employment, the employee shall be terminated without entitlement to LTD benefits. Where an employee grieves termination for medical incapacity an arbitrator shall have jurisdiction to consider relevant post-termination evidence of rehabilitation.
PART IX - HEALTH BENEFITS

OPG, through its claims services provider, shall provide extended health benefits and dental coverage as outlined in the brochure entitled “Society-Represented Employees, Pensioners and Dependents – Health and Dental Benefits, Understanding Your Plan, effective January 1, 2006 and in accordance with the existing insurance carrier contract for Society-represented staff.

46 Extended Health Benefits (EHB)

46.1 Effective January 1, 2006, the following applies:

• When a married pensioner plan member dies and his or her spouse\(^3\) remarries:
  a) The new spouse will not be entitled to Health and Dental Benefits.
  b) Any dependent children of the surviving spouse would be entitled to Health and Dental Benefits.
  c) These changes will not be applied retroactively.
  d) It is recognized that an amendment to the pension plan document will be required to enact these changes.

46.2 OPG agrees to offer employees the option of using the Preferred Vision Services (PVS) Plan, subject to its availability.

46.3 OPG agrees to investigate using its purchasing power to negotiate a discounted group rate for employees who wish to purchase out of country travel insurance.

47 Dental Plan

OPG, through its claims services provider, shall provide extended health benefits and dental coverage as outlined in the brochure entitled “Society-Represented Employees, Pensioners and Dependents – Health and Dental Benefits, Understanding Your Plan, effective January 1, 2006 and in accordance with the existing insurance carrier contract for Society-represented staff.

Effective January 1\(^st\) of each year of the Collective Agreement, the dentist fees will be paid up to the amounts shown in the current Ontario Dental Association (ODA) Fee Guide.
• The parties agree to conduct a Dental Code Review

Effective January 1, 2012:

Amend dental coverage to provide for coverage for dental implants where dental implants are recommended by the treating dentist as the most effective treatment choice.

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\(^3\) Spouse at the moment of death
Coverage under the Semi-Private Hospital Accommodation Plan is unchanged.
49  

### Life Insurance

49.1 The benefits and terms and conditions of benefit entitlement for group life, living benefit and spousal life insurance for employees are as described in: the Collective Agreement; the brochure entitled “Group Life Insurance, Living Benefit and Spousal Life Insurance, updated April 10, 2000” and, group policies on group life insurance and living benefit and spousal life insurance dated April 1, 1999 between the company and the carrier. These documents, by reference, form part of the Collective Agreement. The benefits and terms and conditions of benefit entitlement as described in the above documents can be changed by mutual consent only.

49.1.1 The cost of basic term insurance for employees will be paid by OPG.

49.1.2 The cost of additional term insurance for employees will be paid by the employees.

49.1.3 Upon retirement, term insurance equal to 50% of final base annual earnings will be provided, reducing to 25% ten years after retirement.

49.1.4 An employee will become eligible for membership in the plan upon being assigned regular status.

49.1.5 In the event that an employee does not make an election, Option I (see 49.2 below) will automatically be designated.

49.1.6 After the initial election period, a re-election of option will be permitted only once a year during the month of December.

49.1.7 The employee will be required to submit evidence of insurability if a re-election results in total increased insurance coverage.

49.1.8 Any re-election shall become effective on the January 1 following the year in which the re-election is made or on the date of approval by the insurer of any required evidence of insurability, whichever is later.
49.2  Life Insurance Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Basic Term Insurance</th>
<th>Additional Term Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Two Times Base Salary</td>
<td>Nil</td>
</tr>
<tr>
<td>II</td>
<td>Two Times Base Salary</td>
<td>One Times Base Salary</td>
</tr>
</tbody>
</table>

49.3  The maximum additional term insurance that may be purchased by an employee shall be referred to a tripartite (Society, Management and PWU) forum for further consideration.

49.4  An employee who meets the following criteria shall be eligible to cash out 50% of his/her total claim value to a maximum of $50,000.

Criteria:

- the illness must be terminal with death likely to occur within 24 months;
- OPG’s consent is required;
- the consent of the employee and his/her beneficiary is required;
- the beneficiary must have reached the age of majority; and
- the employee must be competent and able to understand a transaction of this nature.

Payments must be processed as a loan and interest charged to avoid making the payment a taxable benefit to the employee.

When death occurs, the advance payment plus accrued interest is deducted from the claim value.

49.5  Spousal Insurance

49.5.1  Only spouses of active employees are eligible.

49.5.2  Insurance is available in units of $10,000 to a maximum of $150,000 (15 units).

49.5.3  The entire cost, including administration costs, will be paid by the employee. The employee will arrange payment with the insurer and payment will be the direct responsibility of the employee.

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4  Basic Term Insurance is composed of term insurance equal to base annual earnings raised to the next $500.00 and multiplied by 2.

5  Additional Term Insurance is the optional term insurance which an employee may elect in addition to the basic insurance coverage. It is equal to base annual earnings raised up to the next $1,000.00.
The participation rate will have to be 20-30% otherwise proof of insurability will be required.

The premium rate will be different from the rate for employees, and will be experience rated. The premiums would then vary from year to year based on the experience of the previous year.

50 Pension Plan

The Ontario Power Generation Inc. Pension Plan (Registration #1059120) forms part of this Collective Agreement. The provisions of the Pension Plan are generally described in the brochure Ontario Power Generation Inc. Pension Plan – Effective January, 2000. Changes to the Pension Plan affecting Society-represented members of the plan, other than legislative changes, shall be made only upon mutual consent.

It is agreed that normal administrative matters such as changing financial advisors are not considered by the Parties to be changes to the Pension Plan within the meaning of Article 50, subject to any understanding, agreement, or decision to the contrary with the PWU.

50.1 All the changes to the Pension Plan heretofore agreed to between The Society and OPG have been incorporated into the Pension Rules/text.

50.2 The employer shall not request legislation, regulations, or Order-in-Council approval or make rules which would change pension benefits, unless upon mutual consent. Moreover, the employer will not unilaterally seek legislation to change access to surplus unless upon mutual consent.

50.3 Probationary Employees

Probationary employees who have attained three months’ service shall be eligible to become members of the Pension Plan. A new employee who completes his/her probationary period after January 1, 1999 and who is a contributor to the Plan may irrevocably elect and pay the required contribution within three months immediately following completion of the probationary period, to buy credited service for his/her probationary period, failing which there shall be no subsequent right to elect.

Effective January 5, 2006, probationary employees shall commence Pension Plan membership on their first day of work.

50.4 Spousal Benefit

Effective July 1, 2000 the survivor benefit maximum shall be increased from 64% to 66 2/3rds. This improvement will apply to members whose pensions commence on or after July 1, 2000 and also to pensioners and surviving spouses in receipt of pensions.
50.5 Bridging Benefit

1. This benefit is payable to eligible employees who retire after January 1, 1997 and this benefit replaces the existing bridge benefit. This amendment does not change the amount of pension payable after age 65. The purpose of the amendment is to pay the bridge benefit now payable to members who retire before age 65 with 35 years of credited service to a member retiring after January 1, 1997 before age 65 with 30 years of credited service. For members who retire before age 65 with less than 30 years of credited service, the bridge benefit will be prorated in proportion to credited service.

The bridge benefit will be reduced by the same percentages as is applied to the lifetime pension if a member retires prior to qualifying for an unreduced pension.

2. For people retiring on or after January 1, 1997 the bridge benefit payable when a member eligible for an unreduced pension retires will be increased from:

\[ A \times B \times C \]

where:

- \( A \) equals 0.625%
- \( B \) equals post 1965 credited services to a maximum of 35 years
- \( C \) equals the lesser of the member's average earnings in the 60 consecutive months when the earnings were the highest and the average of the YMPE's during the 60 consecutive months when the earnings were the highest.

\[ \text{to;} \]

\[ A \times D \times C \]

where \( A \) and \( C \) are as above and

- \( D \) equals 35 times the lesser of 1 and the member's years of credited service divided by 30.

50.6 Rule of 82

Employees may retire without discount when their age and years of continuous service equals 82 or more.
50.7 **Continued Contribution**

Contributions are now allowed beyond 35 years.

50.8 **Employee Contribution Holiday**

At any time during the period that this Collective Agreement is in effect and that either OPG or the PWU members stop their contributions to the pension plan, the Society will be given the opportunity to stop contributions by Society represented pension plan members for an equivalent period.

50.9 **Plan Formula**

Effective January 1, 2006 the employee’s contributions will be increased to 7% below and above the YMPE.

50.10 **Supplementary Plan**

The following language will be included in the supplementary plan:

“Society members of the OPG Pension Plan, whose pension income as a pensioner will exceed the limits prescribed by the Income Tax Act (ITA) for pension paid from a registered pension plan, are eligible for the Supplementary Payment Schedule (SPS). The SPS tops up the amount one receives from the OPG registered pension plan to the amount one would receive if there were no ITA limits.”

50.11 **Reciprocal Transfer Agreements**

OPG will seriously consider reciprocal transfer agreements with respect to any Change of Employer situations, where the new employer is not a competitor of OPG, and where the new employer agrees to a reciprocal transfer agreement.

50.12 **Fund Transfer**

The Society shall continue to have access to reasonable pension plan and pension fund information, which shall include reasonable information related to the allocation and transfer of pension funds to a successor pension plan. The Society will have the opportunity for input prior to the filing of any transfer report or new plan text with FSCO. In the event that pensioners or deferred pensioners are to be transferred, the Society will also have access to and input on, such situations.
PART XI - RELOCATION ASSISTANCE

The following provisions apply to regular employees and are outlined in the brochure entitled "Relocation Assistance Benefits for Performance Paid Staff" (1995). Employees who are Management and Professional Trainees pursuant to Article 25 will receive the treatment contained herein when appointed to regular positions, and required to relocate as a result of OPG business.

51 Housing Assistance Plan

51.1 Intent

51.1.1 OPG's purchase of an employee's principal place of residence is designed to ensure that an employee who moves will not be forced to endure unreasonable periods of family separation or inconvenience due to inability to sell the employee's home at a fair market price.

51.1.2 It will be the prerogative of OPG to reject an employee's application for Housing Assistance if in Management's opinion the property is not an acceptable risk.

51.1.3 The employee must abide by all of the requirements of the Housing Assistance Plan. Failure to do so will result in the employee becoming ineligible for housing assistance from OPG.

51.2 Purchase Guarantee

51.2.1 OPG will provide a purchase guarantee based on an appraisal of the property's current worth by a group of up to three appraisers, to be selected by the Real Estate Division in conjunction with the employee.

51.2.2 OPG will not request appraisals until the employee is ready to list his/her house in the marketplace providing this is within one year of the employee's transfer to the new work location and the employee is prepared to abide by Subsection 51.2.4 and Subsection 51.3.1.

51.2.3 The employee must acknowledge acceptance or rejection of OPG's Purchase Guarantee within five days of its receipt. If the employee rejects the Purchase Guarantee, OPG has no further responsibility with regard to Housing Assistance or the Purchase Guarantee.

51.2.4 If the employee wishes to participate in the Housing Assistance Plan, the employee must not list the property for sale until the Purchase Guarantee has been accepted.
51.2.5 Home Appraisal Documentation

OPG will provide The Society with an initial six month report of home appraisal documentation prior to January 1, 1995. Representatives from OPG and The Society will meet to discuss the particular form and content of subsequent reports. Upon agreement on the form and content a Letter of Understanding will be developed which will require the report to be given to The Society on a semi-annual basis for the term of this Collective Agreement. Any anomalies in the report may be discussed by The Society and the OPG confidentially with full disclosure of information (including appraisals).

51.3 Listing of Property

51.3.1 If an employee chooses to participate in the Housing Assistance Plan, by accepting the Purchase Guarantee, the employee will immediately list the property for 90 days on MLS (where such service is available) at a price not exceeding 107% of the guaranteed price.

51.3.2 The employee will retain the right to sell to a third party until such time as the property is turned over to OPG for resale.

51.3.3 In order to assist the employee to dispose of the property expeditiously and at a fair market value, the employee should notify the Employee Relocation Administrator of all offers to purchase during the listing period. OPG may ask the employee to accept an offer which is lower than the Purchase Guarantee, whereupon the employee will be compensated for the difference between OPG’s Purchase Guarantee and the amount of the offer. The employee’s acceptance of any offer less than OPG’s Purchase Guarantee is not mandatory and the employee will retain control of the sale of the residence throughout the listing period. All offers to purchase will be held in confidence by the Employee Relocation Administrator.

51.4 Sale of Property by OPG

51.4.1 The employee must be prepared to sign power of attorney authorizing OPG to sell property on the employee’s behalf on the first day following the 90 day listing period. If the employee will be unable to vacate the premises at that time, the Employee Relocation Administrator must be notified.

51.4.2 OPG will pay to the employee the difference between the value of the property to OPG (Purchase Guarantee) and all existing encumbrances, including the advance of equity.

51.4.3 When an employee applies for assistance under this procedure, he/she must declare under oath, if required by OPG, all
encumbrances of any nature or kind whatsoever, including executions, chattel mortgages, and notices of conditional sales contracts which the employee is obliged to pay.

51.4.4 In consideration of the payment to the employee of the amount established in Subsection 51.4.2, the employee will complete a deed of sale of the property, conveying the same by good and marketable title, but subject to all existing encumbrances, to OPG or its nominee.

51.5 Advance of Equity

In order to provide the employee with funds for a deposit or down payment on a residence at the new location, an advance of up to 100% of the employee's equity (Purchase Guarantee minus encumbrances) in the residence at the former location may be loaned to the employee by OPG. Advance of equity is interest free for employees who avail themselves of the Purchase Guarantee for 90 days for until the house is turned over to OPG or until the closing date of the sale of the house to a third party, whichever comes first. For employees who reject the Purchase Guarantee, the advance of equity is interest free for 90 days. Repayment is as set out in the Relocation Assistance Benefits brochure.

51.6 House Evaluation and Guarantee – Atikokan Thermal Generating Station (TGS)

51.6.1 Employees at Atikokan TGS who are declared surplus and terminated may avail themselves of the Housing Evaluation Guarantee provisions outlined in Article 54.

52 Moving Expenses

52.1 Intent

52.1.1 Since OPG has province-wide operations, employees may be required to move about the Province as part of their jobs.

52.1.2 OPG recognizes that there may be a number of relatively costly expenditures associated with moving and will endeavour to ensure that such expenses will be adequately covered.

52.1.3 OPG will not assume responsibility to compensate for any upgrading in an employee's standard of living which may take place as a result of moving.

52.1.4 The Housing Assistance Plan will apply to the employee's principal place of residence and will not cover summer cottages, commercial real estate holdings or other secondary properties.
52.2 Minimum Moving Distance

52.2.1 Normally, an employee must move a minimum of 40 road kilometers closer to the new work location to qualify for relocation assistance. Distances on which calculations will be made are land distances by the most direct route. However, where an employee believes that this requirement creates a hardship, a joint Society-Management review at the Divisional or Business Unit level of the receiving unit shall consider the individual situation. This review shall consider the following criteria:

- increase in commuting time;
- increase in commuting cost;
- access to public transit;
- personal family considerations;
- recognition that OPG is not responsible for upgrading the individual's standard of living;
- permanence of move to the new work location;
- comparability of eligibility in comparison to treatment of Society-represented employees in similar circumstances.

The review team will balance the results of this review with the business requirements of the unit and may decide to waive or amend the minimum distance rule. The decision of the review team is final and binding. If the review team is unable to reach consensus, the matter will be referred to the JSMC which will have the authority to make a decision or to have the issue resolved as they see fit without prejudice.

52.3 Expenses for Reimbursement

52.3.1 Household Effects

OPG will arrange for and shall pay the cost of packing, moving by freight or truck and insurance charges on household effects.

52.3.2 Home Buying and Legal Fees

Employees shall be reimbursed for legal disbursements and real estate brokerage fees associated with the purchase and/or sale of property valued up to five times the employee's annual base salary in the new location at the time of job transfer as follows:

Legal Fees

- The employee will advise OPG of his/her preferred lawyer. OPG will request the lawyer for an estimate on what the fees will be to complete the sale and/or purchase transaction. If OPG finds the solicitor’s estimate to be unreasonable, OPG will ask the employee to recommend another solicitor to close the transaction.
 Legal fees and disbursements actually incurred in selling an old and buying a new residence will be paid by OPG.

 Legal fees shall be defined to include fees for arranging or discharging a first mortgage when required and will include land transfer tax.

 Disbursements shall be defined herein as those items paid by a lawyer on behalf of the employee for services in connection with the purchase or sale of the employee’s residence including land transfer tax and land surveys when required, Ontario New Home Warranty Program if required for a new house, GST, and penalty costs to a maximum of three months’ interest payments involved in discharging a first mortgage on the residence in the former location when required.

52.3.3 Transfer Expenses

A transferred employee is expected to make arrangements to move expeditiously but this should not exceed a period of one year from date of transfer, except where there is a specific agreement between the employee and local management for an extension. The employee must provide in writing his/her intention to move to the supervisor, prior to receiving payment for any applicable living expenses. Reimbursement for actual costs incurred in the move will be allowed as follows:

 All employees who are eligible for moving expenses shall be afforded 12 weeks from the date the employee reports to work in the new location (i.e., date of transfer) to decide whether or not they wish to move. Payment of the following expenses is predicated on the employee maintaining his/her previous principal residence:

 a) During this 12 week period, the employee shall have the option of either commuting to and from his/her new work location and receiving incremental travel expenses (i.e., additional travel costs beyond the employee’s normal travel costs to the old work location) or being paid living expenses in the new location. If the employee chooses to receive travel expenses the employee must travel farther than their previous commute and will receive the mileage to the new work location minus the mileage to the old work location, the total cost of which not to exceed living expense equivalent, If the employee expressly indicates that he/she does not intend to relocate his/her residence, all expenses will cease at that time.
b) All expenses will stop at the end of the 12 week decision period unless the employee has provided in writing his/her intention to move within one year of date of transfer. Providing that the employee demonstrates to Management's satisfaction that arrangements to move with employee's family to the new location are being made as quickly as possible, the employee's living expenses in the new location or incremental travel expenses will be paid until such time as the employee moves or for a period not to exceed a further nine months. The time limits mentioned above may be extended by a specific mutual agreement between the employee and line management for a total period not to exceed two years from the date of transfer.

c) If an employee, after providing written notification of his/her intention to move fails to do so, all expenses paid on his/her behalf or travel expenses paid to him/her for any period beyond the initial 12 weeks from the date of transfer or the date of his/her written intent to move, whichever comes first, shall be repayable to OPG. Repayment shall be made within one month of a written communication stating his/her intention not to move or within one year of date of transfer whichever comes first.

d) Exceptions to the repayment requirement should the employee fail to move may be made by reasonable exercise of the Business Leader's discretion (e.g., for reasons of significant unforeseen life hardships, OPG transfers, OPG international assignments, etc.).

e) Employees shall be entitled to only one move per household per redeployment or transfer.

- Transportation to the new location and living expenses while in transit to the new location will be paid for the employee and family (spouse and dependent children) and any other dependents of the employee's household. A reasonable number of visits by the employee and family, to the new location to assist in the selection of a new principal residence will be paid at the discretion of local Management.

- Living expenses of the employee and family during the period while household effects are in transit will be paid.

- Reasonable upkeep costs including mortgage interest on the old residence will be paid for a period of up to three months after the employee has moved to the new residence but still retains title to the old residence due to an inability to sell. If closure of the sale is imminent, the period may be extended by up to six weeks.
• Time off with pay to a maximum of one day’s base earnings if the day of the move falls on a normally scheduled working day.

• Employees may elect, subject to the negotiations of their availability, through a LOU to receive lump sum payments in lieu of the following:
  ♦ temporary living expenses;
  ♦ reimbursement for costs associated with return to residence headquarters;
  ♦ benefits and expenses associated with house hunting trips;
  ♦ temporary storage, etc.

52.3.4 Spousal Assistance

An employee will be reimbursed for his/her spouse's job search expenses, supported by receipts, up to a maximum of $750.

52.3.5 Rental Assistance

An employee who transfers to a higher cost rental area and who rents comparable rental accommodation will be provided with rental assistance by OPG as follows. The extent of this assistance will be the lesser of:

a) the monthly rent in the old location multiplied by OPG rental differential;
   or

b) the amount of the monthly increase in rent.

An employee who rents in the former location and purchases in the new location will be eligible for the equivalent of rental assistance as will the employee who conversely owns a home in the former location and rents in the new location.

Rental assistance will be provided for a five year period, based on 100% assistance in the first year and decreasing by 10% annually over the next four years.

This assistance will cease if the employee transfers to a new work location, terminates his/her employment with OPG, ceases to rent, retires or dies.
52.3.6 Rental Management Program

Upon request, OPG will arrange for a rental management firm to rent an employee's house when he/she is expected to return within five years and will pay the costs associated with this arrangement if it is in OPG's financial interests to do so.

52.3.7 Miscellaneous Expenses

Employees will be reimbursed for miscellaneous expenses associated with the move up to the limit of one month's salary based on normal scheduled hours of work. These expenditures are intended to cover items such as:

- cost of rental search assistance;
- costs incurred as a result of the move such as, cleaning, painting and decorating costs; adaptation, removal, installation or replacement of house furnishings and appliances;
- costs for connecting water, natural gas, and electricity to a new house if charged to the employee as purchaser.

Employees will not be reimbursed for capital expenditures which tend to increase the market value of a house, major house repairs or renovations.

52.4 Second Related Move

If a suitable residence is not available at time of transfer, an employee may rent temporary premises for up to one year. Under these circumstances, OPG will reimburse the employee for costs incurred in accordance with all Sections of this Agreement for either one of the two moves. For the other move, only costs of transportation, moving household effects, and legal fees incurred will be paid.

52.5 On Retirement

52.5.1 If OPG requires an employee who occupies a house or trailer on OPG property or a site under OPG control to move on retirement, the employee will be reimbursed as outlined in Section 52.3 for the cost of a move to any location in Ontario in which he/she desires to settle.

52.5.2 If an employee is requested to undertake a change in work headquarters involving a change in principal residence, and is age 55 or older on the date of transfer, consideration shall be given to the reimbursement of some or all of the moving expenses of that individual upon eventual retirement from OPG. The extent and terms of the assistance to be provided upon retirement will be determined at the time of transfer.
52.5.3 Only moving expenses within the Province of Ontario or to the nearest exit point from the Province will be eligible for consideration.

53 Financial Assistance Plan

OPG shall contribute towards the interest costs on the increase in capital expenditure for an employee who is transferred to a higher cost housing area. Eligibility for this assistance will be determined by using either:

a) the current Ontario Residential Locality Differential Chart (see attached chart for provisions in effect as of January 2011; OR

b) if either the employee's former location or his/her new location is not on this chart, a house-for-house comparison conducted by OPG.

The amount of assistance will depend upon the:

- sale price of the residence in the former location;
- relative value of comparable housing in the new location;
- actual increase in housing costs (purchase price less sale price);
- current interest costs.
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The locality differential will be based on the differential in effect as of the date of closing of the purchase of the residence in the new location. The interest rate used to calculate the level of assistance will be based on OPG's employee housing loan rate for a five year term as published by the Treasury Division (or the actual mortgage rate, whichever is less) as of the date of closing of the purchase of the residence in the new location.

The financial assistance will decrease annually in twenty (20) percent increments over a five year period.

An employee receiving financial assistance must advise OPG if he/she sells or rents his/her house in the new location within five years of purchase. Assistance provided to the employee will be reviewed and revised accordingly.

Financial Assistance ceases upon termination or retirement. However, should an employee die while receiving financial assistance associated with relocation, such assistance may continue as per the original entitlement based on a case-by-case review by the Business Unit providing the following condition is met:

- the designated beneficiary provides affidavits on an annual basis that the principal residence for which the assistance is paid continues to be his/her principal residence and that no new revenues for renting any portion of the residence are being received.

54 House Evaluation and Guarantee Plan

Upon subsequent transfer within OPG, an employee will be guaranteed his/her purchase price up to a maximum of four times his/her base salary at the time of the initial transfer (plus $1,500 for capital improvements on new homes, $15,000 for resale homes or minus $3,000 for damages to the property). This guarantee will be for a period of ten years from the date of purchase. Improvements must be verified by receipts and do not include normal painting, decorating and maintenance costs. An employee may not sell his/her house for less than the guaranteed amount without the consent of OPG.

55 Compensation When Assigned to Temporary Work Headquarters

55.1 Intent

a) When there is an assignment to a Temporary Work Headquarters, the employee and his/her supervisor must have a mutual understanding of the terms of the assignment prior to its commencement using the following provisions.

b) Employees assigned to a Temporary Work Headquarters should not be separated from their families for exceptionally long periods of time due to work requirements and should be compensated for all reasonable out-of-pocket expenses and travel costs.
c) When an employee is assigned to a Temporary Work Headquarters, the employee will normally remain at the Temporary Work Headquarters. If there is mutual agreement between the supervisor and employee to commute daily, then the employee may do so.

d) Employees will be reimbursed for all reasonable out-of-pocket expenses associated with being assigned to the Temporary Work Headquarters.

e) Employees will be reimbursed for any additional travel costs beyond their normal travel costs to their Regular Work Headquarters.

f) Travel time on the first trip to, and on the last trip from, the Temporary Work Headquarters shall be either during normal scheduled hours or compensated in accordance with Article 58 (Travel Time) if outside normal scheduled hours.

g) Selections for Temporary Work Headquarters assignments should not be made on the basis of travel cost considerations.

55.2 Definitions

"Regular Work Headquarters": The location to which the employee normally reports in order to receive work assignments or to perform regular duties.

"Temporary Work Headquarters": The location to which an employee is directed in order to carry out assigned duties away from Regular Work Headquarters.

"Periodic Return": The return to the employee’s principal residence once every two weeks.

55.3 Compensation When Remaining at Temporary Work Headquarters (TWHQ)

a) When the employee resides at the TWHQ and does not commute, the employee shall be reimbursed for all reasonable out-of-pocket expenses incurred while at the TWHQ.

b) An employee who resides at the TWHQ will be allowed a periodic return once every two weeks.

The employee shall be reimbursed for travel costs associated with the periodic return for the distance between his/her principal residence and his/her TWHQ, less normal travelling costs. Travel time associated with periodic return, outside normal scheduled hours and in excess of one hour each way, shall also be compensated. Compensation will be either in equivalent time off, or in pay, at straight time rates. Time spent in obtaining a meal will not be compensated.
c) On intermediate weekends, if the cost of remaining at the TWHQ would be less than the cost of a return trip, the employee may claim actual travel costs up to the cost of remaining at the TWHQ. If the cost of remaining at the TWHQ is greater than the cost of a return trip, the employee may be reimbursed for all travel costs incurred for a return trip on that weekend.

d) For employees who reside in rental or leased accommodation at the TWHQ, cost of travel on intermediate weekends will be based on the lesser of a per diem rate based on the daily costs of normally used local hotel/motel accommodation (meals included) or actual travel costs (less normal travelling costs).

e) Travel time will not be paid for return trips to home on intermediate weekends.

55.4 If the temporary assignment appears to cause the employee to reside separately from his/her family for a long duration, and for long distances, i.e., more than 100 kilometers, the supervisor may permit the employee to rent accommodation for his/her family near the TWHQ. In this situation, the employee will be reimbursed for all reasonable out-of-pocket costs, including the difference in rent paid out in the temporary location and any rent received from the principal residence.

55.5 Compensation for Daily Commuting To, and From, Temporary Work Headquarters

a) When an employee and supervisor have mutually agreed that the employee may commute to the TWHQ on a daily basis, the employee shall be compensated for his/her travel time in accordance with the provisions of Article 58 ("Travel Time").

The use of an OPG vehicle will be one of the commuting options considered.

If an OPG vehicle is not used, the employee shall be compensated for his/her travel costs (i.e., public transportation costs or cents per kilometer, whichever, in the Supervisor’s opinion, is the most reasonable considering the travel time and transportation expenses involved) in addition to his/her travel time.

The total amount of reimbursement for the employee's travel time and travel costs will be up to a maximum of the expenses that would have been incurred if the employee were to remain at the Temporary Work Headquarters (lodging and meals). In determining this maximum, consideration will also be given to the expenses that would have been incurred if the employee had used an OPG vehicle.

b) When an employee commutes daily, he/she is required to be at the Temporary Work Headquarters at normal starting time and remain until normal quitting time.
Note: Where the planned duration of the assignment at a Temporary Work Headquarters is greater than one year, the employee will be eligible for full relocation assistance.

55.6 Exception

This Article does not apply to employees who on a daily or short-term basis may be required to work at a number of different work headquarters. In these cases, local management will determine the appropriate compensation treatment, but such compensation will not be less than that applicable to other employees under this Article.
PART XII - TIME WORKED OUTSIDE NORMAL HOURS

56 On-Call Service

The following on-call service provisions shall apply.

56.1 Definition

On-call service is the requirement to be available outside normal work hours to meet unusual conditions, satisfy needs for assistance or direction, and return to work within a reasonable time, as specified by the supervisor. During the period of assignment, the employee must be capable of responding. Normally, employees are not expected to be on call for a continuous, long-term period. Wherever possible volunteers will be solicited for on-call assignments.

Normally, an employee will not be expected to be on-call for more than 18 weeks in a calendar year. In the event that the employee is required to be on-call for more than 18 weeks, agreement of The Society and the employee is required.

56.2 Payment

56.2.1 Compensation for on-call service is applicable in the following cases:

a) There is a regular need for it (e.g. weekly, monthly, annually) and;

b) The supervisor formally notifies the employee of the on-call assignment in writing (email, memo, etc.).

If the employee is not notified of the assignment in writing, the employee will not be considered to be on-call.

56.2.2 The on-call service payment for any 16-hour period outside normal work hours twenty one dollars and fifty six cents ($21.56).

56.2.3 The on-call service payment for any 24-hour period outside normal work hours (i.e., Saturday, Sundays, Statutory Holidays and granted days) thirty seven dollars and thirty eight cents ($37.38).

56.2.4 The maximum on-call service payment for a normal work week is one hundred and eighty two dollars and fifty cents ($182.50).

56.2.5 The on-call service payments specified above will apply only to the time periods as specified.

56.2.6 Where an employee (whether on-call or not) received an approved call while not at work the employee shall be paid at the appropriate
overtime rate for all work performed prior to his or her next scheduled shift, save and except where the total of all work performed in such period is one-half hour or less, the employee shall receive a fixed amount of $35.00 for such work.

57 Overtime

The following provisions shall apply to employees when assigned to work overtime.

57.1 The method of compensation, for authorized overtime, may be money or time off at the appropriate premium rate. The employee or the supervisor may propose the method of payment, but it is the supervisor's responsibility to approve the method of payment most compatible with the unit's needs. Prior understanding between the supervisor and employee is desirable.

57.2 Day Workers

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<th>Overtime Worked</th>
<th>Overtime Hours</th>
<th>Rate of Payment</th>
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<tr>
<td>Monday to Friday</td>
<td>Authorized overtime beyond normal scheduled hours worked in the day</td>
<td>Time and one half (T-1/2)</td>
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<td>Saturday</td>
<td>Authorized overtime</td>
<td>Time and one-half (T-1/2)</td>
</tr>
<tr>
<td>Sunday</td>
<td>Authorized overtime</td>
<td>Two times (2T)</td>
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<tr>
<td>Granted Days</td>
<td>Authorized overtime</td>
<td>Time and one-half (T-1/2)</td>
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<tr>
<td>Statutory Holiday</td>
<td>Authorized overtime</td>
<td>Monday to Friday: Two times (2T) for all unscheduled hours plus a Statutory Holiday credit. Saturday: Two times (2T) for all unscheduled hours worked.</td>
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### 52.3 Shift Workers

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<th>Overtime Worked</th>
<th>Overtime Hours</th>
<th>Rate of Payment</th>
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<td>Scheduled Work Days</td>
<td>Authorized overtime beyond normal scheduled hours worked in the day.</td>
<td>Monday to Saturday: Time and one half (T-1/2)</td>
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<td>Sundays and Statutory Holidays: Two times (2T)</td>
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<td>Granted Days: Time and one-half (T-1/2).</td>
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<td>Scheduled Days Off</td>
<td>Authorized overtime on a normally scheduled day off.</td>
<td>Monday to Saturday: Time and one-half (T-1/2).</td>
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<td>Sunday: Two times (2T).</td>
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<td>Statutory Holidays (Monday to Friday): Two times (2T) plus a Statutory Holiday credit for hours worked up to normal hours for the day.</td>
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<td>Statutory Holiday (Saturday): Two times (2T).</td>
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<td>Granted Days: Time and one-half (T-1/2).</td>
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### 57.4

For OSS and TMS/TS staff required to work overtime and supervise staff receiving a higher overtime rate than that paid under Sections 57.2 and 57.3 above, the treatment shall be as follows: OSS and TMS/TS staff receive two times their base hourly rate for all work, as described above, performed outside the first four clock hours after normal quitting time, Monday to Friday, and for all such work performed on Saturday.

### 57.5

a) In addition to employees covered under Subsection 57.4, employees who are directly involved in the operation, maintenance or construction of production, transmission or distribution facilities (exclusive of head office staff) and who directly supervise or work beside PWU employees will be compensated with the equivalent to PWU overtime premiums for all overtime worked, including the minimum payments received by PWU staff for both emergency and scheduled overtime. Employees work beside PWU employees if, as a regular part of their job, they are required to work with PWU staff on essentially the same job, under the same general conditions, and their presence at site for the overtime in question is necessary for task progress.

Employees may be designated as eligible under the above on an ongoing basis or on an assignment by assignment basis at the discretion of OPG.
57.6 Recording Overtime

Management shall record assigned and paid overtime and will report the same to The Society every 6 months.

57.7 Where management directs an employee to attend a training course, he/she will receive overtime payment for all hours spent in training beyond his/her standard hours of work. Management agreement to an employee request for training does not constitute a management direction to attend.

58 Travel Time

The following provisions shall apply to employees who are required to travel on business for OPG.

58.1 General

Some travelling time outside of normal hours of work to and from work locations, other than the regular work headquarters, is an inherent part of many jobs, for which no additional compensation is normally made.

58.2 Excessive Travel

a) Travel Time in excess of one hour at the beginning and one hour at the end of the normally scheduled day will be compensated at straight time.

b) When an assignment requires departure from the employee's home the night before, or on a regular day off, time spent in travel will be compensated at straight time.

58.3 Emergency Overtime Work

Non-Prearranged Overtime Work: Travel time will be paid at the appropriate overtime rates for any work outside and in addition to normally scheduled hours for which there has been no pre-arrangement and an extra trip is required. Notification for prearranged overtime must be given at least 24 hours in advance of the start of such work.

58.4 Attendance at Seminars, Conventions, Etc.

a) When an employee attends a convention, seminar, training course, or similar function and does not arrive at the destination or depart from it until after normal work hours, no additional time allowance will be paid, i.e., this travel time will be considered as part of the employee's contribution to attendance at a mutually benefiting function of this nature.
b) Where OPG directs an employee to take a training course, travel time will be compensated in accordance with Article 58.2.

58.5 Flexibility

Variations to the provisions of this Article made by agreement between the supervisor and the employee are permitted, subject to Director approval.

59 Shift Work (M&P, TMS/TS)

59.1 Definitions

*Shift:* All scheduled hours of a shift are considered to occur in the calendar day that the shift ends.

*Scheduled Work:* The hours of work assigned as per the shift schedule. Scheduled work cannot include overtime.

Regular Shift Schedule: A 12 month time balanced rotating shift schedule that covers the fiscal year ending on the last day of the fiscal month of December and posted as part of the station’s Master shift schedule 30 days prior to commencement.

*Positive/Negative Time Balances:* Total hours accumulated in a time bank less the product of the normal scheduled hours of work for the position times the number of weeks since the time bank was previously balanced to zero. The result may be positive or negative.

Periodic Shifts – are shifts for non-shift workers who are assigned to shift for a limited amount of time. The shift schedule can be either a time balanced or non-time balanced shift schedule.

59.2 Shift Workers

Meaningful consultation with the Society will occur prior to the implementation of any new shift schedule.

An employee’s base hours of Work will not be changed as a result of this Article.

Some jobs are shift work jobs e.g. Shift Operating Supervisors. Management reserves the right to put incumbents in these jobs on shift.

The job evaluation plan used to evaluate M&P jobs will be used as the vehicle to determine the relative worth of M&P shift positions within the shift family of jobs, and to establish appropriate relativity between positions in this family and other non-shift M&P positions.

The requirement to obtain and maintain a license(s) to hold a shift position shall be identified in the job document (description and specification).
The number of personnel provided per shift position shall be such that no regularly scheduled overtime will be required. Due to the nature of OPG's operations, it may be necessary for employees on shift to work some overtime.

Management shall retain the right to place employees in shift positions for training and development purposes provided that the implications of possible classification changes on completion of the shift development phase are fully identified to the incumbent before the shift position is accepted.

Management shall provide an opportunity for input from employees prior to establishing shift schedules.

Management will provide a minimum of seven (7) days' notice for shift workers and non-shift workers working on shift, when their hours of work, as shown on their shift schedule, are to be changed. Failure to provide appropriate notice will require payment at the appropriate overtime rate for all hours worked during the notice period.

In the case of a forced unit outage or for reasons of equipment failure or safety, employees can be shift changed effective immediately and overtime rates apply for all hours worked during the first three (3) days.

Where a PWU represented employee working on shift receives "Penalty" payment for insufficient notice of a shift change, their direct shift supervisor will be entitled to the equivalent "Penalty" treatment. For clarity, where both the Society represented shift supervisor and the PWU represented crew member(s) have received insufficient notice of the shift change, the Society represented shift supervisor shall receive the equivalent premium rates as the PWU represented employee for work performed on shift until the notice has expired.

Written notification, such as email, shall be provided. In situations where the employee is absent from their regular work location, verbal notice shall be given and will be followed by written notice.

Management will use reasonable efforts in revising the regular schedule so as to provide the following minimum hours off between shifts:

a) Shift change notices between 12-hour shifts will provide at least 12 hours off.

b) Shift change notices from a 12 hour shift to an eight hour shift will provide at least 12 hours off.

c) Shift change notices from an eight hour shift to a 12 hour shift will provide at least 15 hours off.
d) Shift change notices between eight hour shifts will provide at least 15 hours off.

59.3 Shift Allowances (M&P, TMS/TS)

a) Shift Premiums

- Shift work on Saturdays and Sundays shall be as follows per hour worked:
  - In 2011: $28.03
  - January 1, 2012: $28.59
  - April 1, 2012: $28.87

- Shift work on statutory holidays shall be as follows per hour worked:
  - In 2011: $56.03
  - January 1, 2012: $57.15
  - April 1, 2012: $57.72

The statutory holiday shift premium shall be paid on an actual hourly-as-worked basis.

Beyond December 31, 2012 the Shift Premium Rates above are subject to change based on the same general base wage increases that are applied to the wage schedules.

b) Shift Differentials

- For work on an 8-hour afternoon shift (1600 - 2400 hours) - 80¢ per hour worked
- For work on an 8-hour night shift (0000 - 0800 hours) - $1.10 per hour worked
- For work on a 12-hour night shift only $1.25 per hour worked.
- For work on a 10 hour night shift only - 80¢ per hour worked

59.4 Information Management Systems Division (M&P)

In the Information Management Systems Division (IMSD) where the shift allowance payable to an M&P Shift Supervisor does not amount to at least 112% of the shift-related payments received by the PWU-represented staff working the same shifts, an annual adjustment will be made to the shift allowance for the M&P Shift Supervisor.
Until OPG is able to solve the relativity problem in IMSD, M&P shift supervisors shall receive an annual adjustment which would result in a 12% differential between their shift allowance and the shift-related payments received by the PWU-represented staff working the same shifts. Where a 12% differential exists, no annual adjustment will be made.

Employees in IMSD who either start or leave an M&P shift position during the year will receive a monthly pro-rated allowance. One-half month’s tenure is necessary for receipt of the allowance for that month.

59.5 Ten Hour Shifts

OPG may assign employees covered by this Article to 10 hour shifts, without a vote, with the exception of employees subject to the Letter of Understanding (LOU#14) re “Hours of Work for Field Management and Professional (FM&P) Staff” dated July 2, 1996.

The following conditions shall apply:

a) Notice

Management will use reasonable efforts in revising the regular schedule so as to provide the following minimum hours off between shifts:

i) Shift change notices between 10 hour shifts will provide at least 12 hours off.

ii) Shift change notices between a 10 hour shift to a 12 hour shift or vice versa, will provide at least 12 hours off.

iii) Shift changes notices from a 10 hour shift to an 8 hour shift or vice versa will provide at least 15 hours off.

b) Shift Differential

- First shift – 06:00 – 18:00 hours - no shift differential
- Second shift – 14:00 – 02:00 hours - $0.80 differential per hour worked

c) Shift Premium

- Shift work on Saturdays and Sundays shall be as follows per hour worked:
  - In 2011: $28.03
  - January 1, 2012: $28.59
  - April 1, 2012: $28.87

- Shift work on statutory holidays shall be as follows per hour worked:
  - In 2011: $56.03
- January 1, 2012: $57.15
- April 1, 2012: $57.72

The statutory holiday shift premium shall be paid on an actual hourly-as-worked basis.

Beyond December 31, 2012 the Shift Premium Rates above are subject to change based on the same general base wage increases that are applied to the wage schedules.

d) Special Circumstances

Collective Agreement provisions for time off shall apply except as modified for the following Special Circumstances;

On 10 hour day/shifts the following items will be credited for pay purposes on an hour-for-hour basis:

i) Vacation
ii) Floating Holidays
iii) Sick Leave
iv) Leave of Absence/Unpaid Time Off
v) Travel Time
vi) Medical and Dental Consultation - Periods of less than four hours shall not be deducted from sick leave credits.

a) In the application of the above-noted items (i) (ii) and (iii), a “days” entitlement will mean eight hours, i.e. a 10-hour day/shift will constitute one day and two hours deducted from credits.

b) When an employee is scheduled to work a 10-hour day/shift and one of the under-noted conditions occurs, a “day” will be considered to be 10 hours.

i) Jury duty and attendance at court
ii) Funerals
iii) Moving Day
iv) Time Charges for Attendance at Delegates’ Council and meetings of The Society’s Board of Directors.

59.6 Periodic Shifts for Non-Shift Workers

a) Periodic shifts for non-shift employees shall be allowed to mirror shifts created under PWU "periodic shift" agreements in force January 01, 2005, when The Society employee(s) provides direct supervision or technical support (including inspection/testing) alongside such PWU-represented employees for:

i) field settings
ii) laboratory settings.
b) In the circumstances described in paragraph 1, above, an employee shall be assigned to periodic shifts for a maximum of **13 weeks for each calendar year** under applicable shift provisions of the Collective Agreement including normal shift differentials and premiums.

The exception to the above is the I&M Technician Supervisors who may be required to work on shift for up to 8 months of the year.

c) Shift assignment shall be in accordance with Article 59.7.

d) This Article does not alter existing local Agreements in force at the time of settlement, including Agreements reached pursuant to Article 72, and modifications of the provisions of paragraphs a) and b) are negotiable as Letters of Understanding.

e) The JSOC may review the application and operation of this Article prior to the end of the Collective Agreement.

59.7 Assignment to Shift – Non-Shift Workers

OPG may assign non-shift workers to shift, for station support and special projects, on the following basis:

a) Qualified volunteers will be sought, if insufficient volunteers are available, qualified employees will be assigned. Non time balanced shift schedules shall be staffed by volunteers only.

b) Seven days notice, prior to the commencement of shift will be provided – failure to provide notice requires the payment of overtime premiums for all work outside of the normally scheduled hours, until such time as the notice period has elapsed.

c) Shift work not to exceed **13 weeks for each calendar year**. Any shift work beyond the periods indicated above is voluntary.

d) Employees will be paid per the appropriate shift provisions in this article.

e) Any concerns that arise from the transition and adjustment to shift work will be discussed by management and The Society.

59.8 Time Balancing

Save and except for employees covered by LOU #183, a time bank will be established for each employee to record the total number of scheduled hours worked plus scheduled hours paid for vacation, sick leave, time off in lieu or other approved paid time off. Where there is a positive time balance at the end of a periodic shift schedule for an employee, on an M & P pay schedule, management will endeavour to time balance within sixty (60) days.
If at the end of the 60 day period, mentioned above, a positive time balance remains it shall be reduced to zero as follows:

The employee may elect:

i) payment at time and a half for 50% of the hours and double-time for the remainder;

or

ii) time off at straight time.

Negative time balances existing at the end of the shift schedule, or caused by interruption or cancellation, will be written off.

Overtime hours are not counted in the time bank.

60 Shift Work (FM&P)

60.1 Intent

- Assignment of FM&P staff to shift will normally be on a voluntary basis. However, in the absence of any qualified volunteers, OPG reserves the right to appoint specific individuals to perform the work.

- An employee who has volunteered may opt out of a shift arrangement by giving one month’s written notice, subject to the above.

- Except in an emergency situation, at least seven days' notice will be given with respect to shift change notices.

- OPG will propose shift arrangements and seek The Society's input on proposed shift arrangements.

- A minimum period for a shift is four days.

- OPG reserves the right to terminate specific shift arrangements by giving one month’s written notice.

60.2 Definitions (See Article 59)

60.3 Shift Differentials

Scheduled hours worked in shifts commencing during the following hours shall have the following shift differential apply:

a) two- or three-shift coverage of eight hours or less:

<p>| 07:00 - 10:00 | zero differential |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
<th>Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 - 18:00</td>
<td>In 2011: $7.20/Hr</td>
<td></td>
</tr>
<tr>
<td></td>
<td>January 1, 2012: $7.34/Hr</td>
<td></td>
</tr>
<tr>
<td></td>
<td>April 1, 2012: $7.41/Hr</td>
<td></td>
</tr>
<tr>
<td>18:00 - 07:00</td>
<td>In 2011: $10.38/Hr</td>
<td></td>
</tr>
<tr>
<td></td>
<td>January 1, 2012: $10.59/Hr</td>
<td></td>
</tr>
<tr>
<td></td>
<td>April 1, 2012: $10.70/Hr</td>
<td></td>
</tr>
</tbody>
</table>

b) two-shift coverage of greater than eight hours:

<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
<th>Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>06:00 - 10:00</td>
<td>zero differential</td>
<td></td>
</tr>
<tr>
<td>10:00 - 06:00</td>
<td>In 2011: $10.38/Hr</td>
<td></td>
</tr>
<tr>
<td></td>
<td>January 1, 2012: $10.59/Hr</td>
<td></td>
</tr>
<tr>
<td></td>
<td>April 1, 2012: $10.70/Hr</td>
<td></td>
</tr>
</tbody>
</table>

Beyond December 31, 2012 the Shift Differential Rates above are subject to change based on the same general base wage increases that are applied to the wage schedules.

60.4 Shift Premiums

Scheduled hours worked on Saturday and Sunday will be paid at an amount equal to the employee's base rate plus the following rate per hour worked:

- In 2011: $25.19
- January 1, 2012: $25.70
- April 1, 2012: $25.95

For scheduled work performed on a statutory holiday, the amount paid equals the employee's base rate plus the following rate per hour worked. An additional day off will be scheduled in lieu of the statutory holiday.

- In 2011: $51.90
- January 1, 2012: $52.94
- April 1, 2012: $53.47

Beyond December 31, 2012 the Shift Premium Rates above are subject to change based on the same general base wage increases that are applied to the wage schedules.

60.5 Overtime

Authorized overtime beyond the normal scheduled shift hours shall be compensated in accordance with the overtime provisions of this Agreement.

60.6 Time Balancing

A time bank will be established for each employee to record the total number of scheduled hours worked plus scheduled hours paid for vacation,
sick leave, time off in lieu or other approved paid time off. The time bank will be reduced to zero after the duration of the shift schedule.

For positive time balances the employee may elect:

i) payment at time and a half for 50% of the hours and double-time for the remainder;

or

ii) time off at straight time.

Negative time balances existing at the end of the shift schedule, or caused by interruption or cancellation, will be written off.

Overtime hours are not counted in the time bank.

60.7 Special Circumstances

In the application of the under-noted items a reference under the appropriate provision to "days" entitlement will mean eight hours. For example, a 12-hour shift will constitute one and one-half days deducted from credits. Items (e) and (f) will be credited, for pay purposes, on an hour-for-hour basis.

a) Vacation

b) Floating Holidays

c) Sick Leave

d) Leave of Absence

e) Travelling Time Outside Normal Working Hours

f) Payment for Relief Work

When an employee is scheduled to work shift and one of the following items applies, a "day" will be considered to be one scheduled shift.

a) Legal Hearings

b) Funerals

b) Moving Day

61 Compensation and Working Conditions - 12-Hour Shift Schedule

The following provisions apply to employees in any Business Unit who work a 12-hour shift schedule.
61.1 General Provisions

61.1.1 The 12-hour shift schedule will average the regular scheduled hours per week for employees and will indicate the days and hours of work (shift) for each employee. Payment will be determined in accordance with this Article and as outlined elsewhere in Article 59 ("Shift Work (M&P, TMS/TS)").

61.1.2 The implementation of 12-hour shift work will be on the understanding that its application will not result in any appreciable increase in cost to OPG.

61.1.3 OPG or The Society Local Vice-President shall have the right to terminate 12-hour shift work. Written notice must be provided by the Department Manager to The Society Local Vice-President or vice versa.

   a) If the notice is two months prior to the end of the current schedule, 12-hour shift work will terminate at the end of the current schedule. Reason(s) for termination will be provided by the respective party.

   b) The 12-hour shift schedule may be cancelled immediately by OPG should any of the following be adversely affected: safe operation of plant; health of shift workers; public safety.

      Appendix I to this Article provides further information about the 12-hour shift monitoring criteria for OPG.

   c) When employees at any Department have exercised the right to opt out of time-balanced 12-hour shift work, no new 12-hour shift work may be introduced for those employees without the mutual agreement of local management and the local Society Unit Director.

61.1.4 All policies and agreements which normally apply to employees will continue to apply unless specifically stated otherwise in this Article.

61.2 Shift Differential

A shift differential of $1.25 per hour worked will be paid to 12-hour shift employees for each night shift hour worked, in accordance with Article 59.3 ("Shift Work (M&P, TMS/TS)").

61.3 Shift Premium

Hourly shift allowances shall be paid to M&P and TMS/TS shift workers, for hours worked as follows:
• Shift work on Saturdays and Sundays shall be as follows per hour worked:
  • In 2011: $28.03
  • January 1, 2012: $28.59
  • April 1, 2012: $28.87

• Shift work on statutory holidays shall be as follows per hour worked:
  • In 2011: $56.03
  • January 1, 2012: $57.17
  • April 1, 2012: $57.72

The statutory holiday shift premium shall be paid on an actual hourly-as-worked basis.

Beyond December 31, 2012 the Shift Premium Rates above are subject to change based on the same general base wage increases that are applied to the wage schedules.

61.4 Overtime

61.4.1 Authorized overtime beyond 12 hours of work on scheduled workdays Monday to Saturday inclusive and all hours worked on scheduled days off Monday to Saturday inclusive shall be compensated in accordance with the overtime provisions of this Agreement.

61.4.2 Authorized overtime beyond 12 hours of work on scheduled workdays which are Sundays or statutory holidays and all hours worked on scheduled days off which are Sundays or statutory holidays shall be compensated in accordance with the overtime provisions of this Agreement.

61.5 On-Call

On-call service payments will not be applied to those employees on the Minimum Availability Requirement (MAR) list (see Section 61.8).

61.6 Special Conditions

61.6.1 The following items will be credited for pay purposes on an hour-for-hour basis:
  a) Vacation
  b) Floating Holidays
  c) Sick Leave
  d) Time Off Without Pay
e) Travel Time

f) Medical and Dental Consultations - Periods of less than four hours shall not be deducted from sick leave credits.

61.6.2 In the application of the above-noted items (a), (b) and (c), a reference under the current provisions of this Article to a "day's" entitlement will mean eight hours. Therefore a 12-hour shift will constitute one and one-half days deducted from credits.

61.6.3 When an employee is scheduled to work a 12-hour shift and one of the under-noted conditions occurs, a "day" will be considered to be 12 hours.

a) Jury duty and attendance at court.

b) Funerals.

c) Moving Day.

d) Time Charges for Attendance at Delegates' Council and meetings of The Society's Board of Directors.

61.7 The basic statutory holiday and special time off provisions remain unchanged in that time off and pay entitlements will continue to be calculated on an eight-hour basis.

61.8 Minimum Availability Requirement (MAR) List

61.8.1 In order that a sufficient number of shift employees are on duty to maintain and ensure a continuous operation at any Department utilizing 12-hour shifts, a MAR List will be prepared.

61.8.2 A sufficient number of employees, by job classification and qualifications, will be determined by OPG. Employees will volunteer their willingness to be called in to work in this situation, by placing their name on the MAR List under the day(s) they wish to be called. If there are no volunteers, OPG reserves the right to assign employees to the MAR List. Employees will not be placed on the MAR List who are scheduled to work on an adjoining shift.

61.8.3 An employee on the MAR List agrees to be available during the Required Availability Period (RAP), to report to work to cover short-term absence. The RAP is the period of time commencing two hours prior to each shift change and ending one hour after each shift change.

61.8.4 If an employee whose name is on the MAR List cannot be available for the specified day(s), the employee must arrange for a substitute acceptable to OPG, whose name then would be added to the MAR List.
61.8.5 Volunteering or being assigned to the MAR List for RAP periods does not entitle the person to any compensation, i.e., on-call pay, etc., nor does it guarantee that overtime will result.

61.8.6 In the event that an employee is called to work from the MAR List, he/she will be entitled to overtime premium rates (outlined in Section 61.4) for all hours worked.

61.9 Time-balanced 12-hour shift work will be introduced in an OPG Department when the following conditions are met:

61.9.1 More than fifty percent (50%) of employees who vote in that Department must vote in favour of 12-hour shift work.

61.9.2 More than fifty percent (50%) of all eligible shift workers who vote in that Department must vote in favour of the 12-hour shift work.

61.9.3 The vote will be determined by a secret ballot scrutinized jointly by appointees of OPG and the Local Vice-President of The Society.

61.9.4 Employees eligible to vote are those employees normally assigned to shift and may include Shift Supervisors, Shift Supervisors in Training, Shift Operating Supervisors, Control Room Shift Supervisors, Control Room Shift Operating Supervisors, Authorized Training Supervisors, First Line Manager (FLM) and TMS.

61.9.5 Although the content, preparation, costing and administration of shift schedules is the sole responsibility of OPG, the preference of the majority of shift workers in a station/department/plant for a particular basic type of schedule will be considered. Such preferences must be made known to OPG four months in advance of the starting date of the new schedule. Master Schedule Guidelines are attached as Appendix II.

61.9.6 Supernumerary Shifts while working on the 12-hour shift schedule will be 0800 - 1600.

61.9.7 Three supernumeraries can be exchanged for working two 12-hour regular days off. Supernumeraries can be shift changed to shift crews on a 3:2 supers to shift crew basis.

61.9.8 When a regular shift commences before midnight and continues after midnight, all hours during the continuous shift shall, for pay and time balance purposes, be recorded and treated as if they occurred during the calendar day in which the shift ends.

Exception: The statutory holiday shift premium shall be paid on an actual hourly-as-worked basis.
61.9.9 Shift workers with a plus or minus four hours time balance assigned to day work or shift for an indeterminate period of time may be required to take off or work a four-hour period respectively, but no payments, premium or otherwise, will apply to such time worked as an extension of a normal eight-hour day to resolve a minus time balance.

61.9.10 For the day on which an election occurs and up to three days before and after, all employees on a 12-hour schedule will be changed to an eight-hour schedule unless joint agreement is reached to do otherwise.

61.10 Twelve-hour shift work may be introduced in other locations when the following conditions are met:

61.10.1 If local management determines that a 12-hour shift work arrangement is appropriate, a vote will be held in the affected work unit(s).

61.10.2 More than 50% of those eligible to vote in the work unit(s) must vote in favour of 12-hour shift work.

61.10.3 The vote will be determined by a secret ballot scrutinized by the appointees of OPG and The Society.
## APPENDIX I

### 12-Hour Shift Monitoring Criteria

<table>
<thead>
<tr>
<th>Non-Public Safety</th>
<th>OPGI Public Safety</th>
</tr>
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<tbody>
<tr>
<td>Employee Health</td>
<td>Reliable Process Systems</td>
</tr>
<tr>
<td>Employee Safety</td>
<td>Reliable Safety Systems</td>
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<td>Employee Attitude</td>
<td>Multiple Barriers</td>
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<tr>
<td>Attrition</td>
<td>Competent Operators</td>
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<tr>
<td>Overtime Availability</td>
<td>Detect and Correct Failures</td>
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<td>Insufficient Notice for Shift Change</td>
<td>Control Zones</td>
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<td>Operating Error</td>
<td>External Training</td>
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<td>Productivity</td>
<td>Emergency Plans and Procedures</td>
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<td>Shift Turnover</td>
<td>Competent Staff</td>
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<tr>
<td>Cost</td>
<td>Detect and Correct Failures</td>
</tr>
</tbody>
</table>
APPENDIX II
Master Schedule Guidelines

1.0 All work groups must follow the same schedule.

2.0 An excessive number of 12-hour shifts cannot be worked in sequence. Three would be the maximum for nights; four would be the maximum for days.

3.0 At least 48 hours off will immediately follow each sequence of shifts. At least two regular days off will be schedule in each week.

4.0 Time balances should cycle between +36, with an additional +4 hours as an exception.

5.0 Other specific rules in Section 61.9 of the Article should also be noted.

Note:

1. Supernumerary shifts will be worked between the hours of 08:00 and 16:00. These shifts will be spread evenly throughout the year except for July and August. Supernumerary shifts will only be scheduled in July and August if required for outage schedules.

2. For hours actually worked by an individual the following implementation rules apply:
   2.1 Maximum of 3 night shifts in a row, except for MAR list needs.
   2.2 A minimum of 48 hours off per pay period, except for MAR list needs.

62 Shift Turnover

62.1 A shift turnover allowance will be paid to employees who have been authorized to perform shift turnovers, based on the criteria in Sections 62.2 and 62.3 and in compliance with the chart below.

62.2 Only one person will be paid for each shift turnover, either the incoming or the outgoing shift, but not both.

62.3 Rights to overtime are waived in favour of the above allowance when performing normal shift turnovers. The exception to this is in cases where the turnover is 30 minutes or longer due to unusual circumstances. In such cases all time beyond normal working hours will be compensated according to the overtime provisions of this Agreement in place of the allowance.
- Payment Per Shift Turnover -

<table>
<thead>
<tr>
<th>Salary Grade</th>
<th>Fossil Stations with Shift Superintendents</th>
<th>Fossil Stations with Production Supervisor - Shift</th>
<th>IMSD and Nuclear Stations</th>
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<tr>
<td>MP6</td>
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<td></td>
<td>$18.85</td>
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<td>11.05</td>
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<tr>
<td>MP2</td>
<td></td>
<td></td>
<td>14.50</td>
</tr>
</tbody>
</table>

63 Compensation for Authorization as a Nuclear Shift Supervisor

63.1 An employee who receives initial authorization to act as a Nuclear Shift Supervisor on or after January 1, 1993 will receive a bonus of $7,000.

63.2 An employee who was previously authorized to act as a Nuclear Shift Supervisor and who has become re-authorized to act as a Nuclear Shift Supervisor at a different station after January 1, 1993 will receive a bonus of $5,000.

6 Thunder Bay, Lennox, Lakeview
7 Lambton, Nanticoke
PART XIII - WORKING CONDITIONS

64 Employment Continuity

- There are three separate and distinct parts to Article 64:
  1. Part A Redeployment Surplus
  2. Part B Non-Surplus Redeployment of Society Staff
  3. Part C Decontrol/Change of Employer

- In accordance with Article 64.32 Article 64 Part B is applicable in non-surplus situations that necessitate the redeployment of Society represented employees, except as follows:
  - In the Nuclear Unit of Application, where employees who are in an over complement situation at their work headquarters and can be accommodated at another work headquarters that is under complement on the basis of same job classification (i.e. like to like) Article 105.5 will apply;
  - In the Fossil\(^8\) Unit of Application, where there is a "closure\(^9\) of a Fossil location announced by the government LOU #166 "Coal Plant Closure" will apply.

- For Surplus redeployment as outlined in Article 64.34 Article 64 Part A is applicable.

- Notwithstanding the above, in the event where there is decontrol or change of employer the parties agree Article 64 Part C will apply.

PART A – REDEPLOYMENT SURPLUS

64.1 Scope

This Article will apply to all employees except temporary employees, and takes precedence over other provisions of this Collective Agreement with regard to vacancies and job placements unless otherwise specified. Article 34 “Temporary Employees” describes the entitlements for temporary employees. Employees on leave (e.g. LTD) or on foreign assignments will be neither advantaged nor disadvantaged upon return from the leave.

64.2 Preference for Regular Employees

When a surplus arises, surplus regular employees will be retained, and used for temporary work, in preference to temporary employees if the conditions below are satisfied:

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\(^8\) Clarity Note: For the purposes of this Article, the term "Fossil" refers to what is now known as "Thermal".

\(^9\) Clarity Note: The term "closure" applies to both full and partial station closures (e.g. unit closure or fuel conversion).
- within the same Unit of Application;
- where the regular employees are qualified to perform the work and are able to perform the job within a reasonable period of time given the length of the assignment;
- where the work is normally performed by Society-represented employees.

64.3 Grievability/Arbitrability

Employees may use the grievance/arbitration procedure to appeal decisions of the joint teams referred to in this Article if they believe they have been treated unfairly. JRPT decisions and processes are grievable. It is expected that the parties will support their decisions and recommendations. This is not intended to prevent the parties from jointly agreeing to change their decisions and recommendations. The recommendations and decisions by other Joint Redeployment Planning Teams and other Joint Reasonable Offer Teams are without prejudice and cannot be used as precedents in grievance arbitration. Any agreements reached by the JSMC within the scope of Article 64 are neither grievable nor arbitrable.

64.4 Preamble and Principles of Operation

It is intended that the parties will make their best efforts to interpret, apply and administer the provisions of this Article to reflect a balance among the principles set out below and throughout this Article.

Employment continuity is an element in sustaining a work climate that supports a high level of employee commitment, performance and job satisfaction. The following principles reflect our underlying values and beliefs and provide the direction on which this Article is founded:

64.4.1 Career change should be expected and viewed positively.

64.4.2 Individuals are responsible for their own career decisions and should be involved in developing options affecting their careers.

64.4.3 OPG and The Society recognize the value of retaining, utilizing and enhancing the asset of employee skills and abilities.

64.4.4 Employment continuity issues will be discussed openly and employees and their representatives should be involved in these discussions as early as possible.

64.4.5 Employees will be provided with access to opportunities for learning and development and will take a proactive role in their development to prepare for the future.
64.4.6 It is in the best interests of both our customers and our employees for OPG to be a viable and healthy business entity with operations province wide.

64.4.7 Employment continuity policies must reflect a balance between the fundamental interests of OPG and its employees.

64.4.8 Employees will be treated fairly and with respect and dignity.

64.4.9 OPG and The Society recognize that there will be competing individual interests and will structure redeployment strategies which will minimize the occurrence of that competition and its negative impact.

64.4.10 A commitment to effective short and long range planning is critical to employment continuity.

64.4.11 For a JRPT to operate effectively and efficiently, it is important that it be provided with a pre-determined organizational structure and adequate/appropriate resourcing.

64.5 Definitions

64.5.1 “ADVERSE IMPACT” shall mean that due to organizational and operational changes that include technological changes, workload changes, and business process re-engineering and all other circumstances where the numbers of Society represented employees are reduced and/or positions with incumbents are either eliminated or significantly changed (e.g. a change to job duties and/or skills/qualifications and/or rate as covered in the job document).

64.5.2 “BASIC SEARCH/NOTICE PERIOD” shall mean a period of not less than 24 weeks during which a surplus employee has “priority consideration” for vacancies.

64.5.3 “BUSINESS UNIT” shall mean the organizational unit under a Vice-President or equivalent.

64.5.4 “CONSENSUS” shall mean an agreement on a given issue that all parties to the agreement can live with and publicly support.

64.5.5 “DECLARED SURPLUS” shall mean that the employee has insufficient seniority and/or qualifications to be matched to an ongoing position that is deemed to be a reasonable offer in his/her unit of application.

64.5.6 “DIVISION” shall mean an organizational unit which reports to Vice-President.

64.5.7 “EMPLOYMENT CONTINUITY”
For employees in the Nuclear Business Organization shall mean the obligation on OPG's part to provide opportunities and options to maintain productive and rewarding employment within the Nuclear Business Organization and in the event that such opportunity is not available, to provide fair and reasonable employment adjustment and terms and conditions for departure. It is the obligation on the part of the employee, The Society and OPG to actively participate in the redeployment process.

For employees in the Fossil, Hydroelectric and Corporate Business Organizations shall mean the obligation on OPG's part to provide opportunities and options to maintain productive and rewarding employment within the combined Non-Nuclear Business Organizations and in the event that such opportunity is not available, to provide fair and reasonable employment adjustment and terms and conditions for departure. It is the obligation on the part of the employee, The Society and OPG to actively participate in the redeployment process.

64.5.8 "Employment Equity", for the purposes of this Article, shall mean if employment equity programs will be seriously set back through the application of this Article, the Joint Redeployment and Planning Team may by consensus agree to protect sufficient lesser service employees in order to prevent such a set back from happening. This provision is not intended to further or enhance employment equity initiatives.

64.5.9 "INCUMBENCY" is a concept that a JRPT may use as a part of its redeployment process. The JRPT may identify an employee as an incumbent only if the position meets the following criteria:

- substantially unchanged duties and responsibilities\(^{10}\);
- unchanged location\(^{12}\);
- unchanged hours of work;
- unchanged salary band.

64.5.10 "LATERAL POSITION" shall mean a job paid from:

a) the same salary schedule and is the same salary band as the employee's current grade;

or

b) the same band on a different salary schedule;

or

c) For employees on Salary Schedules 03 or 09:

\(^{10}\) The operational meaning as determined by the JRPT.
either Salary Schedule and is the same salary band as the employee’s current salary band.

64.5.11 "PRIORITY CONSIDERATION" is provided to surplus employees and shall mean an obligation to select the most suitable candidate from amongst the qualified surplus applicants for advertised vacancies for whom the vacancy represents a lateral or lower-rated position. If there are no qualified surplus applicants Management is then obliged to select the most suitable candidate from amongst those surplus applicants who can become qualified in a reasonable period of time.

64.5.12 "PROMOTION" shall mean a position in which the demands and responsibilities are greater than in the employee’s current job and the position is a minimum of one salary band higher than the employee’s current job if rated on the same salary schedule or the equivalent of one salary band higher if rated on a different salary schedule.

64.5.13 "QUALIFIED" shall mean having the qualifications and experience required to perform the job within a reasonable period of time, normally not expected to exceed six months.

64.5.14 "SENIORITY" shall mean all prior service with Ontario Hydro and OPG or other eligible seniority as per the transition provisions in Section 9.3 of the 2006 – 2010 Collective Agreement regardless of breaks in employment, employee category and/or bargaining unit/ representational status. Regular employees who currently work reduced hours or have done so in the past, will have such service calculated as if it were full-time. In the event that a contractor is determined to be dependent, service shall be counted from the date of a declaration of dependent contractor application to the OLRB or the date of joint agreement between OPG and The Society regarding contractor status.

64.5.15 "SERVICE" for the purpose of calculating severance shall mean the employee’s Established Commencement Date (ECD) and does not include any external experience credits. Employees who have received severance pay under this Article shall not be entitled to the service used to calculate previous severance pay in any future employment with OPG.

64.5.16 "SERVICE BASED SEARCH/NOTICE PERIOD" shall mean a search/notice period based on the surplus employee's Service Recognition Date (SRD) plus External Experience Value (EEV), during which a surplus employee has "priority consideration" for vacancies.

64.5.17 "UNIT OF APPLICATION" shall mean the organizational unit (e.g., Department, Division, Business Unit or a cross Nuclear Business Organization grouping or a cross Fossil/Hydroelectric/Corporate...
grouping) in which seniority and the identification of surplus staff shall be administered.

64.5.18 "VIABILITY OF THE WORK UNIT" shall mean if the ability of the organizational unit to adequately perform its functions is placed in jeopardy by the application of seniority.

64.6 Notification and Involvement of The Society

64.6.1 Principle of Prior Involvement

Prior to making final decisions on significant organizational or operational changes that have an adverse impact on the employment continuity of Society-represented employees, OPG will establish a team in a timely manner which will include representatives appointed by The Society. The team will examine how the organizational or operational change will be implemented and will strive to develop mutually acceptable recommendations in a timely manner for the appropriate level of Management based on this examination. In the event that recommendations are not developed or the recommendations are not accepted, OPG will make the final decision.

64.6.2 Notification

In the event that an OPG business decision has an adverse impact on the employment continuity of Society represented staff, The Society will be notified as soon as possible.

64.6.3 Involvement

The Society will be involved in all decisions respecting how Society represented employees are treated with respect to this Article.

There are three levels of involvement. They are as follows:

a) Joint Consultation

OPG and The Society will discuss the issue and attempt to reach a jointly acceptable course of action.

Failing an agreement, OPG will make the final decision.

b) Joint Recommendation

OPG and The Society will attempt to reach consensus on an issue which will form the basis of a recommendation to senior management.

In the event a consensus is not reached, the issue will be managed in accordance with the negotiated default contained in the relevant provisions this Article.
c) **Joint Decision**

OPG and The Society are obliged to reach an agreement on the issue.

### 64.6.4 Voluntary Surplus

In circumstances where Management is aware that job loss may occur, Management in its discretion may agree to a voluntary termination by an employee in the affected work group. In such cases, employees who terminate their employment will be entitled to their own entitlement for search notice and severance, plus an additional week of severance for each completed year of service, to a maximum additional payment of 26 weeks' pay. The combined total of the employee severance entitlement, plus the additional week under this Article cannot exceed 78 weeks.

### 64.7 Set Up Joint Redeployment and Planning Team

OPG shall decide the organizational structure required to carry out approved work programs.

OPG and The Society will appoint an equal number of representatives to the Joint Redeployment and Planning Team. This team will develop a redeployment plan which minimizes to the extent possible, the effect on and number of employees to be declared surplus, consistent with the need to carry out OPG's work and be responsible for overseeing its implementation. The team is also responsible for communications to affected staff. The Joint Redeployment and Planning Team will develop its recommendations/decisions by consensus using problem solving techniques.

Senior Management (e.g., Directors, Vice Presidents) shall meet to discuss with the Joint Redeployment and Planning Team the number and type of positions that will no longer be required.

### 64.8 Joint Planning - Responsibilities of the JRPT

a) The Joint Redeployment and Planning Team will review its proposed redeployment plan with the Senior Management (e.g., Directors, Vice Presidents) and Society Unit Director(s) in the work unit in at least two stages. The first report will include recommendations/decisions with respect to:

i) The Unit of Application for identification of surplus staff (refer to 64.9)

ii) Development of a process and strategies for redeploying staff within the Unit of Application (refer to 64.10).
b) The second report will include recommendations/decisions with respect to:
   i) The preparation of seniority lists and identification of surplus staff (refer to 64.15).
   ii) Identification of redeployment tools for the purpose of minimizing involuntary terminations (refer to 64.19).

c) Senior Management (e.g. Directors, Vice Presidents) will be required to:
   i) approve each report as a package; or
   ii) request the team to reconsider specific issues and to either confirm or agree to change specific recommendations.

d) Failing joint agreement on the team's proposal in full, Senior Management (e.g. Directors, Vice Presidents) will be required to reject the proposal in full and implement a plan based on the defaults in this Article. Differences related to the interpretation, application or administration of the redeployment plan may be submitted to the grievance/arbitration procedure.

e) Continuing Responsibilities of the JRPT

   Respond to questions and grievances related to its process and decisions.

f) Local accountabilities for:
   i) Minimizing surplus.
   ii) Determining an implementation plan for JRPT redeployment recommendations. This responsibility includes identifying clear accountabilities for the use of the redeployment tools.
   iii) Testing possible vacancies in the Unit of Application against the surplus employees in the Unit of Application.
   iv) Testing rotations in the Unit of Application that are greater than six months against the surplus employees in the Unit of Application.

   shall be clearly assigned in the JRPT’s second report.

g) The parties agree to the establishment of the Redeployment Information Service which will manage and coordinate information related to placement opportunities for surplus staff and provide support services to local Society and Management representatives.

h) With respect to the application of 64.28.2, ensure that purchased services contracts are reviewed by OPG throughout the redeployment process.
64.9 Unit of Application

64.9.1 Size of the Unit of Application

In determining the size of the unit for purposes of identifying who is surplus, the parties will be governed by the following:

- The size of the unit will be sufficiently large to provide a fair means for identifying the surplus employee(s).
- The size of the unit will be sufficiently small to minimize the disruption to both the employee and the work to be done.

A joint recommendation will be made in determining the size of the unit of application.

64.9.2 The Unit of Application for Society-represented staff in Nuclear Business Organization will be as follows:

<table>
<thead>
<tr>
<th>Division U of A Default</th>
<th>Business Unit Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pickering (including 700 University and work sites listed in Article 105.1)</td>
<td>Nuclear</td>
</tr>
<tr>
<td>Darlington (including work sites listed in Article 105.2, 105.3 and 105.4)</td>
<td>Nuclear</td>
</tr>
<tr>
<td>Nuclear Waste</td>
<td>Nuclear</td>
</tr>
<tr>
<td>IMS</td>
<td>Nuclear</td>
</tr>
</tbody>
</table>

Where fewer than 10% of Society-represented employees in a OPGI–Nuclear Division are adversely affected, then the default Unit of Application will be the Division.

64.9.3 Default Unit of Application for Fossil, Hydroelectric and Corporate Functions Business Organizations

Should the parties not agree to the size of the unit of application for the identification of surplus, then the unit size will be the Business Unit with this exception:

Where fewer than 10% of Society-represented employees in a Business Unit, and fewer than 20% of The Society-represented employees in the Division are adversely affected, then the default Unit of Application will be the Division.

64.9.4 Unit of Application Beyond the Business Unit

A JRPT may jointly recommend to a Vice-President (or equivalent) that the Unit of Application should be expanded beyond the Business Unit in a surplus situation. If the recommendation is approved, the recommendation will be jointly discussed with the Business Unit(s) into which expansion of the Unit of Application
has been recommended. If no jointly agreeable solution is achieved at this stage, the recommendation may be brought by either party to the JSMC for consideration and resolution. If no jointly agreeable resolution is achieved at the JSMC, the issue may be taken by either party to the President of OPG and the President of The Society for final resolution. In appropriate circumstances (e.g., Corporate Functions, Multiple Business Unit JRPTs), matters may be directly referred to the JSMC.

64.9.5 The Unit of Application for Society-represented staff in OPG Fossil and Hydroelectric Business Organizations will be as follows:

<table>
<thead>
<tr>
<th>Division U of A Default</th>
<th>Business Unit Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity Production Central Office Staff</td>
<td>Electricity Production</td>
</tr>
<tr>
<td>Fossil</td>
<td></td>
</tr>
<tr>
<td>Hydroelectric</td>
<td></td>
</tr>
</tbody>
</table>

64.9.6 The Unit of Application for Society-represented staff in OPG Corporate Business Organization will be as follows:

<table>
<thead>
<tr>
<th>Division U of A Default</th>
<th>Business Unit Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIO</td>
<td>CIO</td>
</tr>
<tr>
<td>Finance Function</td>
<td>Finance</td>
</tr>
<tr>
<td>Human Resources Function</td>
<td>Human Resources</td>
</tr>
<tr>
<td>Real Estate &amp; Services Function</td>
<td>Real Estate</td>
</tr>
<tr>
<td>Supply Chain Function</td>
<td>Supply Chain</td>
</tr>
<tr>
<td>Customer Solutions And Trading &amp; Portfolio Management</td>
<td>Customer Solutions And Trading &amp; Portfolio Management</td>
</tr>
<tr>
<td>Corporate Units –such as Corporate and Environmental Affairs, Communications and Business Development</td>
<td>Corporate Groups</td>
</tr>
</tbody>
</table>

64.9.7 Employees covered by the FM&P Letter of Understanding 14 dated July 2, 1996 will have a Unit of Application that consists of OPG.

64.9.8 All employees will normally be assigned to one and only one unit of application. Exceptions may result from the application of significant inequity rights contained in this Article.

64.9.9 Where OPG establishes organizational units which do not clearly fit the definitions contained in the unit of application default provisions, the matter of the appropriate unit of application will be
reviewed by the JSMC. The JSMC will make a decision which ensures that employment continuity rights are fairly applied.

64.9.10 Unit of Application Dispute Resolution Process

In the event of a change during the term of the Agreement, with respect to a default units of application issue, that cannot be resolved by the parties, shall be resolved as follows:

64.9.10.1 Where no decision of the JSMC is reached on a proposed change to default units of applications, within 10 working days of the JSMC’s consideration of the matter, the parties shall exchange written briefs.

64.9.10.2 The matter will be determined prior to the mix and match by a designated, mutually agreed arbitrator within 10 working days after the briefs have been exchanged.

64.9.10.3 The arbitrator shall hear the matter in the most expeditious manner possible, and shall only hear oral evidence where he/she determines that it cannot be determined on the basis of the written briefs and oral submissions. The arbitration decision shall be based on an updated equivalent balance of the Units of Application of this Article as of January 1, 2006.

64.9.10.4 The arbitrator shall issue an award within 5 working days of the hearing, setting out the default unit of application.

64.9.10.5 The arbitrator has all the powers under the applicable Labour Relations Act.

64.9.10.6 The JRPT shall continue to function and develop other elements of its first report pending determination of the default unit of application through this process, and the outcome of this process does not preclude the JRPT from achieving consensus on a unit of application notwithstanding the arbitrator’s award.

64.9.10.7 This process does not prejudice or waive any grievance rights under Article 64.3 but the arbitrator’s award on the default unit of application cannot be grieved.

64.10 Process for Staff Changes - Mix and Match

The Joint Redeployment and Planning Team will develop the mix and match procedures to fill positions in the new organizational structure from employees within the Unit of Application. The intent is to sort employees within the Unit of Application among the jobs in the new organization on the basis of qualifications and seniority. In the event there are no qualified
employees from the Unit of Application, the positions will be advertised in accordance with Article 65.

JRPTs are expected to keep accurate records of the reasons for deeming employees not qualified. Upon request, the employee will be provided with the written reasons for being deemed not qualified.

64.11 Mix and Match Rules

1) No promotions, i.e., only laterals or demotions are permitted in a mix and match process. (Note: Exceptions are described in 64.11.10 and 64.15).

2) Applies within the affected Unit of Application.

3) The process must be open and participatory and involve individual employees in planning and an agreed-upon form of posting within the Unit of Application.

4) In the event there are more qualified candidates than positions available in the new organization, then the most senior of the qualified candidates will be selected to fill the positions.

5) Employees who accept a lower-rated position or who experience a reduction in hours of work as a direct result of Mix and Match will be entitled to the provisions of 64.25 “Compensation”.

6) Pregnancy Leave and Paid Parental Leave

   The employee should be treated as though he/she is at work.

7) Other Leaves/Absences

   • If the return date is known and it will occur during the Mix and Match (or shortly thereafter), the JRPT should normally include the employee in the Mix and Match.

   • If the employee’s anticipated return date is not shortly after the conclusion of the Mix and Match, he/she would not normally be included in the Mix and Match. His/her employment continuity rights would be exercised upon his/her return.

   • Where an employee is not included in the Mix and Match, the JRPT needs to determine whether the position held by that employee prior to the start of the leave/absence will be included in the Mix and Match.

The JRPT should consider each circumstance on a case-by-case basis, considering such things as the employee’s availability to participate.
64.11.8 Out-of-Province Assignments

Refer to the Article 6.4 “Employment Continuity during Temporary Out-of-Province Assignments”.

64.11.9 Temporary Assignments/Rotations

Normally, employees will exercise the redeployment rights applicable to their regular positions. Exceptions:

There will be a local joint review with respect to the duration of an assignment where it is greater than two years and is outside The Society’s jurisdiction.

At the outset of the assignment, the employee will be advised of his/her rights with respect to Employment Continuity as described below:

- For assignments of two years or less, the employee will return to The Society’s jurisdiction for redeployment.
- For any portion of an assignment beyond two years, the employee will remain in the jurisdiction of the assignment position for the purpose of exercising redeployment rights.

Employees whose regular positions are outside of The Society’s jurisdiction but who have been acting in positions within The Society’s jurisdiction for at least two years continuously and who can demonstrate a severe disadvantage by returning to their regular position will be allowed to exercise redeployment rights within The Society’s jurisdiction. These situations will be reviewed on a case-by-case basis by OPG and The Society.

64.11.10 Employees Previously Demoted via Article 64

An employee previously demoted through the application of Article 64, or its predecessors, is eligible for consideration at up to his/her previous higher level during a subsequent Mix and Match subject to the following:

- The subsequent Mix and Match (i.e., upon approval of the first report) must occur within two years of the date that the employee reported to the lower-rated position.
- Displacement of another employee at a level higher than their current level is not permitted.
64.11.11 Progression-in-Place Programs (PIP)

a) Employees in a PIP will be retained in their PIP (should it continue to exist) based on seniority, subject to item (d) below.

b) Employees in non-PIP positions or in other PIPs will be considered for PIP positions subject to the following:
   i) for lateral or lower-rated levels of the PIP only;
   ii) must be minimally qualified at the entry level of the PIP;
   iii) able to achieve the terminal level of the PIP;
   iv) placement is based on seniority.

c) Employees in a PIP position will be considered for non-PIP positions for which they are qualified, subject to the following:
   i) considered for lateral or lower-rated positions;
   ii) placement is based on seniority.

d) OPG may determine a minimum number of employees qualified at the terminal level of the PIP at an appropriate work unit level (e.g., Division, Department, Section).

64.11.12 Participation of Surplus Employees

Surplus employees will participate in any subsequent mix and match process in their appropriate unit of application.

Their search/notice clocks will be stopped at the time the first JRPT report is approved and restarted upon approval of the second JRPT report if the employee is still surplus. An employee will retain priority consideration for any vacancy he/she has applied for prior to stopping of his/her clock.

A surplus employee not placed through a subsequent mix and match will have his/her clock restarted at the point it was stopped.

64.11.13 Vacancy Process

In the application of a mix and match, the JRPT may consider an expedited priority selection to vacancy process at each salary grade/Band level in descending order with the expectation of making additional positions available for the process.
64.11.14 Boundary Issues

The JRPT will identify all X, Y and Z positions in accordance with LOU #5 “Society-Management Function/ESR Boundary Issues”. The JRPT will ensure that positions so identified will be treated in accordance with the procedure outlined in the LOU unless agreed to otherwise by the parties.

64.12 Available Options if Employee Refuses a Job Offer

The Joint Redeployment and Planning Team will decide during the planning process which options will be available to an employee who rejects an offer that is upheld by the Joint Reasonable Offer Team (refer to 64.23) as reasonable. The affected employee must, within 48 hours of being advised of the decision, choose between the option (or options) as made available by the Joint Redeployment and Planning Team. The options are:

a) Accept job offer; or

b) Confirm refusal and terminate with 75% of lump sum payments as per Subsection 64.27.2 (a); or

c) Confirm refusal and be declared surplus with 50% of the normal search/notice period and 50% of the normal severance entitlement.

If there is no Agreement by the Joint Redeployment and Planning Team on the options, then (a) and (b) will be available.

Note: While option (a) is always available, the JRPT may choose to provide option (a) in combination with (b) and/or (c).

Exception: Employees who have been demoted as a result of the direct application of Article 64 and who, in a subsequent mix and match, face a demotion again due to the direct application of Article 64 will be allowed to choose between accepting the demotion or being declared surplus with full entitlements. They will not be required to submit to the JROT process.

64.13 Refusal of an Incumbent Position

Where an employee has been declared to be an incumbent to a position by the JRPT, he/she will not be entitled to file a challenge with the JROT in relation to the incumbent position. If the employee does not accept a match to his/her incumbent position, he/she may be deemed by Management to have voluntarily terminated his/her employment with OPG.
64.14 Pre-Mix and Match Surplus Declarations

Intent

To provide a fair opportunity to retain employment for those employees who are at a substantial risk of being declared surplus within the Unit of Application of those JRPTs yet to conclude their mix and match.

Process

a) Employees who are a part of a Unit of Application that has not yet concluded its mix and match and who wish to apply for corporate vacancies may request that they be granted surplus status subject to the following:

b) Employees will submit their request to be accorded surplus status to their JRPT. The JRPT will only extend surplus status to those employees who are at real risk of being declared surplus or, subject to confirmation by the JROT, at real risk of not receiving a reasonable job offer. The JSMC will be advised of such employees.

c) Employees who are extended surplus status by their JRPT will be provided with a surplus letter as is described in the Employment Continuity provisions.

d) The search notice period of an employee who is extended surplus status will begin upon written receipt of his/her Declared Surplus letter.

e) This surplus status will be automatically removed when the employee is selected to or placed in an ongoing position. Surplus status will also be withdrawn, at the employee’s request, if Management withdraws the vacancy notice in which the employee was seeking priority consideration. In such circumstances, the surplus status will be withdrawn from the date it was issued.

f) An employee who is provided with surplus status as described above will be entitled to the same rights as those employees who have been Declared Surplus as a result of a mix and match procedure. Such employees will also be entitled to fully participate in the mix and match process within their own Unit of Application.

g) JRPTs will have the responsibility to monitor and update a list of employees to whom they extended “at risk” surplus status.

64.15 Identification of Surplus Employees

64.15.1 The Joint Redeployment and Planning Team will compare the seniority of employees performing work which requires substantially the same qualifications and experience. In addition the team will compare the qualifications and experience of displaced employees with the qualifications and experience required by lateral or lower rated positions in the Unit of
Application and retain the most senior at that level in descending order. Through this process the Joint Redeployment and Planning Team shall decide by consensus which employees within the Unit of Application have greater seniority and shall be retained to fill the ongoing positions and which employees have least seniority and shall be declared surplus subject to 64.15.7 and 64.15.8 below.

64.15.2 Seniority rights apply to lateral and lower rated positions but are not applicable to higher rated positions. The exception to this can occur where there are essentially no lateral or demotional positions with respect to which an employee can exercise his/her Employment Continuity rights and where the JRPT believes there are reasonable opportunities for promotion. The JRPT will identify the individual employee(s) or categories of employees facing these circumstances and the positions or categories of positions that represent promotional opportunities.

64.15.3 Employees who are not supervisors shall not exercise their seniority and displace supervisory employees with respect to supervisory positions unless they have supervisory qualifications. Employees who are not First Line Managers (FLM) shall not exercise their seniority and displace FLM employees with respect to FLM positions unless they have FLM qualifications.

64.15.4 Employees who are Management and Professional Trainees will not normally have their seniority considered with employees who are not Management and Professional Trainees. The Joint Redeployment and Planning Team may decide on exceptions when employees who are Management and Professional Trainees have greater seniority than entry level employees who are not Management and Professional Trainees and who are on the same band.

For the purposes of Subsection 65.6.3 where the Joint Redeployment and Planning Team has agreed to make exceptions based on the above circumstances, such employees who are Management and Professional Trainees will have priority consideration in the same manner as other Salary Schedule 03 or surplus employees. Where the Joint Redeployment and Planning Team does not accept that the circumstances warrant exceptions, surplus employees who are Management and Professional Trainees will have priority consideration for MP2 and equivalent vacancies following consideration of the surplus regular employees from within the bargaining unit and before the applications of all other employees.

64.15.5 Employees from outside of the bargaining unit shall not displace Society-represented employees.

64.15.6 In the event that the team is unable to reach consensus on the identification of surplus employees, OPG will determine who is
declared surplus in accordance with the provisions of Subsection 64.15.

64.15.7 Viability of the Work Unit

The Joint Redeployment and Planning Team may decide to protect sufficient lesser service employees to restore the viability of the organizational unit. If the team is unable to reach consensus, then Senior Management (e.g., Directors, Vice Presidents) will decide. In situations where junior staff are protected by the implementation of viability of the work unit, and where the Unit of Application is smaller than a Business Unit, greater service employees who cannot be placed as a result of such protection shall have the right to have their seniority applied across the Business Unit.

64.15.8 Employment Equity

In situations of employment equity concerns, The Joint Redeployment and Placement Team may by consensus agree to protect sufficient lesser service employees in order to prevent such a set back from happening and extend the same provisions as set out in 64.15.7 above. Where the team has not reached consensus on the need to protect lesser service employees because of employment equity concerns, then the normal rules for identifying surplus employees on the basis of seniority will apply as outlined above in Subsection 64.15.

64.16 Declared Surplus

Employees declared surplus will receive written notice at the outset of their search notice period. Surplus status can be withdrawn at any time. The written notice shall contain:

- The cause of the surplus.
- A reference to this Article.
- The expected expiration date of the search notice/period (termination date).
- The right to priority consideration for vacancies in accordance with Subsection 65.6.3.
- The total severance entitlement.
- The anticipated date the employee will vacate his/her position.
- The expectation that the employee is expected to actively pursue internal and external placement opportunities.
64.17 **Declared Surplus - Significant Inequity Rights**

A significant inequity requires:

1. a declared surplus employee with eight or more years’ service; and

2. an employee not in the surplus employee’s unit of application with five or more years’ lesser service performing work for which the senior employee is qualified.

A significant inequity can occur:

- within a Business Unit; or
- across Business Units; or
- when organizational units have been split.

### 64.17.1 Within a Business Unit

The senior employee in the Significant Inequity situation will be offered a choice of:

a) displacing the most junior employee from a position for which he/she is qualified within two salary grades below his/her position provided the most junior employee has five or more years’ lesser seniority. If such a displacement is not available, then the employee may displace the most junior employee in the next lower salary grade in descending order under the same conditions as stated above; or

b) the right to apply with first priority consideration over all other surplus employees to Society vacancies, in accordance with Article 65.6.3, on a lateral or demotion basis; or

c) voluntary termination with entitlement to the provisions in 64.28.1(a). If the employee has chosen (b) above, he/she may at any time elect (c).

### 64.17.2 Beyond the Business Unit

The senior employee in the Significant Inequity situation will be offered, upon self-identification to the JRPT, a choice of:

a) the right to apply with first priority consideration over all other surplus employees to Society vacancies, in accordance with Article 65.6.3, on a lateral or demotion basis; and/or

b) voluntary termination with entitlement to the provisions in 64.28.1(a). If the employee has chosen (a) above, he/she may at any time elect (b).
64.17.3 Split Organizational Units

To displace beyond the Business Unit, the following conditions must be satisfied:

a) The senior and junior employees must have been in the same organizational unit within 12 months prior to the date of self-identification to the JRPT.

b) The organizational unit must have been split.

c) The junior employee must not be part of the senior employee's current unit of application.

d) The junior employee must be in a position performing a function that was in the same organizational unit as the senior employee within 12 months of self-identification.

The senior employee will be offered, upon self-identification, the following choices:

i) displacing the most junior employee as per Section 64.17.1(a) within his/her current Business Unit;

ii) if (a) above is not available, then the same displacement rights will apply within all split portions of the original organizational unit;

iii) the right to apply with first priority consideration over all other surplus Society employees to Society vacancies, in accordance with Article 65.6.3, on a lateral or demotion basis; and/or

iv) voluntary termination with entitlement to the provisions in 64.28.1(a). If the employee has chosen (iii) above, he/she may at any time elect (iv).

64.17.4 Significant Inequity Bump and Vacancy Issue

a) When exercising the option to displace, and a vacancy exists within the unit affected by the significant inequity rights, normally a vacancy will be considered to be the “least senior employee” and the displacement will occur into that vacancy. The exceptions to this are:

i) Where the vacancy is lower rated than the position that the least senior employee occupies; or,
ii) Where displacement into the vacancy requires a move that would not otherwise have occurred had the least senior employee been displaced.

b) When one (or both) of the exceptions applies, the displacing employee has the option of:

i) displacing the least senior employee, if that employee is qualified to perform the duties and responsibilities of the vacant position; or

ii) displacing into the vacancy.

64.17.5 Rights of Displaced Employees

An employee who is displaced as a result of the application of this section will be entitled to all of the provisions of Article 64, including the provisions of this section.

64.17.6 Significant Inequity

Where an employee has at least 8 years' service and is within one of the following functional groups, such an employee may displace an employee in the same functional group with at least 3 years' less service, who is performing work for which the senior employee is qualified: Finance, Human Resources, Health and Safety, Procurement, Real Estate.

64.18 Voluntary Surplus

An employee from the affected unit of application who would not otherwise be surplus may volunteer to be declared surplus, subject to the following:

a) The withdrawal of surplus status will be offered in seniority order to those surplus employees who are qualified to perform the duties and responsibilities of the position of the employee who is volunteering.

b) The surplus employee will not be considered for a promotion, but may be considered for a Progression-In-Place position.

c) This must result in the withdrawal of surplus status from the surplus employee.

d) The employee who is volunteering to be surplus will assume the surplus entitlements of the surplus employee who has his/her surplus status removed. A JRPT may recommend that different entitlements be made available to employees volunteering to be surplus.
e) The exchange of employees arising out of the application of these provisions is subject to the approval of OPG. The decision to approve (or disapprove) will be on the basis of further disruption to the work of the affected work unit.

64.19 Redeployment Tools

These would include, but are not limited to, the use of rotations, bridging to retirement, early retirement, retraining, and external placement.

These tools are not contractual entitlements but rather are methods for consideration by the Joint Redeployment and Planning Team.

64.19.1 Bridge to Retirement

A declared surplus employee who is close to retirement may wish to exchange severance pay for a working bridge to retirement subject to the following conditions:

a) The surplus employee must make a decision to opt for a bridge within 4 weeks of being declared surplus.

b) The period of time that represents the bridge would commence at the end of the search notice period.

c) The time period for which the bridge exists will not exceed the equivalent weeks of severance pay.

d) At the end of the bridging period the employee will terminate employment.

e) This decision is irrevocable.

64.19.2 Bridging for Future Workload

Surplus employees may be assigned to perform work in temporary positions which bridge them to a point in time where additional ongoing work requirements exist, subject to the following conditions:

a) That access to such positions be equitable (e.g. involve some form of advertising).

b) Surplus employees shall have their surplus status and rights withdrawn when selected to bridging positions.

c) Bridging could also include work sharing and job sharing where there is Agreement with the employees involved.
64.19.3 Rotations

Rotational opportunities should be used for developmental purposes and not to replace a legitimate vacancy. The following conditions will apply when rotational opportunities are used as a redeployment tool:

a) Posting of rotational opportunities should be in accordance with Article 65 (Vacancies (Relief, Rotations and Selections)).

b) The posting should include basic information such as position name, salary level, location, a description of the duties, starting date and proposed duration of the rotation.

c) The selection process should use formal selection criteria.

d) Interviews will be the responsibility of the receiving unit.

e) Rotations will normally be from six (6) months to two (2) years.

f) Terms and working conditions while on job rotation will be in accordance with Article 65 (Vacancies (Relief, Rotations and Selections)).

g) In the event that the search/notice period continues during the rotation, the surplus employee will not be restricted from applying to vacancies or from subsequently being released in a reasonable period of time, if he/she is the successful applicant.

64.19.4 Retraining

Retraining is intended to enhance the skill and qualifications of the surplus employee thereby increasing his/her marketability. It can include formal classroom training as well as developmental assignment within or external to OPG.

64.19.5 Educational Leave

The intent is to provide the surplus employee with the opportunity to enhance his/her potential for redeployment.

Treatment will be in accordance with the OPG policies on Educational Leave (see Article 97 (Status of Certain Policies and Procedures)).

64.19.6 External Placement

External placement assistance may be provided, at OPG’s discretion, to a maximum value of two (2) weeks’ salary (e.g. 
Outplacement counseling, legal or financial counseling, external job search expenses.

64.20 Re-assignment of Declared Surplus Employees

Surplus employees who have not been placed into a regular position will normally be reassigned to work of a different nature within the basic search/notice period. This work should complement and assist the employee's redeployment by ideally providing opportunities to develop skills.

In situations where a Plant Closure has been identified as a cause for the adverse impact, unplaced employees at the Plant identified for closure, who are declared surplus, will not be entitled to reassignment during the search/notice period. In such situations the employee will be terminated. The employee will be paid the cash equivalent of basic search/notice + 100% service based search notice + severance (as outlined in 64.27.1). Such employees will be entitled to recall per Article 64.30.

Probationary employees who are not placed within eight weeks of their declared surplus date will be terminated and will be entitled to a payment equal to the amount of time remaining in the basic search/notice period. A probationary employee will not have the time that he/she is declared surplus credited towards the attainment of regular status.

64.21 Search Notice Period

64.21.1 Procedures

All full-time and reduced-hours employees who are declared surplus will have a search/notice period calculated as follows:

- no less than a 24 week basic search/notice period;

plus

- service-based search notice period equal to the sum of:
  - two (2) weeks per year of service for the first five years of service, and
  - one (1) week per year of service for service greater than five years, and

- employees (who are not hired as Trainees) with relevant previous experience will receive additional service-based job search credits based upon their highest salary grade within one year of hiring in accordance with the following:
<table>
<thead>
<tr>
<th>Salary Band Hired Into</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP-2</td>
<td>4 weeks</td>
</tr>
<tr>
<td>MP-3</td>
<td>6 weeks</td>
</tr>
<tr>
<td>MP-4</td>
<td>8 weeks</td>
</tr>
<tr>
<td>MP-5</td>
<td>10 weeks</td>
</tr>
<tr>
<td>MP-6</td>
<td>12 weeks</td>
</tr>
</tbody>
</table>

- For reduced hours employees, the service-based search/notice period will be calculated as if all service had been worked full-time.

The total search/notice period will not exceed 60 weeks.

### 64.21.2 Interruption of Search/Notice Period

**Intent:**

The search/notice period will normally run continuously uninterrupted, except where circumstances seriously impede the employee’s ability to search for a new job or interfere with the employee’s timely release to accept a new job. In those situations where the search/notice period is suspended, the right to priority consideration is also suspended, except as outlined below.

**Specific Circumstances:**

**a) OPG Assignments Outside of Ontario**

If the assignment is greater than one year, the surplus employee will be entitled to a 24-week search/notice period or the remainder of his/her search/notice period whichever is greater, upon return to OPG. If the assignment is less than one year, the search/notice period will continue unless the employee is not available to search for a new position in which case the search/notice period will be suspended. (See also Article 6 “Employees on Temporary Out-of-Province Assignments”).

**b) Secondments**

If the term of the secondment is defined, then the surplus employee is given the same treatment as described for out-of-province assignments. If the term of the secondment is undefined, then the employee is considered placed.
c) Pregnancy and Paid Parental Leave

- The search/notice period is suspended when the employee commences the leave. It continues when the employee returns to work.
- The rights associated with being declared surplus do not cease during the leave.

d) Other Leaves (e.g. Unpaid Parental Leave, Educational Leave etc.)

The search/notice period and any associated rights are suspended.

e) Rotations/Temporary Assignments

Normally, surplus employees are expected to continue their job search and be available for placement. However, if the nature of the rotation/temporary assignment is such that the surplus employee is precluded from reasonably participating in the job search, the search/notice period shall be suspended for the duration of the assignment. Such decisions should be made at the outset of the rotation/temporary assignment.

f) WSIB/LTD/Long Term Sick Leave

The Joint Redeployment and Planning Team will examine each case on its own merits and in the context of the intent of this Subsection.

64.21.3 Extension Beyond Search/Notice Period

Intent:

To allow surplus employees who are on rotation to extend their employment beyond the expiration of their search/notice period.

a) It is possible for employees who are on rotation to continue employment with OPG beyond the expiration of their search/notice period when the expected duration of their rotational assignment goes beyond the expiry date of their search/notice period.

b) The decision to extend employment beyond the expiry of the search/notice period and the responsibility for the employee will be assumed by the receiving unit (i.e., the unit with the rotational assignment).

c) Normally, the extension will be for the expected duration of the rotational assignment. Where the line management of the receiving unit deems it necessary, a cancellation provision
(minimum of 30 calendar days) can be included as one of the terms of the rotational assignment. This cancellation provision would be identified prior to the commencement of that portion of the rotation beyond the expiry of the employee’s search/notice period.

d) For the period of employment, following the expiration of the search/notice period, employees will be considered per Article 65.6.3.1(f) and will not have priority consideration for corporate vacancies.

e) The extension of employment beyond the expiration of the search/notice period shall not be used for the calculation of any other entitlement (i.e., severance, notice of termination, lump sum payments and voluntary resignation) under Article 64.

f) With the exception of the limitations stated in sections (d) and (e) above, employees whose employment has been extended beyond the expiration of their search/notice period will be treated as regular employees and will be covered by all of the other provisions of the Collective Agreement.

64.22 Acceptance/Rejection of Job Offers

64.22.1 A surplus employee will have up to 7 calendar days to accept or refuse an offer of a position.

64.22.2 Assessment of Suitability

If there is more than one applicant for a vacancy within The Society's jurisdiction, the applicants will be considered in the priority set out in Subsection 65.6.3.

Within each category the most suitable candidate will be selected.

64.22.3 Right of Refusal - 24-Week Basic Search Period

A surplus employee may refuse any offer of employment without penalty.

64.22.4 Right of Refusal - Service-Based Search Notice Period

If the surplus employee refuses a job offer that is within 2 salary bands lower, he/she will either:

i) terminate employment with severance pay;

or

ii) challenge that the offer is not a reasonable one. If the challenge succeeds, the surplus employee will continue on
the job search period. If the challenge fails, the surplus employee will accept the offer or be terminated with 50% severance pay.

64.23 Reasonable Offer Challenge Process

A Joint Reasonable Offer Team (JROT) will be established for each Unit of Application established under this Article.

This team will resolve employees' appeals arising from offers made during the mix and match process. Offers made subsequent to the final report of the JRPT process shall be subject only to the grievance/arbitration and not to the JROT process.

The team will meet and make a decision within three (3) working days of receipt of the appeal. The decision will become part of the JRPT final report recommendation.

It will take into consideration items such as job level, geographical location, responsibilities, status, health, family, legal precedents, community standards and past practices.

The team will be made up of two employees representing OPG and two employees representing The Society. The members of the team must be different than those on the Joint Redeployment and Planning Team. The team's membership composition should avoid conflict of interest.

The surplus employee is responsible for presenting his/her own case.

Members of the JROT may request assistance from either the Society or OPG.

In the event that the JROT is unable to reach a decision within the three (3) working days the appeal will be heard by a standing arbitrator within three (3) days. In the case of extenuating medical circumstances the three (3) days for the appeal may be extended to thirty (30) days to complete the entire process.

If a job offer is found to be unreasonable by the Joint Reasonable Offer Team, then the employee will be allowed to refuse it and be declared surplus with full entitlements.

64.24 Legal Notice of Termination of Employment

It is agreed that the basic search/notice period and the service based search/notice period are sufficient and full notice as per the requirements of the relevant legislation. This Article is the Adjustment Plan as required under the Ontario Labour Relations Act and meets the requirements of the Canada Labour Code, Part III, Division IX, Group Termination, for federally regulated employees.
64.25 Compensation

Salary Maintenance

64.25.1 The surplus employee’s base rate of pay will be maintained, including economic increases and special allowances in the case of TMS staff (refer to Appendix XVII), until placement or termination. This provision with respect to special allowances for TMS staff is not applicable in the operation of Article 64 after January 4, 2007.

64.25.2 If the surplus employee accepts a position at the same salary level, salary maintenance will continue as in Clause 64.25.1.

64.25.3 If a surplus employee accepts placement in a lower rated position his/her current base salary dollars will be frozen until the employee’s current pay entitlement as determined from the salary band and step exceeds the frozen level. This salary treatment must be conveyed in writing when the offer is made.

Exception:

A surplus employee who is within three years of eligibility for an undiscounted pension will be entitled to any negotiated economic increases for the period of time prior to qualifying for the undiscounted pension. In the event that the employee does not retire upon qualifying for an undiscounted pension, his/her base salary dollars will be frozen at that time. (This would include any economic increases occurring during the period of time prior to qualifying for an undiscounted pension.) At this point, the normal salary maintenance provisions will apply.

64.25.4 Premiums will be calculated on the basis of the Incremental Pay Step assessed for the lateral or lower rated job.

64.26 Reduction in Hours of Work

Principles

- Pay should reflect hours worked.
- Pay should reflect the job performed.

64.26.1 Where employees move to positions where the normal weekly hours are less than in their former positions The Society and OPG will attempt to reach a local agreement on a transition which would allow the affected employees to work additional hours above the 35 hour base for an extended period of time with staged reductions.
64.26.2 Failing agreement in accordance with Clause 64.26.1 the following treatment will apply:

a) Voluntariness of Application

Employees who wish to immediately work a 35 hour work week can do so. Their rate would be reduced immediately to the 35 hour rate upon starting the 35 hour work week position.

b) Employees within 3 Years of Undiscounted Pension

On the day of reporting to the new position an employee who is within 3 years of an undiscounted pension will not have normal hours of work reduced for 3 years or until such time as the employee is eligible for an undiscounted pension, if earlier. The employee will continue to receive economic pay adjustments. If the employee does not retire upon qualifying for an undiscounted pension, then the hours of work and base rate will be immediately reduced to the hours and rate of the position.

c) Start Date of Freeze and Reduction

All employees impacted by the freeze and reduction decision will be treated as follows:

Employees previously working 40 hours:

Employees reporting to new positions will have their pay frozen according to the current salary schedule. Their hours of work will be reduced to 39 hours the first fiscal day of the next fiscal year. In all subsequent years, hours of work will be reduced by 1 hour per week, effective the first day of the fiscal year. The employee will be unfrozen after reaching 35 hours, or when their pay equates to the Incremental Pay Step for 35 hours.

Employees previously working 37.5 hours:

Employees reporting to their new positions will have their pay frozen according to the current salary schedule. Their hours of work will be reduced to 36.5 hours on the first fiscal day of the next fiscal year and finally to 35 hours on the first fiscal day of the following year. The employee will be unfrozen after reaching 35 hours, or when their pay equates to the Incremental Pay Step for 35 hours (see paragraph e) below).

d) Promotions, Demotions, and Laterals

This article covers Promotions and Laterals only. Promoted employees will have promotional increases, if any, applied to their rate and Incremental Pay Step before it is frozen. There
will be no demotions into positions that result in reduced hours of work.

e) Incremental Pay Steps

The Incremental Pay Step (IPS) will be used for employees on salary schedules 03 and 09. The IPS will be used as the salary rate on the 35 hour/week schedule. This is determined by applying the person's existing rate to the new schedule (i.e. a person at step 12 of MP-4 on a 40 hour week/schedule will be at Step 12 MP4 on the 35 hour/week schedule). The Incremental Pay Step will be subject to annual step progressions as per the collective agreement.

f) Completion of Process

When the salary rate becomes unfrozen the person is eligible for economic and step progression increases to their actual pay rate.

Hours of work will be reduced until either the ramp period has expired or the person's Incremental Pay Step is reached. If after the ramp period has expired, the employee's Incremental Pay Step has not reached their frozen level, the frozen dollars shall be applied to the new salary schedule to determine an equivalent level which becomes the employees new unfrozen pay standing. The employee will then be eligible for future step progressions and economic increases.

g) Definition of "Day"

During the reduction of hours process employees will have daily hours of work that vary between 7 and 8 hours per day. For the purposes of vacation, sick leave, floating holidays and leave of absence/unpaid time off, a "day" will mean any work day between 7 and 8 hours in the work week.

64.27 Severance, Lump-Sum Payments and Voluntary Resignation

64.27.1 Severance

Severance pay for the purpose of this Article will be calculated, for employees with less than 20 years’ service, at a rate of 2 weeks for each year of service at the termination of employment date. Employees with a minimum of 20 years of service shall receive severance pay of 3 weeks per year of service at the termination of employment date to a maximum of 78 weeks. It will be calculated at the weekly rate for base hours of work for the full-time position (refer to Article 71.2 “Reduced Hours of Work (RHOW) Arrangements”) to the nearest whole month (30 days). Credit will be given on a prorated basis for any service which exceeds a whole year to the nearest whole month (30 days).
Severance pay is paid only when employment has terminated.

Persons receiving severance pay will not be considered employees for the purpose of any benefit, service accumulation nor for any other purpose from the day of termination except for recall as per Section 64.30.

The maximum amount of severance is 78 weeks.

64.27.2 Lump Sum Payments and Voluntary Resignation

Surplus employees are entitled to voluntarily resign their employment rather than proceed with redeployment.

Surplus employees will be entitled to the residual search/notice period and severance entitlement in the form of a lump sum payment in lieu of their continued rights in accordance with the following:

a) Voluntary Termination During the Basic Search Notice Period

One hundred percent (100%) of any unused portion of their basic search notice period plus 50% of their service based search notice period plus 100% of their severance pay entitlement.

b) Voluntary Termination During Service-Based Search Notice Period

50% of the unused portion of the service based search notice period plus 100% of their severance pay entitlement.

Reduced hours employees will be entitled to lump sum payments which reflect pay for Normal Scheduled Reduced Hours (See Article 71.2 (“Reduced Hours of Work (RHOW) Arrangements”).

64.27.1 Previous Severance and Lump Sum Payment

Surplus employees who have received a payment under Subsection or Clause 64.22.4 "Right of Refusal - Service Based Search Notice Period", 64.27 "Severance Lump Sum Payments and Voluntary Resignation", Section 64.28 "Purchased Services", or the predecessor Agreement "S3", will have their severance calculated on the basis of continuous service since the last time severance was paid.
64.28 Purchased Services

64.28.1 Employees who are surplus as a result of purchased services will have the following additional entitlements:

a) If the surplus employee voluntarily terminates his/her employment prior to the end of the basic search/notice period, he/she will be entitled to 100% of the unused portion of the basic search/notice plus 75% of their service based search/notice period plus 100% severance pay.

b) If the employee is placed into a lower-rated position, then he/she will be entitled to one additional economic increase at his/her former rate prior to having the rate frozen.

c) The employee may be allowed to bid on the work being considered as a purchased service subject to the following conditions:

- there be no preference for the bid;
- if the surplus employee is the successful bidder, his/her employment will automatically terminate and he/she will receive severance pay; and
- the surplus employee will be entitled to the equivalent of two weeks’ salary if he/she is the successful bidder to assist in setting up his/her business.

Note: (c) will only form part of this Article if in OPG’s opinion it is feasible.

d) The surplus employee will be entitled to enhanced outplacement services equivalent to one week’s salary guaranteed plus two additional weeks’ salary at OPG’s discretion.

64.28.2 Prior to the involuntary termination of surplus employee(s) under this Article and where there are purchased services operating within the Unit of Application, OPG will review the purchased services contract with a view to determining if it would be a sound business decision to terminate the purchased services contract(s) based on consideration of such factors as the cancellation charges in the contract and the cost of the layoff.

64.29 Termination of Employment

If a surplus employee is not placed by the end of the service based search period, he/she will be terminated with a severance pay entitlement as per Subsection 64.27.1 “Severance.”
Throughout of this Article, wherever surplus employees eligible to retire terminate their employment voluntarily or involuntarily, such employees will be entitled to full retirement benefits in addition to full entitlements under of this Article.

64.30 Recall Rights

Surplus employees whose employment is about to terminate because their search/notice period has expired, or who terminated from a Plant identified for closure per Article 64.20, are entitled to the following:

a) a terminating surplus employee will be eligible for either:
   - a weekly paid severance payment with entitlements to recall;
   - or
   - a lump sum severance payment with no right to recall.

b) terminated surplus employees will be eligible for recall rights for 12 months from the date of their termination.

c) former surplus employees with recall rights will be considered for vacancies in the bargaining unit as per Article 65.6.3.1(f) of the Collective Agreement, including their right to grieve non-selection (refer to Subsection 65.6.3).

d) weekly severance payments will cease in the event a terminated former surplus employee is rehired.

e) severance pay received prior to recall will be subtracted from any future severance pay entitlements under this Article.

f) persons on recall are not employees and shall not be entitled to any benefits provided to employees except recall rights as noted above.

g) notwithstanding clause (f) above, persons on recall shall be provided with coverage under the OPG Health and Dental Plan from the date the right of recall commences for a period of 6 months or until the commencement of alternative employment whichever comes first.

64.31 Relocation and Housing Assistance

64.31.1 OPG will restructure the cost of relocation so it mitigates the disincentive in the redeployment of surplus staff.

64.31.2 A surplus employee in a community where OPG’s presence influences the housing market, e.g. Atikokan, Port Elgin, etc. may avail himself/herself of the House Evaluation and Guarantee Plan in accordance with the OPG policy.
PART B NON-SURPLUS REDEPLOYMENT OF SOCIETY
REPRESENTED STAFF

64.32 Conditions for Expedited Non-Surplus Redeployment

Attachment 1 shall be the process for redeployment of Society-represented employees (as per Article 3.1 and 3.2) in the Nuclear, Corporate, Fossil and Hydroelectric Units of Application. The foregoing is subject to the following:

a) Unplaced employees shall be bridged to future workload through productive or developmental work assignments in the applicable unit of application (Nuclear, Corporate, Hydroelectric or Fossil), and no employee is to be declared surplus;

b) Demoted employees shall be entitled to consideration for any position at or below their previous salary band in the next Mix and Match;

c) Priority selection status for corporately posted vacancies under Article 65.6.3 (e) shall not apply for the purposes of the process contemplated under Attachment 1.

d) Attachment 1 shall be incorporated in Part B, and further changes shall be subject to approval of the parties.

64.33 Unit of Application

a) The default Unit of Application for any redeployment under Attachment 1 shall be:

i. Nuclear for employees within the Nuclear Business Organization;
ii. Corporate for employees within the Corporate Business Organization;
iii. Hydroelectric for employees within the Hydroelectric Business Organization;
iv. Fossil for employees within the Fossil Business Organization.

b) The default Unit of Application for any redeployment under Part A of Article 64 shall be according to Article 64.9.2 for Nuclear employees, and according to Article 64.9.3, 64.9.4, 64.9.5 and 64.9.6 for Corporate, Hydroelectric and Fossil employees;

c) The Unit of Application shall not include employees who are identified as members of a different Unit of Application pursuant to provisions of the Collective Agreement in effect at the time.
64.34 Joint Redeployment and Planning Team

The parties shall form standing Joint Redeployment Planning Teams (JRPTs) in each of the Nuclear, Corporate, Hydroelectric and Fossil Business Organizations, which shall be activated from time-to-time for purposes of redeploying staff under either Attachment 1 or Article 64 on the following basis:

a) Management shall provide timely notice of a planned reduction or downgrade of positions at any location; and

i. whenever Management confirms the conditions set out in Article 64.32 will be met, the JRPT(s) shall apply the redeployment process in Attachment 1, or

ii. if any conditions of Article 64.32 are not met the JRPT(s) shall plan and implement the redeployment process under the provisions of Part A of Article 64.

b) an employee who has been matched through the operation of Attachment 1 or Part A of Article 64 and whose position is subsequently downgraded within 18 months shall be subject to redeployment at the previously matched level under either Attachment 1 or Part A of Article 64, as applicable in the circumstances;

c) the JRPT(s) shall have a continuing responsibility to review and match surplus or unplaced employees on the basis of seniority and qualifications to any lateral or lower rated Nuclear Society vacancy posting.

d) where Attachment 1 is being implemented, the JRPT(s) shall operate by consensus and provide a consensus Report including all currently planned redeployment outcomes, which shall be subject to approval of the Chief Nuclear Officer or designate, or the approval of the Senior Executive in the appropriate Business Organization or designate.

64.35 Dispute Resolution

Where the JRPT reaches impasse in implementing Attachment 1 or does not agree whether Attachment 1 applies in the circumstances, the impasse shall be resolved as follows and the JRPT shall continue with the redeployment thereafter:

(a) after giving 48 hours written notice of any issues it considers in dispute, either Party may refer these issues for final and binding resolution to the arbitrator designated under Article 16.11, “Expediting Redeployment Grievances and Arbitrations”, who shall rule within 24 hours of hearing, with written reasons to follow;
(b) the arbitrator shall have the powers of an arbitrator under the Labour Relations Act, with jurisdiction to determine procedure and make such orders as required to resolve disputed issues consistent with this Article and the Collective Agreement;

(c) this procedure does not apply to complaints regarding qualifications or reasonable offer challenges of individual employees or positions, which if not resolved by the JRPT shall be dealt with by the grievance procedure;

(d) individual employees and The Society reserve Article 64.3 grievance rights with regard to the outcome of the process in Attachment 1, but the decision of the arbitrator under this section shall not be the subject of a grievance.

64.35 Relocation Assistance

For employees receiving living expenses, rather than commuting, during the transition period of a relocation or while on a relief or rotational assignment, OPG shall pay mileage expenses for a weekly trip home if the employee utilizes it.

64.36 Related Agreements

Except as expressly modified by this Article or Attachment 1, all provisions of the Collective Agreement shall continue to be applicable.

64.37 Operation and Future Consideration

Part B of this Article and Attachment 1 shall operate within the Nuclear, Corporate, Hydroelectric and Fossil Business Organizations or successors thereof, effective the date of the Collective Agreement.
Attachment 1

Introduction

The redeployment of employees from the old organization to the new organization requires the full cooperation of everyone involved. The JRPT has designed this process on the assumption that employees will be able to provide sufficient details on their qualifications that will allow the JRPT and ultimately Management to make objective decisions with respect to the employee’s suitability for positions.

Employees are responsible for completing the required forms and submitting forms to the JRPT.

Management will be responsible for:

- Developing job documents for the purposes of assessing qualifications;
- Assessing qualifications for given positions and determining who is qualified for a given position under consideration by the JRPT.

The Joint Redeployment Planning Team will:

- Manage the process described below;
- Ensure conformance with the process and deal with exceptional matters as they arise;
- Match the employees to available positions as set out in the below process;
- Communicate relevant information at appropriate milestones;
- Prepare a report describing the outcome of the mix and match process;
- Prepare a list of the names of all employees and their respective placements.

The JRPT will review critical positions (as described by Management) for advance posting and filling. These positions will be subject to 2.2.10.

1 Redeployment Process

1.1 Pre-Steps (steps taken prior to the Mix and Match process)

2.1.1

Ontario Power Generation Management will provide details on the new organizational structure at a detail level that will indicate the classification, location, number of positions in the new organization and priority of staffing the position. A listing of existing staff by category and location will be provided. Management will provide an up-to-date employee database for the applicable Unit of Application. Management will identify (in writing) the qualifications and selection criteria for positions without incumbents.

2.1.2

The redeployment team will consider promotions on the basis of Article 64.15.2. Groups and salary grades to be determined by the JRPT.
2.1.3

All employees will be required to submit a Fact Sheet and a list of irrevocable location and job preferences. The template will be provided by the JRPT.

2.2 Redeployment Process Steps

The Redeployment process will take the following steps:

2.2.1 Determine Incumbents/Non Incumbents/Vacancies

Management to prepare list of employees, list of positions, designate incumbents, review with Site Joint Implementation Team (JIT). The JIT’s will consist of equal numbers of Society and management representatives and shall make decisions on a consensus basis. The incumbency rules will be as follows:

Incumbency Rules

i) Salary Grade (same)
   Similar Job Duties (Majority of duties and responsibilities that you were doing in your base position).
   Hours of Work (same)
   And either Work Location Unchanged or the Work Location is moved and the employee volunteers to move with their position

   i.e. **NUCLEAR**
   Bruce site
   700 University Ave
   Nuclear East Sites as defined in Article 105

   **FOSSIL**
   Nanticoke
   Lambton
   Lennox
   Thunder Bay
   Atikokan
   GTA

   **HYDROELECTRIC**
   Niagara Plant Group
   Northwest Plant Group
   Northeast Plant Group
   Evergreen
   Saunders GS
   Ottawa ST. Lawrence Plant Group (less Saunders)
   GTA

   **CORPORATE**
   The site locations for Corporate will be all the locations defined for Nuclear, Fossil, and Hydroelectric where there are staff that report to Corporate Groups.

   ii) In addition to the above, an employee’s nuclear division work location will be deemed to be unchanged if the employee
volunteers to relocate to the new worksite or if, within Durham Region, the employee’s new worksite is equal to or less than 33.5 kilometres from the employee’s existing worksite. Volunteers will be relocated before other affected employees are forced. The order of selection of individual employees who do not volunteer for redeployment in a non-surplus redeployment will be on the same basis as presently. Any employee redeployed in accordance with the above will be entitled to the benefit of the relocation provisions of the collective agreement if the requirements of these provisions are met. 11

2.2.2 Confirm Incumbents (NO JROT)

The JRPT will confirm all incumbency decisions made by the Site Joint Implementation Teams. The Main Team will review all issues brought to it by the JIT’s and make final decisions with regard to who is an incumbent. Incumbents will not be allowed a JROT although the decision to make them incumbent is subject to grievance under The Society Collective Agreement.

2.2.3 Notify Incumbents/Non Incumbents (Appeal Process to Main Team after review by Site JIT)

The incumbents and non-incumbents will be notified of their status. They must appeal within 24 hours. Appeal based upon ensuring the job meets the definition of incumbency rules in 2.2.1 and to ensure suitability of the person for the duties and responsibilities.

2.2.4 Match Non Incumbents to Lateral Same Site Vacancy (Senior Qualified)

As a first step all non-incumbents will be matched to lateral vacancies in their home site organizations at their base location. (e.g. 700 University Ave, Nuclear East sites as defined in Article 105, Saunders, Nanticoke)

Matching Rules

In addition to the rules set out in the Collective Agreement, the following rules will apply to matching for same site vacancies:

Location (same)
Hours of work (same, then different)
Equal Salary Band (e.g. FMP12/MP2)
Possibly different duties but qualified
Start with MP6 (Most Senior)

2.2.5 Work Unit Viability Check – All Locations

11 As indicated in the arbitration award from Kevin Burkett, dated April 30, 2012.
Determine viability needs of receiving site. Check to determine if staff who volunteered to relocate from sending site can be released to off-site positions.

2.2.6 Match Releasable Sending site Volunteers to Off-site Lateral Vacancy

Those on the sending site who have volunteered to transfer off-site will be matched to off-site vacancies on a senior and qualified basis.

2.2.7 Match Releasable sending site volunteer demotions to off-site vacancies.

Those volunteers who have not been matched to lateral off-site vacancies and who volunteered to take a demotion to move off-site will be matched to demotional vacancies.

2.2.8 Match Unmatched Lateral Vacancy (Senior Qualified) On Sending Site

After the releasable volunteers have been matched, remaining unmatched employees will be matched to positions vacated by the releasable volunteers in the sending site on a senior and qualified basis.

2.2.9 Receiving Unit Viability Check

Determine if the volunteer matches from above, have resolved any of the viability concerns identified in 2.2.5.

2.2.10 Forced Matching

a) Force match unmatched non volunteers sending site staff to off-site lateral vacancies on a junior basis. The most junior employees who remain unmatched to positions at the sending site will be matched to lateral vacancies off-site.

b) Force match remaining unmatched staff at all locations into demotion vacancies. This will be done on a reverse order of seniority (junior) basis.

Parts a) and b) will be run concurrently. The JRPT will have to ensure the outcome of this step respects Seniority and Qualifications.

2.2.11 Viability Check – Sending Site

The JRPT will agree on how to meet viability requirements and will act to do so. If a viability concern continues to exist after the Mix and Match process is complete, the JRPT will then attempt to address the concern using one or more of the following options prior to forced matches: call for specific volunteers; Corporate-wide vacancies; hiring externally; forced rotations and/or relief assignments in order to bridge for training; external contractors.
Those employees who are force matched from the sending site and are eligible for assistance under Article 52 will not be force matched again through this work unit viability process in a way that would make them eligible for Article 52, for the duration of Part B of Article 64.

Those employees who are on forced rotation for viability reasons during the life of the collective agreement will be allowed to work the equivalent of 10 days in a 9 day period.

In the event of an unresolved dispute the JPRT will utilize the expedited dispute resolution process, Article 16.11, “Expediting Redeployment Grievances and Arbitrations”, to determine the viability issue and to meet viability based on a balance of fairness to affected employees and business needs of OPG.

2.2.12 Employment Equity Check

As in Article 64.15.8 of the Collective Agreement.

2.2.13 Issue Letters to staff identifying placement

After the process is complete staff will be issued letters identifying their placement.

2.2.14 Joint Reasonable Offer Team Process (Art. 64.23)

A Joint Reasonable Offer process will be established so that employees have an avenue to appeal offers made during the mix-and-match process. The JROT will meet to render a decision within 3 working days of receipt of the appeal. The JROT process will be per Article 64.23 except that there will be no surplus entitlements if an offer is found to be unreasonable. Instead, offers determined to be unreasonable will be substituted with a reasonable position by the JIT.

2.2.15 Schedule

Both parties will make their best efforts to complete the redeployment process as expeditiously as possible. The following schedule consists of milestones for the completion of the redeployment process. The parties will agree on target completion dates for each of the milestones below. It is recognized that many variables may affect the completion dates and the team will amend the target dates where it considers it necessary. Failure to meet these target dates are not to be construed as justification for invoking the defaults under Part A of Article 64.

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Timetable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activation of standing JRPT</td>
<td>X</td>
</tr>
<tr>
<td>Report #1 completed by the JRPT Members</td>
<td>Y</td>
</tr>
<tr>
<td>Report #1 reviewed and accepted by the JRPT Members</td>
<td>Y</td>
</tr>
</tbody>
</table>
C.N.O. or by Business Unit Vice-President

Incumbency Process Complete Y + 18 days
Mix and Match Process Complete Y + 49 days
JROT Complete Y + 57 days
Report #2 Signed by JRPT Y + 64 days
Report #2 Approved Y + 71 days

X = first day of activation of standing JRPT
Y = X + Z
Z = the period the standing JRPT agrees is required to produce report #1

**PART C DECONTROL/ CHANGE OF EMPLOYER**

64.38 Part C shall apply to any sale, lease, transfer or any other transaction between the Company and any other entity, by virtue of which the ownership or control over any part of the Company's business or assets becomes held by such other entity and some or all of the Company's employees become employees of a new employer as part of the commercial transaction.

64.39 The company recognizes the importance of securing for employees' opportunity for continuing employment with a new employer and are committed to securing such opportunity for employees in a business or asset to be decontrolled.

64.40 In addition to Article 11, the Company further agrees that it shall provide in writing to The Society at the earliest possible time prior to the transaction, but in any event at least sixty days before the transaction closure, all available information relating to the new employer that is relevant to employees to the extent that circumstances reasonably permit. The Society agrees that confidentiality will be maintained.

64.41 Sequence of Events

Effective on the date the Company officially announces an intent to conduct a transaction in accordance with Article 64.38, the following will apply:

a) Until such time as staff positions and numbers to be transferred to the new employer are provided to The Society, employees may apply to vacancies in accordance with the collective agreement. All applications from employees in the affected businesses or assets
for laterals and demotions will be processed and considered unless the move would seriously jeopardize the viability of the work unit. Applications for promotions will not be blocked under any circumstances. Disputes arising out of the blocking of applications will be dealt with via an expedited process.

b) Commencing on the date that affected staff, positions and numbers to be transferred to the new employer are provided to The Society, displacements into and selections into or out of the businesses or assets affected will cease.

c) The Company will make Article 64.6.4 (Voluntary Surplus) as applied to 64.27 available to employees in businesses or assets where the number of employees exceeds the new employer’s needs. With the agreement of The Society, Management may offer other voluntary separation incentives such as focused pension incentives, retirement bridges, etc.

d) The Company will make available a voluntary separation option to employees eligible for an undiscounted pension with a retirement allowance of 52 weeks.

e) Employees affected by the change of employer will be asked to state in writing their intention to accept continuing employment with the new employer.

f) Employees who indicate their willingness to accept continuing employment with the new employer but where there are fewer positions available than willing employees, will be placed through an expedited mix and match process involving the following steps with a viability check after each step:

i) Incumbent matching

ii) Matching to lateral vacancies in the same location (Volunteer/Force)

iii) Volunteering for location change and/or a demotion.

g) Employees who indicate their willingness to accept continuing employment and for whom a position is available will transfer to the new employer.

h) Employees who have indicated their willingness to accept continuing employment with the new employer and for whom there is no position available will be treated in accordance with Part A of Article 64.

i) Employees who indicate that they are not willing to continue employment with the new employer will be entitled to severance of two weeks per year of service, not to exceed 26 weeks. Employees may elect to take such severance as a lump sum
amount, or in weekly amounts, during which time they will have recall rights to the company. Weekly payments will cease on the date an employee is recalled. Employees with recall rights will be considered for vacancies in the bargaining unit as per Article 65.6.3.1(f) of the Collective Agreement, including their right to grieve non-selection (refer to Subsection 65.6.3). Severance pay received prior to recall will be subtracted from any future severance pay entitlements under this Article.

All employees in this sub-section (i) will also be entitled to the following:

i) Coverage under OPG’s Health and Dental Plan for a period of six (6) months from the date of termination of employment or until the commencement of alternate employment whichever occurs first;

ii) Reimbursement for tuition fees and other associated expenses up to a maximum of $5000.00 upon production of receipts from an approved educational program within 12 months of his/her termination;

iii) Reimbursement of outplacement services up to a maximum value of two weeks salary (e.g. Outplacement counselling, legal or financial counselling, external job search expenses), upon production of receipts.

j) Management may, in consultation with The Society, offer the voluntary severance package under Article 64.6.4 (voluntary surplus) as applied to 64.27 to an employee to avoid a displacement.

64.42 If, within eighteen months of the transfer, the new employer reduces the number of employees and the transferred employee is declared surplus and terminated the employee(s) laid off will be entitled to a one time lump sum payment of one week per year of service with OPG and the new employer. The obligation to pay the laid off employee is contingent upon the employee being severed from employment without recall rights with the new employer.

The additional payment of one week per year of service will not apply where the permanent layoff is due to:

i. Strike
ii. Lockout
iii. Accident or catastrophic event
iv. Force Majeure/natural disaster
v. Temporary Plant shutdown

The obligation to make the payment of one week per year of service will not apply if any employee has successfully challenged the layoff for any reason and has filed a grievance successfully seeking reinstatement.
For employees in a Change of Employer situation where the new employer is not a competitor of OPG who are subject to involuntary layoff by the new employer, in addition to the cash payment of one week per year of service, the employee may have recall rights in OPG for 26 weeks. Employees recalled within the 26 weeks must pay back the balance of any cash payments based on their service and the date of recall (e.g. a 20 year employee who is recalled at the 5 week mark would pay back 15 weeks).

### 65 Vacancies (Relief, Rotations and Selections)

#### 65.1 Intent

To provide open, fair access to career opportunities and enable OPG to optimize staffing requirements over time.

#### 65.2 Definitions

"Relief/Rotations" assignments are short assignments where an individual is assigned duties outside their normal job duties.

“Relief” assignments will mean short-term assignments (normally up to 3 months) where an individual is appointed to act temporarily in an ongoing position or which is expected to become an ongoing position. In some cases, the individual may not be required to perform all of the duties and responsibilities of the position.

"Rotations" will mean assignments normally greater than 3 months but not exceeding 2 years in duration in positions which are not expected to be ongoing.

#### 65.3 Advance Planning

Prior to filling the work assignment of greater than five (5) working days duration, Management will meet with the local Society representative to discuss the nature of the requirement (e.g., relief, rotation) its expected duration, the selection process and whether there is an expectation that the work assignment will result in an ongoing position.

#### 65.4 Relief

65.4.1 Relief is used to cover (a) short-term absences for vacation, sickness, relief absences, etc., (b) short-term bridging periods for selection or rotation, and (c) short-term emergency situations.

65.4.2 The process for selecting the employee to fill the relief assignment should be easy and quick and provide a fair opportunity to employees in the work unit to perform relief.
**65.4.3** If there is mutual agreement between The Society Unit Director and Management prior to the beginning of the relief assignment, the relief assignment and the incumbent(s) can run for a period of up to one year. In the absence of mutual agreement, the relief assignment is limited to 90 days.

**65.4.4** Relief assignments will not be used continuously to avoid advertising either a rotation or an ongoing position.

**65.4.5** Pay treatment while on relief will be in accordance with Article 66.

**65.5 Rotations Within the Bargaining Unit**

(This Article does not apply to rotations outside the Society jurisdiction. Article 5 applies to rotations outside the Society jurisdiction.)

Rotations are used to accomplish work for situations that occur between short-term relief and ongoing positions. At the completion of the rotation, the employee will return to his/her original position or a comparable position normally within the sending unit, except in the circumstances where the employee is surplus (see Article 64).

**65.5.1 Principles**

Job rotations serve many purposes such as:

a) to provide development opportunities to employees consistent with their career objectives;

b) to allow Management to meet temporary work programs and work load requirements;

c) to manage work performance or to test skills and capabilities where it is believed that an employee’s skills and capabilities may be better utilized in another position;

d) to broaden the experience of employees so that they may better perform their regular jobs;

e) to provide employees with the opportunity to develop new skills for career advancement or to enhance career options in the case of anticipated redeployment or technological change which could result in skill redundancy or obsolescence;

f) to meet OPG’s employment equity objectives;

g) to provide Management with flexibility in resourcing regular positions as a result of employees being provided rotational opportunities and temporary relief assignments.

**65.5.2** Rotations which are expected to last six (6) months or longer in duration will be posted unless there is agreement with The
Society. The scope of the posting will be determined by the receiving unit and may be within the Department, Division/Business Unit or OPG-wide. Unless there is mutual agreement, the rotation will not continue beyond two years except where the position is formally identified as an ongoing training position.

A job rotation posting should include basic information such as the position name and location, salary level, a description of required duties, starting date and proposed duration of the rotation.

65.5.3 The optimal selection process is one in which the employee's interest in the job rotation opportunity, the sending unit's ability to release the employee and the receiving unit's interest in the employee coincide. Rotations will be voluntary.

The selection process should include the use of formal selection criteria and interviews will be the responsibility of the receiving unit.

65.5.4 Employees selected for rotation will be provided with a letter in advance of the rotation stating the nature, terms and conditions of the assignment, including rotation duration and details of the performance appraisal process. These terms and conditions should be mutually acceptable.

65.5.5 An employee, other than those who are surplus, who accepts a job rotation will be given a guarantee by the sending unit that he/she can return to his/her original position, if available, or to a comparable position normally with the sending unit.

65.5.6 Terms and working conditions while on a job rotation will comply with all applicable Articles in the Collective Agreement concerning pay treatment, overtime, performance appraisal process, moving expenses, travel expenses and related OPG policies.

65.5.7 Employees should not be restricted from applying to advertised vacancies or from being subsequently released from the rotational assignment if selected where the employee is surplus or the vacancy represents a promotion.

65.5.8 Performance feedback is an essential ingredient in any rotational assignment and should be provided during and upon completion of the rotation. A rotation should not normally have a negative effect on an employee's Incremental Pay Step.

65.6 Selections for Assignments Other Than Relief or Rotations

65.6.1 All vacancies for assignments which do not fall into the category of relief or rotations shall be advertised OPG-wide unless there is
agreement with The Society Local Vice-President or the following conditions apply:

a) during implementation of Article 64;

b) laterals or demotions in the case of sickness; employees with disabilities or special needs; employees returning from rotations, LTD, leaves of absence, foreign assignments, secondments/assignments outside OPG;

c) performance management that takes place following consultation with The Society;

d) ongoing exceptions in specified organizational units where there has been joint agreement of the JSMC;

e) “Progression” within a Progression-In-Place Plan or a proposal which has the joint agreement of the JSMC in accordance with Subsection 33.3.1. Vacancies for positions in a Progression-In-Place Plan will be advertised in a manner which informs employees that the position is included in a Progression-In-Place Plan and that where the best candidate does not satisfy the qualifications or experience required for the end position the employee may be offered the position at a lower rate and be progressed in place.

Employees in categories (a) to (e) in subsection 65.6.3 will be considered at all levels of the PIP prior to those employees in categories (f) to (h) and subject to unit viability. Unit viability which would alter this consideration will be discussed in advance of advertising the PIP.

Exceptions to provide for the advertising of the position at a lower rate than the end position will be permitted by joint agreement between The Society Unit Director and the Business Unit Leader based upon a balanced consideration of:

- future work planning needs
- providing developmental opportunities for lower-rated staff outside of the Progression-In-Place Plan
- current work requirements
- unit viability and the need to have sufficient number of staff in the end positions.

In such cases, the vacancy notice will state that the position is part of a PIP Plan and surplus employees will be considered for placement at a lateral level.
f) a regular position currently held by an employee where a job review has resulted in a change in Salary Band;

g) to fill vacancies with the same occupation code within six (6) months of the ongoing posting, in which case Management may select from the previous list of candidates, after checking that surplus employees have not become available for consideration since the vacancy was last advertised;

h) to meet legislative requirements.

65.6.2 All applications which represent a promotion must be processed.

When an application to an advertised vacancy represents a lateral or demotion to a non-surplus employee, the following will apply:

a) Applications from employees with less than three years' service in their current position will be processed and considered where the supervisor determines that the move on balance would be in the best interest of OPG and the employee.

b) Applications from employees with over three years' service in their current position will normally be processed and considered unless the move seriously jeopardizes the viability of the work unit.

c) Applications to an advertised vacancy which represent a demotion with an increase in base hours of work to a non-surplus employee will be processed where the employee's Director determines that the move on balance would be in the best interest of OPG and the employee.

65.6.3 Selection Priority for Vacancies

65.6.3.1 Selection Priority for Vacancies

If there is more than one applicant for a vacancy within The Society's jurisdiction, the applicants will be considered in the priority set out below:

a) Surplus Society-represented employees who have elected the priority consideration option in Subsection 64.17 (Declared Surplus - Significant Inequity Rights).

b) Surplus Society-represented applicants for whom the vacancy represents a lateral or demotion including surplus trainees applying for MP2 or equivalent and who were mixed and matched with employees who are not Management and Professional Trainees.
c) Surplus employees who are Management and Professional Trainees who were not mixed and matched with employees who are not Management and Professional Trainees and who have greater seniority than Surplus Applicants who are not Management and Professional Trainees will have priority consideration for MP2 and equivalent vacancies before the applications from all other individuals other than those in (a) and (b) above.

d) Surplus applicants from positions that are excluded from The Society (i.e. Society Equivalent Management Group Jobs (formerly MF)) and for whom the vacancy represents a lateral or demotion.

e) Society-represented employees and Society Equivalent Management Group Jobs (formerly MF) applicants from a business unit that has invoked Article 64 and a JRPT has not completed its mix and match for whom the vacancy represents a lateral or demotion.

f) Selection on a “best qualified” applicant basis from among regular Society-represented applicants, regular Society Equivalent Management Group Jobs (formerly MF) applicants, and applicants with recall rights under Article 64.30 or 64.41 (i).

g) Selection on a “best qualified” applicant basis from among all other regular applicants from OPG.

h) Selection on a “best qualified” applicant basis from among temporary employee applicants with OPG.

i) External to OPG.

Assessment of the suitability of a surplus employee for a lateral or lower level placement opportunity will include education, experience, personal contribution factors and potential for training to perform the job requirements within a reasonable period of time (e.g. up to six (6) months). A surplus employee who is placed and who requires additional training to perform the job requirements with assistance to obtain the necessary training and development to perform the new job requirements. OPG will restructure the cost of retraining so it mitigates the disincentive in the redeployment of surplus staff.

A determination that none of the applicants in category (a) is qualified or qualifiable within a reasonable period of time is required before considering the applicants from the next category. The same is true with respect to categories (b), (c), (d), and (e).

See subsection 65.6.1 for priority consideration of applicants to Progression-In-Place Plan vacancies.
OPG agrees to grant priority to Society-represented employees in the business organization corresponding to The Society’s bargaining unit who are surplus and to those who fall within subsection 65.6.3(e) who apply for positions excluded from all union jurisdictions and for whom the vacancy represents a lateral or demotion, after the consideration of surplus applicants in the business organization corresponding to The Society’s bargaining unit who are excluded from all unions for whom the vacancy represents a lateral or demotion and prior to consideration of all other applicants.

65.6.4 In determining who is the best qualified candidate for positions, in each category of subsection 65.6.3, the primary basis for the selection of employees is their assessed capability to perform the necessary work. The selection criteria would normally include but not be limited to the following:

a) requirements including skill, knowledge, education, experience, transferable/generic skills such as analytical skills, communications skills, project management skills, consulting skills, self-management skills, accountability, responsibility, etc.;

b) the candidate’s past track record and what she/he brings to the position;

c) the candidate’s potential to develop competence for more senior positions;

d) the need to meet legislative requirements;

e) the need to balance the overall requirements of the work unit.

65.6.5 Employee selection measures which are used as aids in selection decisions shall be job related and be used in a manner that is fair and equitable to the individuals being assessed. Individuals will be entitled to prior knowledge of the selection criteria and be entitled to information with respect to their performance in the selection process upon request.

65.6.6 Some flexibility should be exercised in accepting late applications to advertised vacancies after the closing date in order to permit employees a fair opportunity to continue employment yet still allowing the Business Unit to resource expeditiously.

Where the closing date is FIRM, it must be stated clearly in the vacancy posting that late applications will not be considered.

a) Surplus and non surplus employees are normally expected to have made application to a vacancy by the closing date.
b) It is recognized that in some instances, there will be applications filed after the official closing date. In these cases, unless the closing date is FIRM, late applications must be filed with the advertising location NOT later than the date that the “short list” of applicants is finalized for formal consideration.

- The term “Short List” refers to the first list of applicants who Management plans to interview for a vacancy.

c) Employees who have applied for vacancies and are later declared surplus have until the “short list” date to notify the advertising location of the change in their status.

65.6.7 Applicants to advertised vacancies are to be advised of the status of the vacancy (and of their applications) within a reasonable period of time for each successive step they qualify for.

65.6.8 When outstanding vacancies remain unfilled for longer than six months, employees in the work unit concerned should be advised of the reason for not filling such vacancies.

65.6.9 All positions on Salary Schedules 01, 02, 03, 04, 05, 08, 09, 10, 11, 12, 13, 15, 22 which are excluded under the Recognition Clause and first-level ESR vacancies including rotational opportunities expected to last longer than six months will be posted on appropriate bulletin boards (and through electronic means where possible).

65.6.10 Release of Employees Selected to a Vacancy

Intent:

(a) OPG will strive to facilitate the expeditious release of employees who are selected to a vacancy.

(b) Normally, employees should be released within 90 days of the vacancy selection. In the event that a release date greater than 90 days appears likely, Management will discuss the reasons for the delay and a release date with The Society.

66 Salary Treatment For Promotions, Temporary Assignments, Lateral Transfers and Demotions

66.1 Definitions

Band Hierarchy (low to high): MP-2, MP-3, MP-4, MP-5, MP-6

For further clarity:
• Schedules 03 and 09 shall be treated as lateral pay schedules for the purpose of movement of employees between these two schedules under the Collective Agreement when considering two positions at the same salary band/step.

• A change of position that results in a change in step and/or band will be considered “a job change” per Article 23 and will reset the annual progression date to the effective date in the position.

"Promotion":

This occurs when an employee is appointed to a position in a higher band.

"Lateral Transfer":

This occurs when an employee is appointed to a position in the same band.

"Demotion":

This occurs when an employee is appointed to a position in a lower band.

The parties recognize that employees in PIP positions accepting positions outside of their present PIP family will receive the equivalent treatment in so far as promotions, lateral transfer and demotions as if their status in their PIP (MP 2, MP 3 or MP 4) was on the corresponding band. The parties further agree that progression in a PIP will not be considered a promotion.

66.2 Promotion

66.2.1 It is normally expected that an employee will receive a salary increase upon promotion to compensate for the greater demands and responsibilities of the new, or revised job.

66.2.2 A grandfathered employee may receive a promotional increase when selected to a position in a higher band, and this increase may result in the employee being still above the band in the new position.

66.3 Reclassification as a Result of a Job Re-evaluation

66.3.1 Reclassification may occur under several circumstances:

a) when the salary band for a job increases with no change in the employee’s actual job duties/responsibilities;

b) when the employee has been and will continue to perform additional job duties/responsibilities;
c) when additional job duties/responsibilities are to be added to the job.

d) Reclassification as a result of (a) or (b) above will result in the employee being placed in the step nearest to a 6.6% increase in the higher salary band.

e) Reclassification as a result of (c) above will be considered a promotion.

However, at his/her next automatic annual progression the employee will be eligible to be placed at the appropriate step as before the reclassification, that represents a salary increase at the step nearest to a 6.6% increase in the higher salary band.

f) A grandfathered employee shall receive the reclassification increases in points d) and e) above. These increases may result in the employee being still above the band in the reclassified position.

g) Positions reclassified under this Article shall retain their previous automatic progression date.

66.3.2 Short-term increases in the employee’s actual job duties/responsibilities do not require reclassification but may be subject to the relief provisions of this Collective Agreement.

66.3.3 Retroactive payments, if any, that result from reclassification either because of a Management or employee-initiated job review will be limited to a maximum of one year prior to the date of the job review request. The employee must have performed the relevant duties and responsibilities which resulted in the reclassification during this period in order to qualify for retroactivity.

66.3.4 Retroactivity which results from a reclassification decision will be paid within 60 calendar days of the final decision on the rating.

66.4 Temporary Assignment in a Higher-Rated Job

66.4.1 From the first working day performing in a higher-rated job an employee shall receive:

a) a salary increase whereby, as a minimum, the employee is placed on the step nearest to a 3% increase when assigned to work in a position one or two bands higher than the employee's normal job;

b) a salary increase whereby, as a minimum, the employee is placed on the step nearest to a 5% increase when assigned to work in a position more than two bands higher than the employee's normal job.
66.4.2 To be eligible for the payments above:
   a) the position must be filled to satisfy operating requirements; and
   b) the employee must perform all or most of the normal job duties of the position as expected during the course of the assignment.

Where a temporary assignment to a higher-rated position is discretionary and optional for the employee, pay treatment is also discretionary. Discretionary means that the temporary assignment is not required to be filled to satisfy operating requirements, in the opinion of OPG, and represents a developmental opportunity.

66.5 Lateral Transfer

Normally, an employee who is appointed to a lateral position should receive no increase in current pay.

66.6 Demotions

An employee who voluntarily accepts placement in a lower rated position will result in an individual being brought across at the same step in the new band. In the event that the employee is paid above the top step of the band the individual will have his/her current base salary dollars frozen until the employee’s current pay entitlement as determined by the salary band and step exceeds the frozen level. An employee may apply to The Society in advance of submitting a job application and/or acceptance of a job offer for an exemption from this provision. Exceptions that occur as a result of performance management (Clause 65.6.1 (c)) require advance consultation with The Society.

67 Purchased Services Agreement (PSA)

Except as indicated by Letter of Understanding (LOU) 188, Article 67 and LOU’s 122, 124, 125, 126 and 175 are suspended for the term of LOU 188. Purchased Services for this term are governed by LOU 188.

1. During the term of LOU 188 there shall be no involuntary layoff of any Society represented employees as a result of contracting out.

67.1 Scope

This Agreement was developed jointly in a spirit of co-operation and trust. It is intended to provide a joint approach to making good business decisions
which involve the use of purchased services. Its application calls for these decisions to be made in the same spirit of co-operation and trust.

What follows is based upon the belief that there is value and benefit to the employee, the Company and the customer if:

- There is a greater involvement and therefore responsibility by employees in all aspects of the decision making process.
- There is an improved understanding as to why purchased services are used.
- Employment security and career opportunities are enhanced by a productive, healthy and cost effective organization.
- We collectively strive for excellence by continuously improving whatever we do and by fully utilizing the capabilities of all employees.
- The Society and Management work together and act responsibly balancing the interests of the customer, the Company and the employee in decisions relating to the use of purchased services.

This is a way of deciding how work gets done. It is not intended to hinder getting work done.

67.2 Assignment of Work

67.2.1 Philosophy

It is the Company's intent to use Society represented staff to perform most of its work where they are able to perform it well and effectively. Furthermore, the Company will strive to provide regular staff with stability of employment.

The parties agree that a consistent, managed, joint approach to the assignment of work within the Company is necessary to provide security and career opportunities for employees, a more effective, productive organization and an excellent product for the consumer.

67.2.2 Principles

The following principles apply to the relationship between the Company and The Society with respect to the work performed by Society represented staff.

a) We will within OPG have all work conducted as effectively as possible.
b) We will measure the effectiveness of all work by its impact on staff, on the business, on the environment and by its ultimate impact on our customers.

c) We will do most work with Society represented employees if they can perform it well and effectively.

d) We will determine when work is to be done by non-Society represented staff through a joint decision making process and the results of these decisions will be a joint responsibility.

e) We will use the enhanced surplus staff agreement for employees who are surplus as a result of contracting the work they normally would have performed.

f) We will use a team and consensus approach when making decisions and any issues arising will be resolved internally, where possible.

g) We will consult and make timely decisions consistent with the need to get work done.

h) We will develop, implement and continue a joint process of communications and education.

i) We will achieve consistency through the use of these principles versus policy and procedure.

67.3 Decision Process

67.3.1 Responsibility for Decisions

The persons who are responsible for applying the decision process, including making timely decisions and taking responsibility for them are the Company representative with the appropriate decision authority and The Society representative designated by The Society. It is recognized that a given decision may require the involvement of more than these two persons.

67.3.2 Opportunity

The parties recognize that work may be done more effectively internally or externally. Opportunities for the application of this Article to new or existing work can be initiated by Management and/or The Society. It is intended that joint discussion should commence as soon as possible and before detailed definition of the need to have new or existing work done by purchased services.
67.3.3 Definition of Need

The parties will consider what work must be done and why and include such dimensions as:
- when it must commence and the duration of the work; the quantity of resources required;
- the quality of the results;
- the skills required and their availability internally and externally; and
- safety requirements.

67.3.4 Alternatives

The parties will consider such alternatives as:
- do the work internally;
- do the work internally and plan to do it externally in future;
- do part of the work internally and part externally;
- do the work externally and agree to acquire capability to do the work internally in future; or
- do the work externally.

67.3.5 Evaluation

The parties will evaluate the alternatives considering the impact on the customer, employees and the business. The total effectiveness of the alternatives will be evaluated considering both the short and long-term impacts. In given situations, certain criteria may be given a greater or lesser degree of importance. Such criteria as:
- reliability of service to the customer,
- responsiveness to customers,
- community impact,
- Corporate relations impact,
- external stakeholder interests,
- employment continuity,
- career opportunities,
- ability to perform work,
- degree of overtime required for the work,
- availability of resources,
- cost,
- timeliness,
- quality,
- need for control over results,
- safety, and
- impact on environment will be assessed.

67.3.6 Decisions to use purchased services will be made on a consensus basis. Both parties must consider all the relevant criteria with the
mutual goal of selecting the most effective option. When appropriate, consideration should be given to developing implementation plans.

The parties agree that disputes arising out of this process must be resolved internally, where possible. Where the parties cannot reach agreement, the parties will apply the dispute resolution process set out in 67.4.

67.4 Dispute Resolution Process

67.4.1 Joint Resolution Committee (JRC)

The purpose of this Joint Committee is to resolve disagreements or disputes between the parties on a consensus basis in a timely and expeditious manner. In its deliberations, the JRC will consider the factors in items 67.1, 67.2 and 67.3.

Prior to a meeting of the JRC, the Company will provide The Society with the following information related to the proposed purchased service.

- copies of the Tender or Request for Proposal documents, if there are any;
- an accurate description of the work which is the subject of the proposed purchase service;
- accurate details on bids, e.g., price, scope of the work as set forth in the bid;
- a full cost benefit analysis including incremental costs but excluding overhead costs which would be incurred.

67.4.2 Membership

The membership of the JRC shall be as follows:

(a) William Kaplan shall act as Chairperson of the JRC and as a facilitator/arbitrator. The Chairperson shall assist the parties to resolve all issues of application and interpretation of this Article with the power and authority of an arbitrator under the Ontario Labour Relations Act but not subject to the Arbitrators' Act.

(b) One Management and one Society representative plus additional resources as required.

(c) In the event of the parties not being able to reach a consensus decision the facilitator/arbitrator will have the power to make decisions and will have the authority to make such orders as he/she deems appropriate to give full effect to his/her decision(s) and to deal with any consequences his/her decision(s) might have in the workplace.
(d) Where either party wishes to proceed with a Purchased Services discussion, the parties will endeavour to complete discussion within 10 days of notice to The Society in the prescribed form and that full resolution, including review by the JRC, will occur within 30 days of notification.

(e) Where the Company proceeds unilaterally on the basis that an emergency exists, The Society may request that the JRC and/or the facilitator/arbitrator review the matter, provided that a request for review is made within 3 days of receipt of the information as per 67.4.1 above. If the facilitator/arbitrator determines that an emergency did not exist he/she may impose such remedy as may be appropriate in the circumstances.

(f) The Society will not be prejudiced in any subsequent case by a particular purchase of services. Similarly, the Company will not be prejudiced by any decision not to purchase services.

67.4.3 It is understood that emergencies are in a different category. In the case of an emergency, the joint decision provisions of this Article need not be applied. The Company will notify The Society as soon as it has determined that an emergency exists and that it will proceed unilaterally. The JRC and/or the facilitator/arbitrator may review the decisions made by the Company that an emergency existed.

67.5 Structure

67.5.1 Joint Society Management Committee (JSMC)

The JSMC has overall responsibility for this Article and its success. It is responsible for ensuring that the Article is implemented and applied in a manner which is consistent with the philosophy and principles outlined in Sections 67.2.1 and 67.2.2. It will conduct a periodic assessment and evaluation of this Article and determine the need for any improvements and changes. The committee will strive for continuous improvement of the process contained herein.

67.5.2 Joint Purchased Services Team

The Joint Purchased Services Team will assist the JSMC in achieving its mandate relative to the use of purchased services. It will be responsible for developing and delivering training and awareness programs and ongoing measurement of the process and results.
67.6 Application

67.6.1 The parties will jointly develop implementation plans for approval by the senior management of the Company and The Society. These implementation plans will include a plan for training employees involved in the decision process.

67.6.2 Where a service is obtained for the OPG bargaining unit from a business which has Society-represented employees who are providing the service, The Society will agree to waive the application of Article 67 (Purchased Services Agreement – PSA) provided that such purchased service does not directly result in a surplus of Society-represented staff in OPG. Article 67 shall be applied in the service provider bargaining unit or business where the service provider wishes to purchase external services in order to provide service to another OPG bargaining unit.

67.6.3 OPG and The Society agree to consider waivers of Article 67 for those organizations, partnerships and service providers who will in the long term enhance OPG competitiveness through cost reductions and productivity improvements.

68 Hours of Work

68.1 The Salary Schedule 03 applies to 35 hours of work per week, with regular scheduled hours between 35 and 39 hours per week paid on a prorated basis. Schedule 09 applies to 40 hours of work per week.

Schedules 03 and 09 shall be treated as lateral pay schedules for the purpose of movement of employees between these two schedules under the Collective Agreement when considering two positions at the same salary band/step.

68.2 OPG will comply with legislative requirements regarding hours of work.

68.3 Reduction of Hours of Work

An employee who is selected to a vacancy having less hours than their present position, or the standard hours of their present position are reduced by management, shall have their hours of work reduced in accordance with article 64.26.2.

69 Article 69 (Formerly the RWE Article) has been deleted
70 Alternate Hours of Work Arrangements

70.1 Principles

70.1.1 That any alternative arrangements will positively affect our customers. That cost, quality, service and value are key to our success.

70.1.2 That work is best achieved when individuals manage their own time and accept the accountability and the responsibility for the results.

70.1.3 That processes for negotiating and establishing hours of work arrangements will be uniform across OPG, and accessible to all. The processes will be designed to ensure equitable treatment. However the results of applying the processes may differ from location to location and unit to unit.

70.1.4 That decisions should be made at the most appropriate level that is closest to the work being done.

70.1.5 That individual concerns will be factored into group proposals and wherever possible, participation in changed hours of work will be on a voluntary basis.

70.2 Application

The procedure described in this Article applies to all forms of alternate hours of work arrangements.

70.3 Definitions

"STANDARD HOURS OF WORK" are to be worked to provide coverage for the business hours. For people assigned to day work, the standard hours of work shall not begin before 7:00 a.m. nor end after 6:00 p.m. They are:

- for 35 hour/week staff - Monday through Friday, 7 hours per day; and
- for 37.5 hour/week staff - Monday through Thursday, 8 hours/day and 5.5 hours on Friday; and
- for 40 hour/week staff - 8 hours per day, Monday through Friday.

In the absence of any other agreed upon arrangements these are the hours which will be worked. In situations where there is need for 24 hour and/or 7 day/week coverage the hours of work will be a matter of local arrangement.

"NORMAL HOURS OF WORK" are either the standard hours of work or another arrangement as agreed upon using this process.

"STANDARD BUSINESS HOURS" are determined by the needs of the business and the customers.
"NORMAL BUSINESS HOURS" are either the standard business hours or another arrangement as agreed upon using this process. The normal business hours are just a variation on the standard business hours. They would normally arise from a change in customer needs.

FLOW CHART OF THE PROCESS

Normal hours of work/business hours
↓
Identify need for change
↓
Communicate need
↓
Develop options
↓
Analysis
↓
Decision
↓
Negotiations/Approvals
↓
Implementation
↓
Monitoring

70.4 Overtime

Hours worked in excess of the normal hours of work will be considered to be overtime except where there has been agreement between the supervisor and the employee for the employee to work in excess of normal hours to make up time.

The pay treatment for Saturday and Sunday will form part of the Agreement which establishes the normal hours of work.

70.5 Process

70.5.1 Identify Need for Change

Identification of the desire for change can come from Management, an individual or a group. A request to change business hours would normally come from Management whereas a request to change working hours would normally come from an individual or group. Where a change to the hours of work for a group is being considered, The Society will be informed and involved in the discussions.
70.5.2 Communicate Need for Change

A request for a change should be communicated to the other party in order that deliberations can begin. Requests will be actively considered by the other party within a reasonable period of time. The process will be joint (Society and Management) and will use a collaborative approach in which the needs and interests of the parties are discussed in an open and honest manner and decisions are made by consensus.

70.5.3 Develop Options

A list of options will be jointly developed and agreed upon. As a minimum, the following criteria will be considered when analyzing the options:

- customer needs
- business needs
- maximum/minimum number of hours that can be worked daily
- overtime/premium provisions
- employee needs
- health and safety considerations
- legal and contractual considerations

70.5.4 Analysis

All options should be analyzed using appropriate tools and measures. The analysis should include a discussion of the options considered, their relative merits and the rationale for the recommendation.

70.5.5 Decision

All decisions will be reached by consensus. If consensus is not achieved then the existing "normal" hours remain in effect.

Consensus means everyone can live with and publicly support the outcome.

70.5.6 Negotiations/Approvals

Negotiations and/or approvals should occur at the appropriate level closest to the situation. The line Director will determine the appropriate level of Management approval and in all cases the Management approval must be outside of the bargaining unit. If necessary, Letters of Understanding will be established between Management and The Society to document normal hours of work or normal business hours.
All parties to negotiations under Article 70 should negotiate with the support of principals who will ultimately approve negotiated conditions.

70.5.7 Implementation

Implementation will be on a trial basis initially for an agreed upon length of time and with appropriate cancellation provisions. Criteria for success/failure must be established.

70.5.8 Monitor

The trial will be monitored and evaluated against the criteria. The accountable manager is responsible for monitoring the arrangement.

Following a successful trial period the hours (business hours of work) used in the trial period will become the new normal hours.

Monitoring of key indicators will continue to ensure that the arrangement remains viable.

In the event that the viability ceases to be realized, as determined by either party, the hours of work will revert to the previous "normal" hours unless the parties can jointly find another mutually acceptable alternative. When either party is making a determination about viability it must consider the previously established criteria for success/failure.

71 Reduced Hours of Work (RHOW) Arrangements

71.1 Principles

71.1.1 Employees working RHOW are regular employees and have equal access to all OPG policies and agreements (e.g. employment continuity).

71.1.2 The RHOW arrangement must be mutually beneficial and acceptable to both the employee(s) and to OPG.

71.1.3 The benefit entitlement will be prorated, wherever possible and appropriate.

71.2 Definitions

A "REDUCED HOURS OF WORK (RHOW) AGREEMENT" is a formal arrangement which individual employees can enter into with Management to perform work over a period of time by working less than the base hours for a full-time position. A RHOW agreement could apply to one individual or two or more in a job sharing arrangement.
"WORK UNIT" is an organizational grouping of employees and may be as small as a crew or as large as a Business Unit.

"BASE HOURS" are used to establish the rate for a full-time position; such as 35, 37.5, or 40 hours per week.

"NORMAL (SCHEDULED REDUCED) HOURS" are the agreed upon reduced hours of work, which are less than the base hours, and form the basis for prorating benefits.

71.3 Guidelines

In determining if a RHOW arrangement is acceptable, the following factors will be considered:

Productivity levels will be maintained or improved. There should be identification of how this change will potentially affect the productivity of the work unit (including assumptions and rationale used to assess the impact), and identification of the proposed method for follow-up and measurement of productivity impact(s) resulting from the change.

The need to maintain staff capability on an ongoing basis is to be taken into account. Identification of the staff capabilities required by the work unit to maintain effective operations, and how the reduced hours of work arrangement will accommodate or improve this capability should occur.

The appropriate level of service to both external customers and internal customers/clients should be provided. There should be identification of the customers/clients of the work unit and the service provided by the work unit to these customers/clients, and anticipation of the impact of the reduced hours of work arrangement on the service provided.

Effective work flow among work units will be maintained. Other work units impacted by the change, and the anticipated impact of the reduced hours of work arrangement on the work flow among the work units should be identified.

Requirements for supervision must be taken into account. Potential issues relating to supervision (e.g., span of hours), and how the work unit plans to deal with these issues should be determined.

The change to reduced hours should be agreeable to both Management and the employee(s) involved. A written Reduced Hours of Work Agreement must be signed to confirm that this matter has been agreed upon by the parties involved.

71.4 General Conditions - Reduced Hours Arrangements

71.4.1 Advertised Vacancies, and Employment Continuity

Employees who are on Reduced Hours are regular employees and will be treated accordingly. Therefore, they will be: (a) eligible to
apply and be considered for advertised vacancies; (b) given annual performance reviews; (c) have access to the Employment Continuity Article.

### 71.4.2 Established Commencement Date (ECD)

ECD will be manually adjusted at the beginning of each year, to reflect the normal (scheduled reduced) hours worked in the previous year while on Reduced Hours, or at such intervals as may be necessary, to reflect the equivalent full years worked. ECD will not be adjusted for sick leave purposes.

### 71.4.3 Vacation Credit Date (VCD)

The VCD will not be adjusted. It will reflect calendar years. This date affects vacation bonus entitlement for all eligible staff and includes all Hydro service regardless of breaks. It may be different from the ECD.

### 71.4.4 Service Recognition Date (SRD)

For recognition of 5, 15, 25, and 40 years of service with OPG and consistent with the provisions of section 9.3 of the 2006-2010 Collective Agreement, the SRD will not be adjusted.

### 71.4.5 Wages

Reduced hours employees will be paid for normal (scheduled reduced) hours worked, based on the hourly rate for their base hours. Wages will be prorated based on the proportion of the normal (scheduled reduced) hours of work compared to the base hours of the work unit or the appropriate full-time position.

**Example:**

Base Hours = 35 per week.

Base Salary = $700.00 per week.

Normal (Scheduled Reduced) Hours = 21 per week.

Normal (Scheduled Reduced) Hours Salary = $700.00 x 21/35 = $420.00 per week.

### 71.4.6 Pension Plan

#### 71.4.6.1 Pension Plan Membership

New employees working reduced hours must apply for membership in the Pension Plan after completing 24 months of continuous service, subject to the following conditions:
accumulated earnings, including overtime, must equal 35% of the Year's Maximum Pensionable Earnings (YMPE);

and/or

all accumulated hours, including overtime, must equal 700 (scheduled reduced) hours in each of the two previous calendar years.

71.4.6.2 Pension Plan Deductions

Once qualified as above, Pension Plan deductions for Regular Reduced Hours employees will be based on base earnings for the position and then pro-rated in proportion to the ratio of normal (scheduled reduced) hours to base hours.

Example: Base rate (earnings) $45,000
          Base hours 35
          Normal hours 20
          YMPE for year $32,000

Calculate 7% of the base earnings (7/100 x $45,000 = $3150)

Calculate proportional Pension Plan contributions ($3,150) (20/35 x $3,150 = $1,800).

Calendar service will be used to determine eligibility for retirement and death benefits (currently for pension purposes as Eligible Service or Continuous Employment).

Service credit to define the years of Pension Plan membership (years of membership in the Pension Plan) for pension calculation purposes (currently defined by the Effective Date on Pension and Insurance) is prorated. See pension calculation example below.

The Service Credit starts from the date of joining the Pension Plan.

Service for termination benefits is to be credited on a calendar basis starting with the date of hire and is not prorated.

71.4.6.3 Pension Calculation

The following is an example of how the pension of an employee in a Reduced Hours of Work arrangement would be calculated. Assume an employee has the
following years of employment: 20 years full-time, followed by 5 years of 50% part-time, and then 10 years full-time.

For pension eligibility purposes the employee has 35 years' service, i.e. $20 + 5 + 10$ to calculate the amount of pension to be received the part-time years are pro-rated.

$20 + 5/2 + 10 = 32.5$ years pensionable service

$30 + 5/2 \times 2\% = 65\%$ pension.

If the reduced hours years were the last five years, i.e. 30 years full-time + 5 last years at 50% part-time, the part-time earnings would be annualized as follows, assuming the part-time earnings are $25,000 or 50% of the yearly rate of $50,000 for the last three years of employment.

The calculation is as follows:

$(30 + 5/2) \times 2\% = 65\%$ pension

annualized pension is $50,000 \times 65\% = $32,500/year.

71.4.7 Life Insurance

Coverage is dependent upon being a member of the Pension & Insurance Plan. The basic insurance (2 times salary) plus any additional term insurance will be prorated in accordance with the prorating of wages above.

71.4.8 Health and Dental Benefits

Employees will have the option of receiving full benefit coverage for semi-private hospital, extended health benefits, and/or dental benefits, by using payroll deduction to reimburse OPG the cost consistent with the appropriate pro-ration. For example:

If an employee works 21 hours per week, he/she would be subsidized for 21/35 or 60% of the costs and he/she would pay the remaining 40%. If an employee chooses not to pay the remaining prorated percentage, there will be no coverage.

71.4.9 Sick Leave

Restoration of sick leave credits for days used will be in accordance with the Sick Leave Plan provisions.

Sick leave should accumulate at the regular times (January 1 or July 1). While ECD is adjusted for other purposes, sick leave accumulation and restoration dates should remain unchanged.
Annual sick leave credits will be prorated, based on normal hours worked.

Example

100% Entitlement Accumulation
- Employee works 21 hours per week 21/35 x 8 days = 4.8 days, rounded to 5 days.

75% Entitlement Accumulation
- Employee works 21 hours per week 21/35 x 15 = 9 days.

Rounding should be to the nearest half day. Time Reporting for vacation, sickness, accident and overtime, etc. will be the same as for any other regular employee.

71.4.10 Long Term Disability (LTD)

LTD is dependent upon being a member of the Pension & Insurance Plan and benefits will be based on the employee's normal (scheduled reduced) earnings, excluding overtime and allowances.

71.4.11 Accident Insurance

Employees are eligible for 100% benefit.

71.4.12 Statutory Holidays

Both the entitlement to statutory holidays and the payment for the statutory holidays will be prorated. The following table illustrates the entitlement:

<table>
<thead>
<tr>
<th>Days Worked Per Week</th>
<th>Number of Days Entitled to Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>9[12]</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
</tr>
</tbody>
</table>

The pay on a statutory holiday will be equal to the pay for the average daily hours of the RHOW employee. For example:

An employee works 4 days per week @ 5 hours per day. In accordance with the entitlement table above the employee is entitled to 9 statutory holidays per year. Payment for each

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\[12\] Updated due to the addition of Family Day to Statutory Holidays
statutory holiday will be for 5 hours since that is the average of the
4 days per week the employee works.

71.4.13 Floating Holidays

These will be prorated in the same manner as statutory holidays,
i.e. both the entitlement and the payment on the days will be
prorated. For example, an employee who works 3 days per week
and 7 hours on each day worked will receive:

3/5 x 3 days = 1.8 rounded to nearest half day = 2 days

the payment for each day will be for at 7 hours since that is the
average hours per day the employee works.

71.4.14 Vacation

A. Less than 1 year - 4% of accumulated wages.

B. For one year, or more:

Vacation entitlement will be based on calendar years (i.e. VCD).
The entitlement in any given year will be prorated based on the
average number of days worked per week and the actual payment
for those days will be based on the average number of hours
worked per day.

Example - (a)

A regular full-time employee who commences RHOW on January
1 and who otherwise would be entitled to 20 days' vacation,
contracts to work 3 days per week at 7 hours per day (21 hours
per week), for the full vacation year, while the remainder of the
work unit works 35. The vacation entitlement will then be:

20 x 3/5 = 12 scheduled days off.

The payment on each of the 12 days would be for 7 hours pay
since that is the average number of hours the employee works per
day. Therefore the total pay will be 12 days @ 7 hours pay = 84
hours pay.

Example (b)

An employee who works 5 days per week but works only 4 hours
per day.

20 x 5/5 = 20 scheduled days off

The payment for each day would be for 4 hours since that is the
average number of hours the employee works per day. Therefore
the total pay will be 20 days x 4 hours pay = 80 hours pay.
71.4.15 Overtime

The normal lieu time provisions will apply. Overtime will be paid at appropriate rates for:

- hours worked beyond the base full-time hours on a day (unless additional hours are part of the RHOW arrangement);
- hours worked beyond the base full-time hours in a week;
- hours worked on a Saturday, Sunday or statutory holiday that is not a normally scheduled day.

71.4.16 Pregnancy/Parental Leave

Employees will be eligible for pregnancy/parental benefits. Coverage will be based on normal (scheduled reduced) earnings and normal (scheduled reduced) hours.

71.4.17 Unemployment Insurance Contributions

This is based on gross earnings (which includes overtime premiums, shift differential, etc.).

71.4.18 Canada Pension Plan (CPP)

CPP contributions are based on gross earnings.

71.4.19 Workers' Compensation Benefits

Entitled to 90% of normal weekly net earnings, plus a supplementary grant (total is 100% of normal weekly net earnings).

71.5 Termination of the RHOW Agreement

The initial period of a RHOW arrangement will be considered to be a trial period. The length of the trial period is to be determined by the parties but will not normally be longer than 1 year. If problems are encountered during this period, the employee(s) and the supervisor will attempt to find a solution(s). In the event that these efforts are not successful the RHOW arrangement can be cancelled by either party with 30 days’ notice.

After the trial period, situations may arise where the RHOW is no longer working or the workload has increased or decreased. In such situations alternate arrangements can be tried. These could include offering additional hours/days (if there is some) to the RHOW employee, or advertising another RHOW arrangement to make up any difference.

In situations where the workload increases, the employee working the reduced hours will have the first option of working the additional hours. The
employee could choose not to work the additional hours. If satisfactory alternative arrangements are not found, Article 64 will be applied.

An employee who wishes to terminate the arrangement has the same rights to vacancies as full-time employees. If unsuccessful in obtaining another position or in negotiating a new arrangement with Management, and the employee terminates the arrangements, the employee will be considered to have resigned from OPG.

(SAMPLE) REDUCED HOURS OF WORK AGREEMENT

To: __________  Department: _____________  Effective date: ______________

Type of Arrangement: ___Individual  ___Job Sharing  ___Temporary Work

The following information is pertinent to your Reduced Hours of Work Agreement with OPG.

1. Hours of work: ________ days (_____ hours) per week, __________ hours per day.

2. Salary: Weekly salary will be $ __________ per week based on scheduled reduced hours of work per week at Schedule ____ Grade ______.

3. Health and Dental Benefits:

   Indicate, by circling the appropriate "yes" or "no", whether or not you are exercising the option of receiving full benefit coverage for semi-private hospital coverage, extended health benefits, and/or dental benefits, using payroll deductions to reimburse OPG for the cost consistent with the appropriate proration. Should you elect health and/or dental benefits, the monthly cost will be as follows:

   Elected Coverage:
   Semi-private hospital coverage _____% $________ Yes / No
   Extended Health Benefits _____% $________ Yes / No
   Dental Benefits _____% $________ Yes / No

4. All other terms and conditions will be in accordance with the Article on Reduced Hours of Work for Society Represented staff.

   The trial period will be for ____ months. The parties agree that the Agreement can be terminated with one month's notice during this trial period in the event the arrangement is unsuccessful.

   If you agree with the conditions set out above, please sign one copy of this Agreement for your Personnel File. Also, please indicate if you wish to be covered by any, or all, of the above health and dental benefits.

   Manager: ________________________  Employee: _______________________

   Date signed: ____________________  Date Signed: ____________________

cc: Human Resources Office/Society Unit Director
71.6 Responsibilities

The Employee(s):

The employee(s) should discuss his/her interest in a Reduced Hours of Work Agreement with the manager/supervisor. An employee who wishes to work Reduced Hours should prepare a proposal for doing so. The proposal should include a current job description and ways in which the job requirements could be met under a Reduced Hours of Work Agreement. It should include suggestions for methods of communication among Regular staff members, their managers/supervisor, customers and clients with whom the job interfaces, as per the Guidelines (Section 71.3).

The Manager/Supervisor:

The Manager/Supervisor is responsible for determining if a Reduced Hours of Work Agreement is appropriate and in certain instances may initiate action to implement such an arrangement. The Manager/Supervisor will discuss the possibility of a Reduced Hours of Work Agreement with interested employees to assist them in establishing appropriate arrangements. The Manager/Supervisor will identify issues specific to the job which need to be addressed, inform employees of their entitlements and approve the proposed Reduced Hours of Work Agreement after the appropriate review.

The Manager/Supervisor is responsible for ensuring that the productivity in the work unit does not deteriorate as the result of a Reduced Hours of Work Agreement. If productivity is seen to decline, the supervisor should work with the incumbent(s) to identify ways to improve the situation.

72 Peak Demand Hours Arrangements / Project Crews

72.1 Intent – Peak Demand Hours

The intent of this Article is to establish a framework of treatment of employees who by the nature of their jobs, are likely required to work Peak Demand Hours that are more than their normal work week and/or hours different from their normal hours during peak work load periods of the year, and less than the total hours in a normal work week during other parts of the year.

Once it has been decided to apply this Article within a business unit, Management will meet with The Society to jointly agree on the formation of a joint team. The application of this Article will be done by local joint teams which will determine how best to apply these guidelines in their particular situation. That plan could involve staffing the arrangement with volunteers on a test basis. The volunteers would have to volunteer for the full 12 month cycle. The fact that an individual did not volunteer will not negatively reflect on his/her performance evaluation. The results of that test application could be reviewed by the local joint team. This review might
result in revisions to the arrangement. The local teams are not required to rigidly adhere to the guidelines below and may revise them as they deem appropriate.

Any disputes concerning the application or implementation of Article 72 shall be referred to the JSMC for resolution. Any resolution by the JSMC shall be final and binding but if the JSMC is unable to resolve the issues, either party might refer the item to “interest” arbitration for resolution.

It is expected that ultimately the arrangement would become a Letter of Understanding.

The following are definitions and guidelines for the implementation of peak demand hour arrangements.

72.1.1 Definitions

Normal Work Week: For purposes of this Article, a normal work week will mean the total of the standard hours normally worked during a pay period, outside of the peak work load periods.

Normal Hours: Normal hours worked outside of a peak work load period (as per Article 70).

Peak Work Load Period(s): One or more periods during the year in which the expected magnitude or nature of the work to be performed reasonably requires employees to work more than their normal work week, and/or hours different from their normal hours. Peak work load periods may be the result of a need to minimize equipment downtime, or other factors which are expected to occur every year.

Peak Demand Workers: Employees who are likely required to work more than their normal work week, and/or hours different from their normal hours during peak work load periods, and less than their normal work week during other periods of the year.

72.1.2 Intent

a) Peak demand workers may be required to work normal hours, or scheduled hours on a work and/or shift schedule which are different from their normal hours, and which, in total, may exceed their normal work week during peak work load periods. Scheduled hours worked in excess of the normal work week will be “banked” and taken as time off (consistent with the conditions outlined in this Article), during periods of the year when the work load may not require all of the normal hours available.

b) Work and/or shift schedules, and all other administrative matters regarding the hours of work for peak demand workers will be determined within the business unit, subject to the conditions contained in this Article.
c) The design of work and/or shift schedules and other hours of work arrangements will give consideration of the requirement to perform work in the most effective, efficient and safe manner.

d) The design of work and/or shift schedules and other hours of work arrangement will give consideration of the need to maintain good working relationships within the affected group and the relativity to other employees not covered by this Article.

72.1.3 Conditions

a) The peak work load periods will be declared prior to the start of the year for the entire year. The declared peak work load periods for the year will not be less than four weeks’ cumulative duration (or normal conditions for the employee will apply). The declared peak work load periods will not exceed 26 weeks of the year cumulative duration. For purposes of this Appendix, the year may be any designated fiscal year which will not be changed for the work group once established.

b) Peak demand workers may be assigned to normal hours, work and/or shift schedules that average more than the normal work week during the declared peak work load periods. Other articles in this Collective Agreement regarding shift work, hours of work, and standard hours do not apply during declared peak work load periods, except:

Articles 59.3, 60.4, 61.2 and 61.3 regarding shift allowance for work schedules on weekends, and nights; and special conditions for 12 hour shifts as per Article 61.6.

c) Management will strive to provide at least seven days' notice of an assignment to a work or shift schedule that requires work outside of normal hours during the declared peak work load periods. However, any hours worked outside of normal hours without at least three days' notice will not be considered scheduled work for purposes of this Article.

d) Work performed outside of scheduled hours is overtime and will be compensated at the appropriate overtime rate(s).

e) During the declared peak work load periods, an amount equal to the number of scheduled hours worked each week in excess of the normal work week will be “banked”. The banked time will be taken as time off at straight time during times of the year outside of the declared peak work load periods, subject to meeting work requirements. When possible, the time off will be scheduled by mutual agreement between the employee and Management. If work requirements have prevented an employee from taking his/her "banked" time off, the time remaining will be compensated as follows: for positive balances in the time bank remaining at the end of the year, the employee will receive payment at time and one-half for 50% of the hours and double-time for the balance.
f) An employee's base wages will be maintained throughout the year, regardless of the number of scheduled hours worked per week during the declared peak work load periods, or hours taken off at straight time from the time balance “bank” during other periods of the year.

g) The design of work and/or shift schedules used during the declared peak work load periods will be flexible to meet work requirements and consistent with the limitations of the appropriate legislation. Specific rules to be adopted for the design of work and/or shift schedules for peak demand workers may include:

1. The length of a scheduled shift or extended work day cannot exceed 12 hours.
2. No more than 48 hours of work may be scheduled (i.e., exclusive of overtime) in a week.
3. The start of a scheduled shift or work period must be at least 24 hours following the start of the previous scheduled shift or work period.
4. At least eight hours of time off will be provided between work periods including overtime.
5. Although the content, preparation, costing and administration of work and/or shift schedules is the sole responsibility of the Corporation, the preference of the majority of peak demand workers to be assigned in the affected work group will be considered in designing the work and/or shift schedule.
6. Every attempt will be made to assign employees from those in the appropriate work group, to a work and/or shift schedule under this Appendix, on a voluntary basis. However, in the absence of sufficient qualified volunteers, the Corporation may assign specific individuals to perform the work.

### 72.2 Intent - Project Crews

The intent of this Article is to establish the treatment of employees who are required to work on Project Crews.

Once it has been decided to apply this Article within a business unit, Management will meet with The Society to discuss how best to apply these guidelines in their particular situation.

The following are the provisions in establishing the implementation of Project Crews:

#### 72.2.1 To the extent possible, project crews will be staffed on a voluntary basis. The sequence for staffing will be as follows:
a) Posted vacancy – senior best-qualified consideration of Society-represented applicants – Nuclear Business Organization;

b) Posted vacancy – senior best-qualified consideration of Society-represented applicants – all other Business Organizations;

c) Posted vacancy – best-qualified consideration of all other applicants;

d) Failing a), b) and c) above and after consultation with the Society, OPG may force the junior qualified Society-represented employee on the site.

72.2.2 Employees on Project Crews are considered to be regular employees with all the terms and conditions and benefits as per the collective agreement, except as noted in these provisions.

72.2.3 Management will review the proposed use of the project crews with the Society and solicit input on the project crew(s) size, composition, source of staff for crew(s), proposed peak work times, etc.

72.2.4 Employees on the Project Crews will be entitled to the same number of yearly hours as a regular employee and be paid for those hours at straight time on the same basis as a non-Project Crew employee.

72.2.5 Each employee on the Project Crew may have a different number of hours available to work, due to the application of vacation rights, floating holidays, and statutory holidays. (e.g. 2080 hrs minus statutory holidays 80 hrs, minus 3 floating holidays 24 hrs, and appropriate vacation 2/3/4/5/6 weeks).

72.2.6 Employees may be required to work days or shift work on 8/10/12 hour schedules up to 60 hours per week and a minimum of 40 hours per week. Any overtime required will be paid at the appropriate premium rate.

72.2.7 Shift differential and payment for scheduled work on weekends and statutory holidays will be paid out on an as worked basis.

72.2.8 Management will post the project crew work schedule September 1 for the following year. This schedule will illustrate the blocks of time when and where employees will be required to work. The work schedule may be changed by providing affected employees with a minimum of 7 days notice in advance of the change. The adjustment can be no more than 14 days in either direction. Adjustments beyond 14 days may be made with either another notice or with Society agreement to the original notice. Failure to provide this notice will result in premium rates for only those days within the notice period that the employee had not been previously expected to work.
Employees will be entitled to establish blocks of time, up to vacation allowance, when they will be unavailable for work assignment(s). This time off cannot conflicted with the likely periods required for them to work.

72.2.9 The classifications required for project crews will be determined by the Company.

72.2.10 Any future hires to project crews beyond the signing of the Collective Agreement will be discussed with the Society Local Vice-President prior to their implementation.

### Work Sharing

73.1 “Work sharing” occurs when sufficient members of a work unit agree to work fewer hours for reduced compensation in order to accommodate a temporary reduction in work load and to help maintain employment continuity in the event of an adverse impact situation under Article 64 - Employment Continuity.

73.2 Work sharing is a temporary arrangement. A work sharing arrangement will normally not exceed one year in duration but can be extended by mutual agreement. Beyond a period of one year, a work share arrangement will normally be governed by the terms and conditions of Article 71 - Reduced Hours of Work (RHOW) Arrangements.

73.3 The Society will be involved in the discussion and negotiation of the work sharing arrangement.

73.4 The size of the work unit involved in the work share will be the subject of joint agreement between OPG and The Society. The agreement of the employees participating in the work sharing arrangement must be obtained prior to implementation. A sufficient number of employees in the work unit must participate in order to make the work share a viable working arrangement.

73.5 Either party to a work sharing arrangement will have the right to terminate it with 30 days’ written notice. Following termination of a work sharing arrangement, the previous hours of work arrangement will be reinstated. Reduction in the number of employees in a work sharing arrangement through attrition, promotion, etc. will result in a joint review in order to ascertain the continued viability of the work share.

73.6 Employees participating in a work sharing arrangement remain regular employees.

73.7 Reduction in hours of work pursuant to a work sharing arrangement will not exceed 20% of regular hours and will be matched by an equivalent reduction in salary for a maximum of one year.
73.8 Employees participating in a work sharing arrangement will retain full benefits coverage during the term of the work sharing arrangement up to a maximum period of one year.

73.9 Pension, life insurance and LTD coverage will continue to be calculated against regular base earnings during the term of a work sharing arrangement up to a maximum period of one year.

73.10 Employees will not be declared surplus while participating in a work sharing arrangement. This section will be suspended during the operation of Article 64.

74 Article 74 has been deleted

75 Teleworking

75.1 Definition of Teleworking:

Telework refers to an OPG employee who:
- Is working out of an office in his/her home;
- Does not normally have another office at OPG;
- Is not working at home on an occasional or casual basis.

75.2 Collective Agreement Standards:

Where OPG determines that teleworking may be implemented, the following provisions will apply:

a) The arrangement will be mutually agreed upon and will be documented prior to commencement of teleworking;
b) The terms and conditions of the Collective Agreement will apply except where modified by agreement among OPG, The Society and the employee;
c) Teleworkers will not be required to meet with customers or other OPG employees in their home;
d) Teleworking arrangements will be voluntary, and are subject to cancellation as locally agreed;
e) Teleworking will not change the employment status of the teleworker;
f) OPG will provide appropriate health & safety advice and guidance to the teleworker;
g) OPG will provide appropriate business and personal security advice to the teleworker;
h) OPG shall provide all furnishings/equipment it deems necessary to meet job expectations;
i) OPG will pay for additional insurance costs, if required;
j) If the teleworking arrangement is terminated then the employee will be entitled to relocation assistance as provided in the Collective Agreement;
k) It is agreed that The Society represents employees who fall within The Society recognition clause of the Collective Agreement and who are teleworking;

l) OPG will provide in a timely manner The Society with the names, business phone number and business address of teleworkers.

75.3 Local Agreements

Local management, the employee and The Society will agree on these items as part of a local agreement:

- performance measures
- relevant terms and conditions (e.g. travel)
- training where appropriate
- sunset (with a minimum term)
- cancellation

76 Direct Deposit

76.1 Employees will be paid bi-weekly by means of electronic deposit. Time exceptions (e.g. overtime) will continue to have a time lag. Such time lag will only be for the period required for the effective operation of the time reporting centers and pay processes.

76.2 Transition pay to be repaid to OPG deducting $20 per pay period, commencing as soon as practical in 2006, from the gross pay of each employee until the transition week is fully repaid. If the employee’s employment terminates prior to full repayment, any balance owing will be deducted from the employee’s final pay.

77 Crossing Picket Lines of Other Unions

77.1 Employees will be required to cross picket lines of other unions in order to perform work at their regular/temporary work headquarters.

77.2 During such picket action, some flexibility with respect to the normal scheduled hours of work on the part of both Management and the employee is particularly desirable.

77.3 Normally, an employee who is prevented from arriving at work for his/her normal starting time due to such picket action will have his/her salary maintained without the requirement to make up the hours missed, subject to the following guidelines:

a) An employee is expected to make a reasonable attempt to arrive at work at their normal starting time.

b) If an employee who is late for work should have been able to cross the picket line without being late, the no work - no pay principle will apply.
78 The Provision of French Language Services

This Article provides the terms and conditions under which OPG complies with the French language Services Act (RSO 1986) as it applies to employees in the bargaining unit.

78.1 Designated Positions

OPG will designate positions that require French language capability, to the extent required by the Act. OPG shall determine the actual number of positions to be designated and which positions will be designated.

Changes to the designated positions require joint agreement between the local Contact Supervisor/Human Resources Manager and the Unit Director. Whenever a change is made to the designated positions list, the Contact Supervisor/Human Resources Manager will provide written notification of the addition to The Society office and Labour Relations, OPG Human Resources. Labour Relations, OPG Human Resources will issue an up-to-date version of the designated positions list annually to The Society. A position can only be removed or modified when it is vacant.

78.2 Job Security

The implementation and operation of this Article will not result in any declarations of surplus, lay-offs, displacements, forced geographic relocations or financial losses.

78.3 Training

OPG will not impose any mandatory training for the purpose of complying with the Act. Any person wishing to take optional external training to obtain French language capability will be provided 100% financial support, so long as the request is in accordance with Article 85 - Extramural Training. In locations where extramural training in French is not available, OPG will provide, at no cost to the employee(s), self-paced learning packages in order to assist interested staff to become qualified in French.

78.4 Posting and Selection

French language capability is deemed to be a legitimate selection criterion, in addition to the normal selection criteria, for officially designated positions. The job documents for designated positions will not be amended to include French language proficiency as a duty and/or evaluation factor pending future discussions with The Society.

A notice of posting for a designated position will contain the following wording:

"This position requires the ability to communicate in French. This ability is deemed to be a qualification for the purposes of selection."
French language capability will only be used as a selection criterion when the number of qualified incumbents in a designated position falls below the number specified in this Article. Specific qualifications and requirements must be posted and reasons given for non-selection in writing.

In cases where a location has more than the required number of qualified incumbents in a designated position, the officially designated employee(s) shall be those who are senior and qualified.

78.5 Surplus Staff

When a surplus employee applies to a designated position he/she shall receive the selection priorities established in Article 65 to the extent that the organizational unit retains the capability to meet the requirements of the Act.

78.6 Allowance

OPG will pay an allowance of $18.00 gross weekly. It is recognized that the allowance may be paid to all qualified employees in a designated position in a location, rather than just the employees who officially occupy the designated position. This allowance is the same regardless of the number of hours an employee works per week.

The allowance will be paid only while the incumbent is in a designated classification. The payment of this allowance will cease once the employee has been absent for two months. Transfer to an undesignated position, or removal of a position from the designated positions list, will cause immediate stoppage of the allowance.

An employee who relieves in a designated position must have the French language capability required by the position in order to receive the allowance.

79 Article 79 has been deleted

80 Special Clothing

80.1 Employees are responsible for providing, at their own expense, suitable clothing for the performance of their regular duties. Subject to certain conditions, outlined below, special clothing may be obtained at the expense of OPG for issue to employees.

80.2 A limited number of rainproof coats and hats may be obtained and kept available at construction headquarters etc., for persons who normally work indoors, but who are occasionally required to work out of doors under adverse weather conditions.
80.3 Safety items that are designed exclusively for such safety purposes will be provided to employees required to perform certain types of work, at no cost to the employee.

80.4 All clothing issued by OPG will remain the property of OPG. Employees may be required to replace item(s) lost or destroyed as a result of their own carelessness.

80.5 Staff will be reimbursed for the cost of up to two pairs of protective footwear per year where such footwear is required by Hydro as follows:

- Safety boots/shoes - 50% of actual cost to a maximum of $75/pair;
- Electric Shock Resistant Footwear - 75% of actual cost to maximum of $125/pair

80.6 Requests for special items of clothing not specifically mentioned, but which might be reasonably supplied under the conditions set out above, will be considered, each case on its own merits. Such clothing must be kept available for any employee who may require it for OPG work.

81 Payment for Use of Personal Vehicle

81.1 Where an employee is authorized to use his/her personal vehicle for OPG related business/travel, the rate of reimbursement will be based on the Private Transportation Component of the Canadian CPI as reported by Statistics Canada. The rate of $0.50 per kilometre took effect on January 1, 2011.

81.2 Future increases of one cent/km will occur with each additional 10% increase in the Private Transportation Index - 1986 = 100. A decline in the Index below a previously surpassed trigger point for two or more consecutive months will result in a reduction by the appropriate amount of the rate paid.

If the OPG business/travel involves the hauling of household trailers, an additional $0.09/km will be paid. For the hauling of smaller trailers (Camper, Ski-doo, boat etc.), the amount will be $0.03/km. The above rates will apply on a province-wide basis.

81.3 By virtue of receiving the above kilometre rates, the employee is responsible for any expenses incurred involving his/her vehicle while on OPG business. This would include such items as insurance premiums, license fees, traffic/parking violations, maintenance costs, any repairs or replacement of parts, fuel, lubricants and the like. The employee is further responsible for informing his/her insurance company that the vehicle is being used for business purposes, and for paying any additional premium that the insurance company deems fit.
82 Bush Fire Fighting and Volunteer Fire Brigades

82.1 Employees who are conscripted by the Ministry of Natural Resources for bush fire fighting or employees who participate in local Fire Brigades may be granted time off work with pay subject to the following conditions:

82.1.1 Regular and Probationary Employees - Bush Fighting

Regular and probationary employees will have their normal base pay maintained.

82.1.2 Temporary Employees - Bush Fighting

Temporary employees will have their normal base pay maintained for a maximum of five working days or to the end of the intended employment period, whichever comes first. If the fire fighting period extends beyond five working days, the employee will be placed on an unpaid leave of absence until he/she returns to work, or to the end of the originally intended employment period.

82.1.3 Volunteer Fire Brigades

Employees who are registered volunteer fire fighters may be granted leave of absence with pay if called to service while at work.

83 Retirement Bonus

Employees who have completed 10 years or more of continuous employment shall be given, upon retirement, a cash bonus equal to one month's pay. The retirement bonus may be paid in cash or by transfer to an employee's Registered Retirement Savings Plan (RRSP), at the employee's option.

84 Extreme Winter Weather Conditions

In the event of extreme winter weather conditions, employees will normally receive pay for hours worked.

84.1 Make Up Time

Employees who, due to extreme winter weather conditions, arrive late, miss work or receive approval to leave early, may seek approval to make up lost time by working back the missed hours by:

a) using a vacation day;

b) using a floating holiday;

c) using a lieu day (or banked time where applicable).
84.1.1 For employees who receive approval to work back the lost time, their pay will be maintained for the number of normal scheduled daily hours lost, provided there is work available to be performed.

84.1.2 Employees will work at straight time rate of pay while working back the lost hours.

84.1.3 Time lost due to extreme weather conditions will be worked back within the pay week period. Any lost time not worked back by the end of the pay period will be deducted from the employee’s pay.

84.1.4 Senior Management at the location have the discretion to maintain some or all of an employee’s normal base pay if they are satisfied that every reasonable effort was made to report to work on time.

84.2 Closure

Employees included in an authorized closure will have their pay maintained for the number of hours between closure and normal quitting time.

84.3 Stranded Employees

Employees who are confined at a regular work location which is an acceptable shelter, will have their normal base pay maintained for their normal scheduled hours of work.

84.3.1 Payment for time worked in excess of normal scheduled hours will be made only if approval was given in advance for such work.

84.3.2 Employees will be reimbursed for reasonable expenses for food and shelter, and will have normal base pay maintained when stranded away from their residence headquarters while on OPG business.

84.3.3 Employees working in a location where a minimum level of acceptable shelter does not exist shall be considered as still being at work until acceptable shelter can be reached.

85 Extramural Training

In order to enhance a regular employee’s job performance now, or in the future, OPG may provide financial support for external training activities consistent with OPG Policy, subject to the following conditions:

Reasonable costs for the purpose of this Article are defined as registration/tuition fees and costs for textbooks.

a) The employee is expected to obtain prior approval from his/her supervisor prior to registering in the training course.
b) The external training should normally be completed outside normal working hours. Where this is not possible, time off with pay to attend external training programs will be at the discretion of the employee’s supervisor. In no circumstances will the external training exceed six weeks if the employee is required to be absent from work.

c) 100% of reasonable costs paid by the employee for external training courses will be reimbursed where:

- the training course will create or maintain the employee’s capability related to current job performance;

- the training course develops an employee’s capability for a position identified in a succession, retraining, or redeployment plan.

d) 75% of registration/tuition fees and learning material costs will be paid for external training courses which improve an employee’s capability for future jobs within OPG.

e) An employee will be reimbursed for reasonable costs subject to:

1. Satisfactory course completion and a passing grade where applicable, except where the course is taken upon the request of Management.

2. Costs will not be reimbursed if the employee has given notice of resignation prior to completion of the course.

3. All approved costs will be reimbursed for courses which cannot be completed due to the employee being transferred to another location.

86 Meal Expenses

Normally, employees are expected to provide their own meals. Where there is a requirement for a meal as a result of legitimate business functions, employees will be entitled to be reimbursed for reasonable out-of-pocket expenses.
PART XIV - ADMINISTRATION

87 Representation on OPG Committees

The parties recognize the roles and responsibilities of appointees to committees and task forces, i.e., as a representative of Management on the one hand, and The Society, on the other. When an employee represented by The Society is appointed by Management, his/her responsibility is to Management. When he/she is appointed by The Society, his/her responsibility is to The Society. This role distinction should be made clear at the time of appointment. Notwithstanding the above, and in keeping with Subsection 2.4 (Supervisory Employees - Code of Ethics), Management will endeavour to appoint its representatives having regard to The Society’s interests in effective representation.

88 Article 88 has been deleted

89 Tripartite Agreement on Joint Health and Safety Committees

OPG and The Society agree to adhere to the Tripartite Agreement below:

TRIPARTITE AGREEMENT ON JOINT HEALTH AND SAFETY COMMITTEES

PRINCIPLES OF AGREEMENT between the employer, the Power Workers Union and The Society concerning the establishment or modification of Joint Health and Safety Committees to meet the requirements and intent of The Occupational Health and Safety Act, as amended by Bill 208.

1. SIZE AND COMPOSITION OF JOINT HEALTH AND SAFETY COMMITTEES

That the size of JHSCs will be determined through discussions and agreement between the three parties.

That the PWU and The Society shall comprise a minimum of 75% of the JHSC membership with the relative percentage of PWU and Society JHSC members being determined by these two parties based on criteria including but not limited to representation by population and historical make-up. Neither union shall have less than 25% of the total number of Committee representatives nor more than 50%. Disputes regarding numbers shall be referred to the Executive level of the PWU and Society for resolution and if agreement is not reached, to an arbitrator mutually agreed upon by the parties for binding resolution.

That Management’s Committee representatives will be from outside of PWU and Society jurisdiction.

That the status, rights and treatment of all representatives on the JHSCs will be equal.
That the meetings of the JHSC will be chaired on a rotating basis by the Co-Chair of each party represented on the committee.

2. TRAINING AND CERTIFICATION

That all JHSC members will be trained and certified. Training and certification will be jointly determined and in accordance with legal requirements and the PWU and Society Authority to Stop Work Agreements, with the costs to be borne by the employer.

3. POLICY COMMITTEE (NON-LEGISLATED)

That a corporate-level Health and Safety Policy Committee shall be established to participate in the formation and evaluation of health and safety strategy and policy, to resolve policy-level issues impacting on tripartite health and safety initiatives including the Work Protection Code and Corporate Safety Rules

That the Policy Committee be comprised of an equal number of senior representatives from The Society, the PWU and Management.

That the parties will each select their respective committee members.

That the Policy Committee shall meet at least once per quarter.

That the employer shall provide the resources and training that the Policy Committee deems necessary with costs to be borne by the employer. Training development and delivery will be jointly determined.

That the Policy Committee shall receive a formal response to its input to policies/programming within 30 days.

4. ANNUAL EXPERIENCE REVIEW

That each year, upon request by any one of the parties to this Agreement, an experience review be undertaken by the parties of the benefits and difficulties of implementation of the Agreement and the impacts of organizational changes.

5. AMENDMENTS TO THE AGREEMENT

Amendments to the Agreement may be made at any time by the parties with mutual agreement in writing. If mutual agreement cannot be reached, the parties will refer to an arbitrator, mutually agreed upon by the parties, for binding resolution.

90 Authority to Stop Work

90.1 Authority to Stop Work

90.1.1 Where a workplace is unsafe, a certified worker and management member of the local Joint Health and Safety Committee (JHSC) can jointly prevent the start of the work or stop the work.
90.1.2 Where there is a disagreement between the certified worker or certified management member of the local JHSC that the workplace is unsafe, the issue shall be immediately presented to the local JHSC for review and resolution.

90.1.3 Where "dangerous circumstances" exist, a certified worker or management member of the local JHSC can stop the work. After calling the work stoppage the certified worker or management member must contact the respective counterpart immediately and seek to obtain joint agreement on the stoppage as soon as possible. If joint agreement cannot be reached the issue shall be presented to the local JHSC for review and resolution.

90.1.4 In cases where the JHSC cannot resolve issues arising from 2 or 3 above, the Ministry of Labour Inspector shall be called in for resolution. Where necessary, the Ministry of Labour may call the Canadian Nuclear Safety Commission (CNSC).

* Dangerous Circumstances: as defined by the Occupational Health and Safety Act, Section 44.

90.2 Training/Certification

90.2.1 The Joint Health and Safety Working Committee shall fully participate in and approve the development of any specialized training program for all members of the Joint Health and Safety Committees (JHSCs).

90.2.2 The Joint Health and Safety Working Committee shall fully participate in and approve the development, implementation and administration of testing and re-testing standards for all members of the JHSCs.

90.2.3 The Joint Health and Safety Working Committee shall fully participate in and approve the establishment of a specific Training/Certification program for members of the JHSCs.

90.2.4 The Joint Health and Safety Advisory Working Committee shall fully participate in and approve the development, implementation and administration of testing and re-testing standards for accrediting JHSC members into the Certification program. Such standards shall be equal to or greater than those established by regulatory standards.

90.3 Responsibility and Accountability

There shall be a shared responsibility and accountability by the unions and Management for the actions of the certified members of the JHSCs.

90.4 Compensation and Discipline

It is understood that employees directly or indirectly affected by the application of this policy will not suffer any loss of wages or disciplinary action.
90.5 Decertification

Should a certified member fail to act in good faith, the Joint Health and Safety Working Committee shall review the representative's action and make appropriate decisions.

Where there is disagreement regarding the action of the certified member at the Joint Health and Safety Working Committee, the issue shall be taken to the Tripartite Health and Safety Policy Committee for resolution.

90.6 Assessment

The Tripartite Health and Safety Policy Committee shall authorize the assessment of the effectiveness of this agreement from time to time.

91 Health and Safety Disputes

91.1 Except for disputes involving the principles set out in the Tripartite Agreement on Joint Health and Safety Committees, all other disputes involving allegations that the employer has violated the provisions of the Occupational Health and Safety Act (OHSA) will not be subject to the provisions of the grievance/arbitration procedure except where provided for by the legislation itself. The parties will attempt to resolve such disputes at the lowest level possible. Failing resolution, the dispute may be forwarded to the Ministry of Labour for final resolution.

91.2 Disputes which involve interpretations about Sections of the OHSA, or any of its associated regulations will be resolved in accordance with the procedure set out in the joint agreement "Handling Legislative and Regulatory Impasses Pertaining to the Occupational Health and Safety Act and its Associated Regulations" dated December 5, 1991.

92 Joint Health and Safety Committees

92.1 The employer will provide a Joint Policy Committee in which Society representatives are able to address the health and safety concerns of employees with Management of various levels.

92.2 All Society-represented employees are entitled to representation on joint health and safety committees and to associated training.

92.3 There are to be three levels of representation:
   - OPG/Board level (JSMC)
   - Corporate Health and Safety/Society working committee level (based on the following Terms of Reference)
   - Local workplace level health and safety committees
### Terms of Reference - September 27, 1989
#### Joint Working Committee on Health and Safety

<table>
<thead>
<tr>
<th>1.0 Goal</th>
<th>Provide recommendations to assist the Health and Safety Division in the development, implementation and evaluation of OPG employee health and safety policy and programs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 Personnel</td>
<td>Director, Safety, and other Management staff as deemed necessary from time-to-time. Chairperson of Society Health and Safety Committee and other Society members or a staff advisor to a maximum of five. The Chair will rotate between the Director, Safety, and Chair of The Society Health and Safety Committee.</td>
</tr>
<tr>
<td>3.0 Function</td>
<td>Participate in the identification and resolution of problems and issues of OPG significance in employee health and safety policy and practice. Participate in the development, promotion and implementation of OPG health and safety programs. Meet the provisions of 90.5, 90.8 and 90.9. The Committee will meet quarterly or as mutually agreed. OPG will pay the expenses related to jointly agreed projects undertaken by or on behalf of the Joint Working Committee on Health and Safety.</td>
</tr>
</tbody>
</table>

#### 92.4 Employee Health and Wellness
The parties are currently involved in a tripartite Corporate Health Team that is examining and implementing recommendations related to employee wellness. If this committee disbands, a joint sub-team will be established to provide information and recommendations to JSMC on employee health and wellness.

#### 92.5 Employee Family Assistance Program (EFAP)
The Society will have input into management’s review of EFAP programs.

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These references are now 90.2, 90.5 and 90.6 respectively.
92.6 OPG agrees to consult with The Society regarding new health and safety policies and procedures and regarding changes to existing health and safety policies or procedures except where provided for by the legislation itself. The Society will be given a reasonable amount of time to comment prior to implementation.

92.7 It is understood that Health and Safety representatives will be afforded the necessary time to perform duties in accordance with the Ontario Occupational Health & Safety Act, Letters of Understanding and all other relevant documents which may or may not form part of the collective agreement (such as Tripartite Agreements and Corporate Policies) without loss of wages.

Absence from work due to the representative's involvement should not negatively impact on his/her performance appraisal.

92.8 Incident Rating

i) The union representatives on the Joint Health and Safety Committee shall be provided with the opportunity for input into incident Maximum Reasonable Potential for Harm (MRPH) ratings.

ii) Where the rating of an incident is in dispute, line management or Joint Health and Safety Committee members can seek timely resolution of the dispute through adjudication by the Director, Corporate Safety.

92.9 Incident Investigation

All incidents shall be investigated. Whenever a team is appointed to investigate an incident, the affected bargaining units shall be invited to participate on the investigation team, and shall select their representative.

93 Joint Society-Management Committee (JSMC)

Negotiations between OPG and The Society shall take place through a Joint Society-Management Committee (JSMC) to which each body will appoint an equal number of representatives. Negotiations shall be conducted in good faith and both parties shall make every reasonable effort to reach agreement on matters of mutual interest as expeditiously as possible. This Committee shall meet quarterly unless otherwise agreed to by the parties.

94 Problem-Solving Teams

94.1 The parties agreed that during the term of the Collective Agreement, problem-solving teams will be established in order to examine the following issues:

a) Pension Governance and Control
The parties agree to establish a committee to have access to reasonable pension plan and pension fund information (subject to the understanding that certain confidential information will not be available, and such confidential information that is supplied will be maintained in confidence by the committee/resource persons), and to explore the feasibility and advisability of:

i) a new governance framework;
ii) creation of a pension plan/fund for Society members only;
iii) obtaining information that may be relevant to successorship issues;
iv) obtaining information provided to the Board Finance and Audit Committee dealing with the Pension Plan and Fund.

The committee shall be composed of six members, three to be selected by OPG and three to be selected by The Society. Each party shall have the right to have resource persons attend meetings and assist the members of the committee with their deliberations.

95 Publication of Collective Agreement

All Society-represented staff should have personal access to a copy of the Collective Agreement. The preferred method is to provide access to this Agreement via an electronic basis such as Intranet. Where there is no access to Intranet the document could be distributed via disc.

OPG agrees to print sufficient copies for distribution to all elected Society representatives and to those employees without access to computer technology. The cost of printing the copies that are required (to be determined by joint agreement) will be shared on the following basis: 75% OPG; 25% (Society).

96 Use of OPG Computer Facilities

96.1 The Society may make use of any of the services provided by Information Systems Group to OPGI line units.

96.2 The Society will be treated identically to OPGI line with respect to service standards, procedures and support.

96.3 The price charged for the service will be the published rates of the Computer Centre plus the charge for administration, referred to as General Overhead which may change.

96.4 Information regarding these services, e.g., technical support, manuals, billing structure, training, etc., may be obtained from the ISG.

96.5 The Society will seek approval from the appropriate authorities prior to accessing or attempting to access any line units application programs or data. Any infringement of this condition by a Society member will be grounds for cancellation of this Article.
96.6 The services provided under this Article are to be used only for the purposes of assisting in the conduct of normal Society business and for provisions of service to its members.

96.7 Society data and programs may be protected from access by others by taking advantage of existing password mechanisms. It is The Society's responsibility to make arrangements to utilize such mechanisms.

97 Status of Certain Corporate Policies and Procedures

97.1 OPG will not terminate or alter the terms of the OPG policies and procedures listed below without the agreement of The Society during the term of this Agreement. Prior to December 31, 2000, the parties will review the language of these policies and procedures for possible inclusion in the Collective Agreement.

97.2 The following policies and procedures are subject to the grievance/arbitration provision of the Collective Agreement (Article 16).

The corresponding Human Resources Policies and Procedures reference and policy date are given in parentheses.

a) Personal Accident Insurance Plan (03-05-01, December 1988)
b) Remembrance Day (02-02-01, p.5, May 1981)
c) World Class Sports Events (02-03-13, May 1979)
d) Educational Leave (02-03-02, October 1982)
e) Annual Training - Reserve Forces (02-03-10, August 1991)
f) Report and Recommendations of Total Compensation Team (October 1992)
g) Self-funded Sabbaticals (08-02-03, October 1987)

98 Code of Conduct

Where OPG develops a Code of Conduct, it shall make reasonable efforts to apprise The Society and employees of the contents thereof prior to implementing the same.

99 Letters of Understanding

99.1 Letters of Understanding will form part of this Collective Agreement. Letters of Understanding are found in Part XVI.

99.2 Letter of Understanding

99.2.1 Intent

A Letter of Understanding may serve the following purposes:

- amend or add to the current provisions of the Agreement;
elaborate/clarify the intentions of a provision of the Collective Agreement;

establish provisions for issues not covered by the Agreement.

99.2.2 Grievance/Arbitration

Letters of Understanding are subject to the same grievance and arbitration provisions as are other items in the Collective Agreement.

99.2.3 Approval

Letters of Understanding must bear the signatures of both the Co-Chairs of the JSMC or their designates.

99.2.4 Duration

The parties agree that, for the most part, Letters of Understanding should contain "sunset clauses". In those cases where such a clause has not been put into a Letter of Understanding, The Society and OPG will at some time during Collective Agreement negotiations determine the status of each such Letter of Understanding (e.g., incorporate in to the Collective Agreement, delete it, extend it, etc.).

99.3 Note to Letters of Understanding

OPG and The Society have not amended all Letters of Understanding to reflect the change to OPG. It is agreed that the commitments, terms and conditions in these Letters of Understanding will be binding on OPG in the same manner as they were applied to Ontario Hydro, to the extent that they are applicable to OPG.

100 Article 100 has been deleted

101 Note to Part XV - Appendices

OPG and The Society have not amended all the Appendices in Part XV to reflect the change to OPG. In particular, the Appendices dealing with the Voluntary Recognition Agreement and subsequent amendments are historic documents and, therefore, references to "Ontario Hydro" have been maintained. It is agreed, however, that the commitments, terms and conditions in these Appendices shall apply to OPG in the same manner as they were applied to Ontario Hydro, to the extent that they are applicable to OPG.

102 DECONTROL/CHANGE OF EMPLOYER

Article 102 has been moved to Part C of Article 64.
103 Change of Employer Transition Provisions

On or after January 1, 2005, any employee who is made subject to a “Change of Employer” under Article 64 Part C and who is a successful applicant to a position in OPG within three years of being transferred to the new employer shall be entitled to restoration of the following:

- Sick Leave Credits and entitlement to LTD (under their previous Sick Leave/LTD plan);
- Restoration of ECD and SRD and all entitlements which are linked to service credits except as noted below;

Restoration will be based on the value or length of service as of the date of transfer to the new employer, plus service and sick leave credits accrued with the new employer. For further clarity, the total of such service and credits would not exceed the amount the employee would have if they had remained with OPG.

The employee’s EEV, if any, shall be based on their original date of hire with OPG or Ontario Hydro. Furthermore, the employee will not be required to serve a probationary period.

Pension transferability will be governed by Reciprocal Pension transfer agreements, if any.

104 Station Closure

Where possible the Society shall be notified at least 120 days in advance of a station closure. The parties will meet to discuss the impact of the closure on the bargaining unit and the collective agreement impacts.

105 Change of Work Headquarters – Nuclear Unit of Application

The Nuclear East sites will be defined as:

105.1 Pickering including a 5km radius around the station and including the following locations:
- 675 Sandy Beach Road
- 1400 Bayly Street
- 1480 Bayly Street (NTD)
- 1315 Pickering Parkway (Picore)
- 777 Brock Road
- 813 Brock Road
- 889 Brock Road
- 100 Westney Road
- 230 Westney Road South
- 339 Westney Road South
- 1105 Kingston Road
226

- 1175 Squires Beach Road
- 1910 Clements Road

105.2 Darlington including a 10km\(^4\) radius around the station and including the following location:

- 1908 Colonel Sam Drive

105.3 Whitby Health Services including a 5km radius around the site and including the following locations:

- 55 Athol St.,
- 1549 Victoria St. E.,
- 2255 Forbes Street
- 1600 Champlain Avenue,

105.4 Wesleyville including a 5km radius around the site

105.5 Employees may be moved from an over complement at one Work Headquarters to an under complement at another Work Headquarters within classifications on a Senior Choice/Junior Force basis subject to unit viability.

OPG will inform the Society prior to initiating a transfer. The Society may provide input into the process. Management will make the final decision.

106 Corporate Restructure

106.1 As of the date of ratification of the 2006-2010 Collective Agreement employees working in the Nuclear Business organization will all be part of that organization.

106.2 On an annual basis, the parties will meet to discuss any changes to the organization and realignments as necessary.

107 Outage Bonus

107.1 Society-represented supervisors who volunteer, or are assigned through the application of LOU #183, to supervise PWU crews working on an outage will be eligible to receive a bonus. This bonus will be paid only where the following conditions are met:

i) The Society-represented supervisor is responsible for the direct supervision of the PWU crew during the outage;

and

\[\text{Note: Relocation assistance under Part XI of the collective agreement will continue to be applied as if a 5-kilometre radius is in effect.}\]
ii) The PWU crew members on the outage are eligible for and receive payment of a bonus for the outage.

The amount of the bonus paid to the Society-represented supervisor and the other conditions surrounding eligibility, which will be determined by Management and communicated prior to soliciting for volunteers, shall be the same as for the PWU crew members.
PART XV - APPENDICES

Appendix I - Re: Utilization and Advancement of Professional Engineers and Scientists

OPG and The Society agree the following principles will govern the utilization and advancement of professional engineers and scientists in OPG.

1.0 The terms "professional engineers" and "scientists" shall include the employees' categories identified in Attachment A.

2.0 The MP2/FMP12 level of work shall normally be considered as a developmental stage for professional engineers and scientists performing engineering or scientific work.

3.0 The MP4/FMP14 level of work shall be considered as the "normal expectancy" level for fully qualified and competent engineers, or scientists in OPG. MP3/FMP13 may continue to be a "journeyperson" level for engineers and scientists in some areas of activity.

4.0 Every effort should be made to provide professional engineers and scientists with an opportunity for advancement to MP4/FMP14, when they are capable of performing work at this level and such work is available.

5.0 Where an individual has demonstrated the willingness and capability to advance, and where advancement is impeded by lack of opportunity in the work area, every effort should be made to assist the individual in career advancement. This could include specific action steps such as training, job transfers, and rotations which will provide greater promotional opportunity.

6.0 Greater emphasis is required on the screening of professional staff at an early stage in their careers for both their potential capability to perform work at the MP4/FMP14 level and their suitability for further employment in OPG.

ATTACHMENT A

UTILIZATION AND ADVANCEMENT OF PROFESSIONAL ENGINEERS AND SCIENTISTS

Professional Engineers

Incumbents of jobs with 600000 or 860000 occupation codes who are:

a) Licensed to practice engineering by the Association of Professional Engineers of Ontario (APEO)

or

b) University graduates in one of the following engineering disciplines:

- Aeronautical Engineering (Aero Space, etc.)
- Agricultural Engineering
- Chemical Engineering
- Civil Engineering
- Electrical Engineering
- Electrical Engineering
- Electronics Engineering
- Engineering Business (Industrial)
- Engineering General
- Engineering Science (Physics)
- Geological Engineering
- Mechanical Engineering
- Mining Engineering
- Metallurgy & Material Science
- Nuclear Engineering
- Water Resources Engineering

Scientists

Incumbents of jobs with 600000 or 860000 occupation codes who are university graduates in one of the Natural Sciences, the Applied Sciences, Mathematics or Computer Science and who are not classified as professional engineers.
Appendix II - Re: Input To Association of Professional Engineers of The Province of Ontario (APEO) Salary Survey

It is agreed that the method of input to the APEO Salary Survey of Employers and the analysis and use of the survey shall be in accordance with the following.

1.0 Data Input

1.1 The salary rates input to the survey shall be the rates paid for normally scheduled hours of work.

1.2 Such salaries shall be input for all OPG engineers at Bachelor and/or post-graduate levels in engineering disciplines, who are engaged in engineering or scientific work (incumbents of M&P 600000 series jobs and of FM&P 860000 series jobs, who are represented by The Society), including engineering trainees who are registered (or eligible for registration) by the APEO.

2.0 Method of Input

2.1 Level A
Engineers whose Bachelor graduation occurred during the current or two previous calendar years, who are not incumbents of jobs classified as MP4 and FMP14 or higher.

2.2 Level B
Engineers whose Bachelor graduation occurred during the third, fourth or fifth calendar year prior to the current year, who are not incumbents of jobs classified as MP4 or FMP14 or higher.

2.3 Level C
Engineers in jobs classified as MP2, MP3, FMP12 or FMP13 who have sufficient years of experience to exempt them from the requirement to be input to Levels A or B.

2.4 Level D
Engineers in jobs classified as MP4, MP5, FMP14, FMP15.

2.5 Level E
Engineers in jobs classified as MP6, FMP16.

3.0 Annual Relative Standing
OPG data will be excluded from the APEO survey data when making comparisons of OPG's position relative to the community.

Appendix IV – Re: Application of the Purchased Services Agreement to AECL

1. **Preamble**
   As a part of the approval process of the Purchased Services Agreement (PSA), the parties agreed to develop a Framework Agreement which would recognize the special status of the relationship between OPG and AECL and govern the day-to-day transactions between the two companies.

2. **Scope**
   This Framework Agreement for applying the PSA to OPG’s relationship with AECL applies only to those purchased services which are not funded through the CANDU Owners’ Group (COG) Agreement.

3. **Intent**
   This Agreement describes a decision-making process where only certain decisions regarding the purchase of services by OPG from AECL are subject to the full transactional application of the PSA. Those decisions which are not subject to a full transactional application of the PSA are subject to the periodic review process described in Section 6.

4. **Definition**
   Work: means a work package which is a clearly defined scope of services that requires the formal approval of OPG prior to proceeding.

5. **Decision-Making Process**
   5.1 The decision-making process described in this section is also presented in diagram form (diagram included as a part of this Agreement). Should there be inconsistencies between the written and diagrammatic descriptions of the decision-making process, the written description will take precedence.
   5.2 The process begins with OPG proposing that services be purchased from AECL or a Centre of Excellence [i.e., Reactor Engineering Services Department (RESD) or the Centre for Heat Exchanger Engineering Sciences and Technology (CHEEST)].
   5.3 If the work is to be assigned to a Centre of Excellence (i.e., RESD or CHEEST), then the PSA will not be applied [see also Section 6.4(e)]. The Centre of Excellence would not be permitted to subcontract more than 30 percent of the labour component of the work.
   5.4 If work is not assigned to a Centre of Excellence (per 5.3) and all of the questions in Section 5.4 are answered in the affirmative, OPG Management may proceed to issue a contract to AECL:
   a) *Is the work emergency work?* Emergency situations will be as identified by the OPG manager with the appropriate decision-making authority. The review of such decisions will form a part of the scope of the periodic review process (see Section 6).
   b) *Is there a regulatory requirement (e.g., from the Ministry of Consumer and Commercial Relations or the Atomic Energy Control Board) that the work must be performed by AECL?*
   c) *Has the PSA already been applied to the work?*
   5.5 If work is not assigned to a Centre of Excellence (per 5.3) and all of the questions in Section 5.4 are answered in the negative, but the answer to one or more of the following questions is in the affirmative, the PSA will be fully applied to the work on a transactional basis:
a) Are there surplus Society-represented employees with the requisite skill sets in OPG?
b) Does the labour component of the proposed work exceed 1,500 person hours?
c) Does the duration of the proposed work exceed twelve (12) months?
d) Does a sub-contract(s) need 30 percent of the total person hours of the work?

If none of the questions in 5.5 a) - d) is answered affirmatively, then OPG Management may proceed to issue a contract to AECL.

6. Periodic Review

6.1 The parties agree to establish an AECL Purchased Services Review Team (Review Team) within ten (10) working days of this Agreement coming into effect.

6.2 The Review Team will be composed of three Management representatives and three Society representatives to be appointed by the parties through the Joint Society Management Committee (JSMC).

6.3 The Review Team initially will meet quarterly, but may change the frequency of its meetings by mutual agreement of the team members. With reasonable notice, the JSMC may also convene meetings of the Review Team.

6.4 The Review Team will be responsible for reviewing all transactions between AECL and OPG which have taken place since the last meeting of the team to confirm that the intent of this Agreement continues to be met. All the documentation necessary to facilitate this review will be collected and made available to the Review Team. The review specifically will include:

a) the extent to which the criteria (see 5.3, 5.4 and 5.5) in the decision-making process are being met;
b) whether the criteria (see 5.3, 5.4, and 5.5) in the decision-making process continue to be the appropriate ones based on experience;
c) the extent to which contracts which were issued to AECL were specific to AECL’s nuclear capabilities;
d) an assessment of any work placed by emergency decision [per section 5.4 a)] or mandated by regulators [per Section 5.4 b)];
e) any changes to the Terms of Reference of existing Centres of Excellence (i.e., CHEEST or RESD) or any request that a new Centre of Excellence be added to Section 5.3;
f) an assessment of whether there has been any misuse of the decision-making process;
g) an assessment of the overall effectiveness of this Agreement and its decision-making process.

6.5 The Review Team will make any recommendations it may have for changes to this Agreement to the JSMC. Any such recommendations will be arrived at by consensus. If consensus cannot be reached, the team will report the divergent views of the members of the team to the JSMC.

7. Grievability/Arbitrability
The lack of application of this Framework Agreement in a given situation is subject to the grievance/arbitration process.
8. **Effective Date**

This Framework Agreement takes effect on the date of signing by the representatives of the parties.

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**AECL Purchased Services Model**

- **Work proposed for AECL or Centre of Excellence**
  - Centre of Excellence work?
    - **NO**
    - Is the Work emergency work? Or Mandated by Regulators? or Already PSA? **NO**
    - Are there any **OPG** Society-rep employees with the requisite skills currently surplus? Or Does the labour component of the contract exceed 1,500 person-hours? Or Does the contract duration exceed 12 months? Or Do subcontracts exceed 30% of the contracted total person hours? **YES**
    - Management issues contract
  - **YES**
    - Do subcontracts exceed 30% of the contracted total person hours? **NO**
    - **YES**
    - Periodic Review of contract by Review Team
  - **NO**

---

*Signed by Chris Cragg for The Society and Brian Story for Ontario Hydro, December 20, 1994 - revised in the 2006-2010 Collective Agreement*
Appendix VII - Re: Outline of Negotiating Process for Collective Agreement

The parties agreed to make their best efforts to adhere to the following schedule for negotiating amendments to the Collective Agreement. Failure to adhere to this schedule shall not jeopardize the bargaining rights of either party. Dates refer to the calendar year in which Collective Agreement expires.

1. The JSMC will meet prior to January 31, of the last year of the Agreement to prepare a detailed work plan for negotiating the outstanding tasks set out in the Agreement (Articles 94, 97, etc.). The work plan will include a schedule of priority items, target dates, primary responsibilities, and resources.

2. By June 1, the parties will:
   a) select their representatives for the main negotiating committee;
   c) determine the schedule for main committee negotiating meetings;
   d) select a mediator-arbitrator and determine the dates for mediation-arbitration;
   e) receive progress reports on items under (1) above.

3. By August 1, the parties will, if required:
   a) identify those issues which will be referred to sub-committees;
   b) establish the terms of reference for the sub-committees and the target dates these sub-committees are to submit their final reports/recommendations to the main committee;
   c) select their representatives on the sub-committees. The parties shall each appoint at least one representative from their main negotiating committee to serve on these sub-committees.

4. Sub-committees will begin meeting no later than September 1 and submit progress reports by October 15 and a final report no later than October 31 (unless specifically provided with a time extension by the JSMC).

5. Main committee negotiations will begin no later than October 15.

6. Main committee negotiations will conclude no later than December 1.

7. Mediation meetings with the mediator-arbitrator, if necessary, will conclude no later than December 15, unless further meetings are required to address issues which arise in the course of drafting contract language or if a tentative settlement fails ratification.

8. If necessary, an Arbitration Hearing will be conducted prior to January 31, in the year after the Agreement expires.
Appendix VIII Re: Amendment to the Voluntary Recognition Agreement (VRA)

In light of major changes that have occurred since the Voluntary Recognition Agreement (VRA) came into effect on January 14, 1992, including significant Corporate restructuring, the parties’ agreement to conduct a joint internal relativity project, and the need to clarify The Society’s historical jurisdiction, The Society and OPG agree to replace Sections 1.0 and 2.0 of the VRA with Article 2 of their Collective Agreement as amended by the Framework Agreement dated October 4, 1994.

The parties further confirm that the terms of the VRA as amended in the Collective Agreement remain applicable in all respects, including the agreed upon dispute resolution processes, to all provincially and federally regulated employees, subject only to previously agreed amendments and this amendment.

OPG and The Society confirm the following understanding with respect to their agreement to amend Article 2 (“Recognition Clause”) of their Collective Agreement:

1. The parties agree that the Voluntary Recognition Agreement (Attachment A), subsequent amendments to the VRA and correspondence between the parties concerning jurisdictional matters will be admissible in the event of any future interpretation disputes concerning The Society’s recognition clause.

2. The parties agree that the intent of these amendments is to clarify The Society's historic jurisdiction as the exclusive bargaining representative for the broad mix of professional and supervisory employees that comprise the M&P/FM&P and TMS/TS/OSS/SEI salary classifications on salary schedules 01, 02, 03, 04, 05, 06, 07, 08, 09, 13 and 18 except where such persons are performing managerial functions or are employed in a confidential capacity. As such, these amendments constitute a reconfirmation by OPG of the commitments made by D.B. MacCarthy regarding The Society's jurisdiction in his April 18, 1994 letter to P.T. Suchanek, Registrar of the Canadian Labour Relations Board.

3. The Society acknowledges that OPG has consented to the deletion of the following subparagraphs from the bargaining unit description on the basis of the assurance of The Society contained in paragraph 4 below:
   - those persons included on the Executive Salary Roll and above;
   - employees whose full-time duties are security work;
   - employees in the Executive Office;
   - employees in the Office of the General Counsel and Secretary including the Law Division except Corporate Official Records Analysts, Corporate Archivists and Corporate Records Centre Supervisors.

4. The Society assures OPG that this Agreement, to delete the sub-paragraphs contained in paragraph 3 above, does not extend the previously agreed upon jurisdiction of The Society, except upon consent of the parties, beyond that jurisdiction identified in the Voluntary Recognition Agreement. However, should jurisdictional claims be made by any other bargaining agent for the classifications referred to in paragraph 3 above, The Society may assert a parallel or related claim.

5. The parties acknowledge that there are thirteen jurisdictional grievances filed by The Society pending resolution (listed in Addendum A) and that these amendments are not intended to prejudice the outcome of these disputes.

6. The parties acknowledge that the definition “associated employees” in Subsection 2.3.2 includes, but is not limited to, positions listed in Addendum B, and other similar positions created in the future.

(signed by B.R. Story and C.B. Cragg - October 4, 1994) - Revised in 2006-2010 Collective Agreement
## ADDENDUM B

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<td>Digital Mapping Co-ordinator</td>
<td>01</td>
<td>03</td>
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<tr>
<td>759026</td>
<td>Training Officer</td>
<td>01</td>
<td>03</td>
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<td>Operating &amp; Maintenance Projects Co-ordinator</td>
<td>01</td>
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<td>Service Co-ordinator</td>
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<td>04</td>
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<td>729014</td>
<td>Maintenance Specialist – Mechanical</td>
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ATTACHMENT A

VOLUNTARY RECOGNITION AGREEMENT

This Agreement including the accompanying Framework Agreement, included as Schedule A, resolves all issues raised during proceedings at the Ontario Labour Relations Board, regarding The Society's Applications for Certification (dated November 5, 1986 and October 2, 1990) or otherwise arising as to the status of the Master Agreement as a Collective Agreement before such Board or the Courts. This Voluntary Recognition Agreement is entered pursuant to the Ontario Labour Relations Act and is acknowledged to be enforceable pursuant to that Act. The parties agree that the Memorandum of Agreement, June 19, 1991, known as the Letter of Understanding, is no longer in force or effect.

1.0 Recognition Clause

Pursuant to section 16(3) of the Ontario Labour Relations Act, Ontario Hydro agrees to recognize The Society as the exclusive bargaining agent for the "employees" defined as follows:

“All employees employed by Ontario Hydro in the Province of Ontario as supervisors, professional engineers, engineers-in-training, scientists, professional, administrative and associated employees save and except:

a) those persons included on the Executive Salary Roll and above;

b) employees in bargaining units for which any trade union holds bargaining rights as of the signing of this Agreement;

c) those persons who perform managerial functions as distinct from supervisory functions. An employee is performing managerial functions if:

i) she/he performs managerial functions such as hiring, promotion, performance increase, discharge, etc. over other employees in the bargaining unit and;

she/he is required to spend the majority of his/her time performing managerial duties and;

she/he supervises at least seven (7) employees (directly or indirectly) on a regular and continuous basis.

ii) she/he supervises employees who are excluded from The Society under (c) (i), (d), (e) or (f);

d) employees who are primarily employed in a confidential capacity affecting the terms and conditions of employment for Ontario Hydro staff;

e) employees whose full-time duties are security work;
employees who are members of a profession entitled to practice in Ontario and who are employed in a professional capacity where the Ontario Labour Relations Act excludes such persons from coming under the Act by virtue of their profession."

2.0 Clarity Notes

For the purposes of clarity, the bargaining unit set out above:

2.1 Includes:

a) All regular, probationary, part-time and temporary employees whose functions are included in the classifications paid from Salary Schedules 01, 02, 04, 05, 07, 08, 09, and 18; and

b) All employees paid from Salary Schedule 13 (Nurses), Salary Schedule 03 (System Control Operators) and Salary Schedule 06 (Helicopter Operator Supervisors), except employees excluded by virtue of 1.0 of this Agreement, will be entitled to vote to determine if they wish to be represented by The Society. If the majority of eligible employees voting on any schedule vote in favour of being represented by The Society, eligible employees on that schedule will be represented by The Society. The vote will be conducted by The Society and Ontario Hydro by secret ballot.

2.2 Excludes employees in accordance with 1.0 (c) above as follows:

a) M&P (Schedule 01) - in salary classification MP4 (or higher) rated by the Plan A Point System of Job Evaluation January 1988 ("Plan A"), or its equivalent, carrying "Nature of Supervision" Degree 4 (or higher) or its equivalent and "Numbers Supervised" Degree 3 (or higher) or its equivalent who normally supervise other Society represented employees.

b) FM&P (Schedule 02) - who normally supervise other FM&P employees and who normally supervise at least seven (7) employees directly or indirectly.

c) TMS and TS (Schedules 08 and 07) - who normally supervise other TMS or TS positions and who normally supervise at least seven (7) employees directly or indirectly.

d) OSS (Schedule 05) - who normally supervise other OSS positions and who normally supervise at least seven (7) employees directly or indirectly.

e) Supervising Electrical Inspectors (Schedule 09) - who normally supervise other SEI positions and who normally supervise at least seven (7) employees directly or indirectly.

f) Area Managers.
2.3 Excludes employees in accordance with 1.0 (d) above as follows:

a) Employees paid from Salary Schedule 01 rated under Plan A as having “Staff Responsibility” Degree 4 (or higher) or its equivalent and MP6 employees as having “Staff Responsibility” Degree 3 (or higher) or its equivalent.

b) Employees in the Executive Office.

c) Employees in the Office of the General Counsel and Secretary including the Law Division except Corporate Official Records Analysts.

d) Positions currently listed in Agreement RS-1 dated October 11, 1990.

e) Human Resource trainee positions on Schedule 04.

3.0 The grievance and arbitration procedure may be used to challenge any unreasonable, arbitrary or bad faith action taken by Ontario Hydro which results in the exclusion of any employee or position from the bargaining unit.

4.0 Arbitration

4.1 Future contract negotiations disputes shall be resolved by binding arbitration in accordance with Section 38 of the Ontario Labour Relations Act and the negotiating process for resolving such disputes shall be set out in full in the Collective Agreement.

The dispute resolution process shall be mediation-arbitration using the same individual as both the mediator and arbitrator.

The mediator-arbitrator shall consider the following issues as relevant to the determination of the award on monetary issues:

a) a balanced assessment of internal relativities, general economic conditions, external relativities;

b) Ontario Hydro’s need to retain, motivate and recruit qualified staff;

c) the cost of changes and their impact on total compensation;

d) the financial soundness of Ontario Hydro and its ability to pay.

A mediator-arbitrator shall have the power to settle or decide such matters as are referred to mediation-arbitration in any way he/she deems fair and reasonable based on the evidence presented by representatives of Ontario Hydro or The Society in light of the criteria in items (a) to (d) and his/her decision shall be final and binding.
4.2 The parties will hereby undertake to develop appropriate internal comparisons, an external community for comparison and criteria for measuring total compensation by no later than September 1, 1992 and failing such agreement either party may refer the outstanding differences to an arbitrator for a final and binding decision. This undertaking and its referral to arbitration shall be enforceable under the Arbitrations Act.

5.0 No Strike/No Lockout

The Collective Agreement will recognize that The Society, employees within the scope of the bargaining unit, and the Corporation are pledged to the effective and efficient operation of Ontario Hydro and that they pledge themselves, individually and collectively, to refrain from taking part in strikes, lockouts or sympathy strikes and other interference with work or production as long as the terms and conditions in section 4.0 continue.

6.0 Supervisory Employees

For the purposes of section 9.0, the parties agree that Supervisory positions are those that are not excluded under section 1.0 above and that satisfy the following criteria:

a) Employees on Salary Schedule 01 who have under Plan A “Nature of Supervision” Degree 3 (or higher) or its equivalent;

b) Employees on Schedules 07, 08, 02, 05 and 09 on condition they normally supervise other employees.

7.0 Enforcement

The primary method of enforcement of this Agreement shall be pursuant to the grievance and arbitration provision of the parties’ Collective Agreement. However, should the Collective Agreement not be in operation or applicable to the dispute, either party shall have the right to refer to final and binding arbitration any differences between the parties arising from the interpretation, application, administration or alleged violation of this Voluntary Recognition Agreement, including any question as to whether a matter is arbitrable.

The arbitrator shall have all of the powers of an arbitrator pursuant to section 44 of the Ontario Labour Relations Act or the Arbitrations Act as the case may be.

Subject to the conditions of this Agreement, if a mediator or arbitrator is not appointed within 30 days of a matter being referred to mediation and/or arbitration, either The Society or Ontario Hydro shall have the right to refer the matter to the Minister of Labour or the Chief Justice of the Ontario Court of Justice and the Minister or Chief Justice shall appoint a mediator and/or arbitrator.
8.0 Selection of Mediators and Arbitrators

Mediators and arbitrators shall be selected from a list of mutually acceptable persons which are to be set out in the Collective Agreement and the costs of using them will be shared equally by Ontario Hydro and The Society.

9.0 Duration

The Agreement shall come into effect on the date of ratification and shall remain in effect thereafter except for section 4.0 and 5.0 which may be terminated by written notice by either party not less than six months prior to the expiry of the Collective Agreement in operation on January 1, 2001 or any subsequent Collective Agreement. In the event that The Society provides notice of termination of sections 4.0 and 5.0, Ontario Hydro may require that the supervisors defined in this Agreement form a separate bargaining unit for which The Society shall be recognized as the bargaining agent and for which there shall be a separate Collective Agreement. In addition, The Society shall continue to be recognized as the bargaining agent for non-supervisory staff defined in this Voluntary Recognition Agreement. Disputes on the identification of supervisors shall be submitted to a mutually-acceptable arbitrator for settlement. If the parties fail to agree to appoint an arbitrator, either party may refer the matter to the Minister of Labour or the Chief Justice who shall appoint an arbitrator. If Ontario Hydro provides notice of termination of sections 4.0 and 5.0, it shall continue to recognize The Society as representing all employees in one bargaining unit per this Voluntary Recognition Agreement and ensuing Collective Agreements.

In the event that either party desires to amend this Agreement on or after January 1, 2001, it must notify the other party in writing not less than six months prior to the expiry of the Collective Agreement in effect on January 1, 2001 or thereafter six months prior to the expiration of any subsequent Collective Agreement. In such circumstances the parties will have the right, if either party so chooses, to appoint a mutually-agreeable mediator for the purpose of reaching a settlement of the issues and where there is mutual agreement the mediator shall arbitrate outstanding matters in dispute.

Notwithstanding the above, the parties may mutually agree to amend this Agreement at any time.

10.0 Federal Jurisdiction

In the event that nuclear workers are found to be covered under the Canada Labour Code and The Society applies to represent these employees, Ontario Hydro will not oppose certification for any employee represented by The Society under this Agreement.
11.0 Ratification

The Society Executive recommends acceptance of this Agreement to its members and the Agreement shall become effective upon the date of ratification. Persons eligible to vote will include all employees who will be represented by The Society under this Voluntary Recognition Agreement. The vote will be conducted by secret ballot.

12.0 Effective upon the date of ratification or as soon as reasonably practical, Ontario Hydro undertakes to make available to those employees excluded under 1.0(c) and 1.0(d) an enhanced Redress Procedure for Management Function staff, which includes the right to representation of their choice, and as a final step in the process, to binding arbitration by an external third party acceptable to the employee and to Ontario Hydro.

13.0 Until the terms of a first Collective Agreement are reached, Ontario Hydro agrees to adhere to the terms and conditions of employment found in the existing Master Agreement, Subsidiary Agreements and Memoranda of Understanding with respect to the agreed upon bargaining unit. Applicable sections of the Manual of Human Resources Policies and Procedures will act as a supplement to the aforementioned joint documents.

14.0 Effective the first month following the date of ratification, Ontario Hydro shall deduct dues from each employee in the unit and remit this amount to The Society forthwith.

This Agreement was arrived at with the assistance of and under the auspices of George Adams as mediator.

[signed by C. Cragg for W. Hirst (Society) and W.S. O'Neill (Ontario Hydro), November 13, 1991.]
Memorandum of Understanding for a Framework Agreement

Ontario Hydro and The Society of Ontario Hydro Professional and Administrative Employees agree as part of the Voluntary Recognition Agreement to be bound by the following principles and practices and agree that the negotiation and operation of all Collective Agreements ensuing from the Voluntary Recognition Agreement will be in accordance with this memorandum unless otherwise mutually agreed.

1.0 Society Interests vs. Corporate Interests

The object of this Agreement is to promote harmonious relations between employer and employees consistent with the preamble of the Ontario Labour Relations Act and in recognition of the need for the successful accomplishment of the public purposes for which Ontario Hydro has been established as set forth in the Power Corporation Act and enunciated in the Corporate Direction.

The objective of the parties is to facilitate the peaceful adjustment of salaries and benefits, working conditions, issues of fair treatment, all disputes and grievances, and to prevent inefficiencies and avoidable expenses and to reduce unnecessary delays.

Ontario Hydro’s mission is to contribute to the enhancement of the quality of life of the people of Ontario by serving their energy needs. The Society’s mission is to strive to ensure the best rewards, career opportunities and working conditions for its members. The Society recognizes a responsibility for providing an essential service to the people of Ontario and in working towards the continued viability and continuity of Ontario Hydro as the provincial electrical utility. Both parties recognize the fundamental importance of service to the Corporation’s customers.

The parties recognize that situations may arise where their missions, objectives, or actions come into conflict. These conflicts may impact on the bargaining unit and particularly on supervisory employees represented by The Society. The parties agree that supervisors will be able to participate fully as members and perform supervisory responsibilities without fear of reprisal or recrimination by either party.

Provided nothing in this Framework Agreement is intended to interfere with the exercise of lawful economic sanctions by any member of the bargaining unit or bargaining units as the case may be or by The Society itself should either party to the Agreement elect to terminate sections 4.0 and 5.0 of the Voluntary Recognition Agreement.

2.0 Collective Agreement

The Collective Agreement between the parties will include sections 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 8.0 of the Voluntary Recognition Agreement, in addition to section 1.0 of Schedule A and the principles set out in sections 3.0 to 7.0 as noted below.
3.0 Supervisory Employees - Code of Ethics

Ontario Hydro agrees to include supervisory employees in the bargaining unit on the condition that the parties recognize that supervisory employees will continue to exercise key functions in the control and operation of Ontario Hydro. As members of Ontario Hydro’s managerial staff, supervisors use judgment to express and make operative the decisions of Management. They are responsible for fostering a healthy work environment. The parties recognize the responsibility of supervisors to discharge their supervisory duties in good faith. The Society and Ontario Hydro will identify, minimize and/or avoid the conflicts/perceived conflicts of interest that may arise concerning the relationship between supervisors, The Society and Ontario Hydro.

It is recognized that supervisory employees may be disciplined for failure to act in good faith as a representative of Management and fulfilling their responsibilities including abuse of supervisory position and breach of trust.

3.1 Grievance Procedure

The Collective Agreement will have a grievance procedure which will recognize:

- access by either party for disputes arising from the administration of the Collective Agreement and from the application of section 1.0. If such disputes proceed to arbitration, the arbitrator will consider the principles contained in section 1.0;
- the role of supervisors in resolving disputes before they reach the formal procedure;
- that The Society agrees not to discriminate against supervisors who represent Management in Society grievances;
- that The Society will exclude supervisors directly involved in a particular grievance from the decisions on the referral of the grievance through the formal process;
- that supervisors will not act on behalf of The Society in matters associated with a particular grievance where the grievance has been lodged by another member(s) who reports to the particular supervisor.

4.0 Representation on Corporate Committees

The Collective Agreement will recognize the roles and responsibilities of appointees to committees and task forces, i.e., as a representative of Management on the one hand, and The Society, on the other. When an employee represented by The Society is appointed by Management, his/her responsibility is to Management. When he/she is appointed by The Society, his/her responsibility is to The Society. This role distinction should be made clear at the time of appointment. Notwithstanding the above, and in
keeping with section 3.0, Management will endeavour to appoint its representatives having regard to The Society's interests in effective representation.

5.0 Selection of Supervisors

The Collective Agreement will incorporate the existing practices for selecting the “best qualified candidate” in filling supervisory positions.

6.0 Membership in The Society

The Society agrees to permit members to withdraw membership in The Society.

7.0 Dues Deduction (Rand Formula)

The Collective Agreement will provide for Society dues, as prescribed by the Constitution, or an equivalent amount, to be deducted monthly (or more frequently if agreed) by Ontario Hydro by compulsory payroll deductions from all Society-represented employees and to be forwarded to The Society on their behalf with a list of appropriate employee information.

The Society confirms it will respect the provision of section 47 of the Ontario Labour Relations Act with respect to bona fide religious convictions or beliefs.

(signed by C. Cragg for W. Hirst [Society] and W.S. O’Neill [Ontario Hydro], November 13, 1991)
Appendix X - Re: Conflict of Interest - Security Staff

February 24, 1995

Mr. C. Cragg
President
The Society of Ontario Hydro
Professional and Administrative Employees
Suite 630, 525 University Avenue
Toronto, Ontario
M5G 2L3

Dear Chris:

Conflict of Interest - Security Staff

This will confirm the intent of the internal and external confidential review/resolution process in Article 2, Subsection 2.4. This process does not deny the parties access to the grievance/arbitration process but recognizes that conflict of interest situations may require an alternate forum for resolution. The issues that may give rise to a conflict of interest between the duties and responsibilities of the Security Staff and their membership in The Society may involve sensitive and confidential security matters that would not be appropriate to the usual grievance/arbitration process. The parties may desire to deal with these issues in camera or with the immediate involvement of other representatives who are not usual participants in the grievance/arbitration process. The employee is entitled to Society representation in this process and in the event that the process is not successful or results in discipline or other actions directly affecting any of the parties, all parties would maintain the right to pursue these actions through the grievance/arbitration process.

(signed by B.R. Story - February 24, 1995)
Appendix XII – Re: Guidelines for Applying Burkett Overtime Award

As a result of continuing questions concerning the Burkett overtime award, The Society and OPG have agreed to issue these guidelines to assist local representatives in interpreting this award.

Employees found eligible for compensation under this award are entitled to receive compensation equivalent to PWU overtime premiums for all overtime worked, retroactive to January 1, 1993. This entitlement applies to all PWU overtime premiums, including double-time Saturdays, double-time for all work performed outside of their first four clock hours after normal quitting time Monday to Friday inclusive and minimum payments for emergency and scheduled overtime. It does not apply to travel time outside of normal scheduled hours.

To determine compensation eligibility under this award:

First, determine which employees are eligible to receive the PWU equivalent overtime premium. A list of eligible employees should be developed locally using the statement of intent in Part A and the employee eligibility guidelines set out in Part B. Local Society representatives should be involved in developing the list of eligible employees to minimize the possibility of disputes.

Second, decide whether an employee deemed eligible in step one will be compensated with PWU equivalent overtime premiums on an ongoing or on an assignment-by-assignment basis. This decision is Management's prerogative. If the decision is made to compensate on an assignment-by-assignment basis, the guidelines set out in the statement of intent in Part A and the guidelines in Parts C and D should be followed to determine when an eligible Society-represented employee qualifies to receive the applicable PWU equivalent overtime premium. Local Society representatives should be involved in the development of local adaptations of these guidelines to ensure fair and consistent employee treatment and to minimize disputes.

Part A - Intent of the Award

The intent of the award is to correct the internal "relativity rub" that arises when Society-represented staff are required to directly supervise or work beside PWU-represented employees performing overtime work in a field environment or facility while receiving less providential overtime provisions than these employees. It is not intended to address internal relativity problems other than those that specifically arise when members of both employee groups work overtime.
Part B - Conditions of Employee Eligibility

1. The following conditions must be satisfied before an employee is eligible to receive award compensation:

   a) an employee must work in a field environment/facility (=“field condition”);

   and

   b) he/she must directly supervise or work beside PWU-represented employees (=“interface condition”).

2. To meet the “field condition”, an employee must be “directly involved in the operations, maintenance or construction of production, transmission, or distribution facilities”.

3. “Head office” refer to non-production, non-transmission or non-distribution facilities and, as of January 1, 1993, includes the following locations: 700 University, 393 University, Murray Street, College Park, Place Nouveau and the Atrium. When performing overtime work at these locations, employees do not meet the “field condition.” Local Society and Management representatives should assess whether or not employees, when performing overtime work at other locations, meet the “field condition” on a case-by-case basis, by examining the nature of the employee’s work in light of the statement of intent in Part A and the guidelines contained in this section. In the event of disagreements, the matter should be referred to the JSMC.

4. Employees whose regular work headquarters are “field” locations (i.e., those not included under guideline #2 above) and who train PWU-represented staff meet the “field condition”. Employees who satisfy this condition include those who work at the Orangeville C&D Centre and the Nuclear and Thermal training centres.

5. Employees whose overtime work at their regular work headquarters does not meet the “field condition” (e.g., head office staff) shall be deemed to meet this condition for overtime work performed at “field” locations when they directly supervise or work beside employees involved in the operation, maintenance or construction of production, transmission or distribution facilities (e.g., research, telecommunications or information systems work performed at stations).

6. Employees “work beside” PWU-represented staff if they work at the same time as PWU-represented staff on the same projects/task assignments and this is a normal feature of their work and necessary to carry out their job responsibilities (e.g., P&C Engineers). To determine employee eligibility in this regard, the nature of The Society-represented employee’s job responsibilities, rather than the frequency of his/her actual contact with PWU-represented staff, should be the primary consideration.
Part C - Conditions That Trigger Award Compensation

(Management has the discretion to compensate employees who are deemed eligible under Part B above with the equivalent to PWU overtime premiums on an ongoing or on an assignment-by-assignment basis. If Management chooses to compensate on an ongoing basis, the sole condition that must be satisfied for award compensation to trigger is the eligible employee’s performance of overtime work. If Management chooses to compensate on an assignment-by-assignment basis, then the guidelines below apply. NB. An individual guideline does not stand alone: all conditions set out in this Part must be satisfied before an eligible employee qualifies for award compensation.)

Both The Society-represented employee and the PWU-represented employee whom he/she supervises or works beside must be on overtime. Example: if a Society-represented employee who normally works days Monday to Friday works on a Saturday with a PWU-represented employee who is working on his/her normal scheduled shift (and does not work beyond the scheduled hours), The Society-represented employee does not qualify for award compensation.

Award compensation applies to the period of time when The Society-represented employee is “rubbed” by an unfavourable overtime premium differential. Example: if a Society-represented employee who normally works days Monday to Friday works on a Saturday from 7:00 a.m. to 3:00 p.m. with a PWU-represented shift employee (for whom the Saturday is a scheduled work day) whose shift ends at 7:00 a.m. but who continues to work (on overtime) until 3:00 p.m., The Society-represented employee qualifies for double-time from 11:00 a.m. until 3:00 p.m., i.e., when the PWU-represented employee received double-time for overtime work.

The presence of a Society-represented employee for the overtime in question must be necessary for the work to progress (i.e., if the employee was not there, then the task could not proceed). In most cases, this condition is met if the other conditions set out in the Part are also satisfied.

A direct supervisory or "working beside" interface must exist between Society-represented and PWU-represented employees during the overtime in question. The mere presence of a PWU-represented employee on overtime at the same location and at the same time as a Society-represented employee is working overtime does not trigger the award. Example: if a number of eligible Society-represented supervisors work overtime at the same time as PWU-represented employee works overtime, only the supervisor to whom the PWU-represented employee reports during the overtime in question qualifies for award compensation.

This, however, does not preclude another Society member who is not a supervisor but meets the "working beside" criteria from receiving this compensation.
Part D - Clarifications

1. Even if only one PWU-represented employee is on overtime for a particular assignment, and the other (PWU-represented) members of his/her crew or task group are not, assuming the other conditions are met, The Society-represented employee on overtime with him/her qualifies for award compensation.

2. Normal shift turnover work of less than 30 minutes does not qualify for coverage under this award, but rather is compensated in accordance with Article 62 (“Shift Turnover”) in the Collective Agreement. Shift turnover work of 30 minutes or longer performed outside of normal working hours, however, as well as work other than shift turnover work an employee is required to perform prior to normal starting time are eligible for compensation under this award provided that: a) the employee directly supervises or works beside a PWU-represented employee; and b) both are on overtime; and c) an overtime premium rub exists.

(dated February 28, 1994 – revised in the 2006-2010 Collective Agreement)
Appendix XIV – Re: Side Letters

December 4, 1998

Mr. John Wilson, President
The Society of Ontario Hydro Professional
and Administrative Employees
525 University Avenue, Suite 630
Toronto, Ontario
M5G 2L3

Dear Mr. Wilson:

This will confirm certain understandings reached during collective bargaining, concerning the Pension Plan:

a) The employees represented by The Society constitute a separate class within the Ontario Hydro Pension Plan;

The committee established as a result of the Memorandum of Settlement for the 1997-1998 Collective Agreement shall continue to have access to reasonable pension plan and pension fund information, which shall include reasonable information related to the allocation and transfer of pension funds from the Ontario Hydro Financial Corporation Pension Plan to a successor pension plan as contemplated by S. 100 of the Energy Competition Act. Prior to its publication, the committee will review any brochure, which provides a summary of the pension plan and any specific provisions and entitlements of The Society pension class;

b) In the event of a division of the Ontario Hydro Pension Plan into two or more successor pension plans, the provisions of this letter are applicable in respect of each successor pension plan.

d) The employer confirms it remains responsible in respect of all rights and benefits under Article 50 of the Collective Agreement.

Yours truly,

Steve Strome
Vice President, Labour Relations
Corporate Human Resources
Letter from Brian Story to Jim Blair and Gary Knowles
The Society of Energy Professionals
525 University Avenue, Suite 630
Toronto, Ontario
M5G 2L3

Re: Clarification of Article 37

This is to clarify our understanding about the application of Article 37 of The Society’s Collective Agreement, Release of Society Representatives.

Management acknowledges that Society Unit Directors (UD) duties may require up to 100 percent paid release time, in recognition of normal UD work plus significant participation in joint and tripartite processes and other business related to Society-Management relations. If a Unit Director is not involved significantly in these kinds of activities and processes then the release time required would normally be 50%.

Unit Directors will keep local management apprised of their Society responsibilities and commitments in order to resolve release time issues, to the greatest extent possible, at the local level. Any disputes with respect to whether 50% or 100% release time is required will be resolved at the JSMC level.

Society Unit Directors will become signatories to the Partnership Agreement between OPG and The Society and Power Workers’ Union to reinforce The Society’s commitment to maintaining a constructive approach to resolving issues.

Brian Story
Vice President, Labour Relations
Corporate Human Resources
APPENDIX XV – RE: Tripartite Agreement with Respect to Jurisdictional Disputes

Between
The Power Workers’ Union (“The PWU”)
and
Ontario Power Generation Inc. (“OPGI”) and
The Society of Energy Professionals (“The Society”)

1. Each of the PWU and the Society may refer any grievance filed under its collective agreements, or any issue arising from a grievance, that concerns competing claims by the PWU and Society to the assignment of work or positions, to the expedited arbitration process described herein.

2. The referral shall be made by the referring union delivering a brief to the other parties setting out the facts and evidence on which it relies. Responding parties shall deliver responding briefs within 30 days thereafter, and the referring union may file a reply brief within a further 10 days after receipt of the responding briefs.

3. If a party does not deliver its brief within these time lines, it may only file its brief and lead evidence at arbitration with leave of the arbitrator, on such terms as the arbitrator may impose.

4. Arbitrations will be held in an expedited med/arb format. The arbitrators will be selected from the following group:

   Jules Bloch
   Gerald Charney
   Robert Herman

5. This roster of arbitrators will be reviewed by the parties every year that this agreement continues. Prehearing issues may be referred to Jules Bloch or his designate for resolution.

6. Arbitrations will be based primarily on written briefs, which are prima facie evidence of the truth of their contents. Oral evidence will be limited to matters on which the arbitrator so directs, and no party shall introduce oral evidence of matters that are not contained in their brief, except with leave of the arbitrator. Prior settlements made without prejudice and without precedent shall not be determinative of any grievance.

7. In addition to jurisdiction under the collective agreement under which the dispute was filed, the arbitrator shall have the jurisdiction set out in s.99 of the Labour Relations Act, 1995, except the arbitrator shall not have power to alter
a bargaining unit determined in a certificate or defined in a collective agreement, or otherwise amend the collective agreement.

8. Arbitration awards will be precedent setting.

9. The arbitrator's fees and associated costs shall be shared equally by OPGI and the referring union.

10. Any party may withdraw from this agreement on six months notice to the other parties.

Brian Story  Gary Knowles and Jim Blair
Ontario Power Generation Inc.  The Society

May 2000
Appendix XVI - “Shime Award” Re: Jurisdictional Issues

In the matter of a Mediation/Arbitration
- Between –

Ontario Power Generation Inc.
-and-
The Society of Energy Professionals
Owen B. Shime Q.C., Chair

This is my award to fully and finally resolve all matters in dispute reflected in the Memorandum of Agreement dated August 22, 2003 regarding jurisdictional issues.

1. Where OPG changes a Society position or creates a new borderline ESR position so that it is excluded from the bargaining unit, the following shall apply:

a. Management shall advise the appropriate Society Local Vice-President at least five (5) working days before (b) below that they intend to either create a new borderline ESR position or change the jurisdiction of an existing Society position. During this period Management will be available to meet with the Society and share all documentation and information related to the position in question. The parties will endeavour to come to an agreement on any issues in dispute on the applicable position.

b. Failing agreement management shall fax to the Society Local Vice-President any revisions to the job document, Plan “A” rating including rationale, an approved current and proposed organizational chart, request for exclusion form (Article 2.6), Plan “A” relativity list and a cover letter that differ from those delivered at step 1a. above or will notify The Society Local Vice-President that there are no revisions.

c. On or before the expiry of 10 working days after receipt of the job document and documentations referred to in (b), the Society shall provide its arbitration brief to the VP Compensation and Benefits in support of its position that the position is properly within the bargaining unit; if no brief is provided within the 10 working day period, the position shall be deemed to be a non-bargaining-unit position;

d. On or before the expiry of 10 working days after receipt of the Society’s brief as referred to in (c) above OPG shall provide its arbitration brief to the Society-designated contact in support of its position that the position is properly a non-bargaining unit position; if no brief is provided within the 10 working day period, the position shall be deemed to be a bargaining unit position;

e. After the exchange of briefs, the matter shall be referred to expedited arbitration as provided in LOU #179. The Arbitrator shall hear the matter and release a decision within 10 days of the matter being referred to him or her. The arbitrator shall not have jurisdiction to consider evidence of any hardship OPG may face as a result of having to convert a position from
ESR to Society jurisdiction. The Arbitrator shall only be allowed to consider the evidence as to whether or not the position is appropriately outside or inside the jurisdiction.

f. During the period up to and including the provision of a brief by OPG as referred to in (d), the position shall not be filled unless an incumbent is already in the position, in which case the incumbent shall remain in the bargaining unit subject to these provisions;

g. After the expiry of 10 working days from the exchange of briefs management may fill a newly created Borderline ESR position as a non-bargaining-unit position, provided that if the arbitrator rules that the position is a bargaining-unit position, then, unless the parties agree otherwise the incumbent shall be removed and the job shall be re-rated as per the arbitrator's decision. In the case of a proposed change to the jurisdiction of an existing Society represented position, if there is a dispute the position shall remain within the Society bargaining unit until such a time as either the parties agree otherwise or an arbitrator has ruled on the matter and has deemed the position as appropriately being outside the Society's jurisdiction.

h. In the event that the arbitration results in positions being declared non-bargaining unit positions, the incumbent will be given the choice as to whether he or she wishes to remain in the bargaining unit in a Society-represented role. He/she will remain in the non-bargaining unit position until such time as an appropriate Society vacancy becomes available.

i. It is understood that if the organizational chart referred to in (a) is changed during this process, the job shall be re-rated and the process will start anew if the position rating is disputed.

2. On a quarterly basis, a joint team shall review the process provided for in paragraph 1, and the experience under such process. After one-year from the date of execution of this memorandum, the parties shall undertake a comprehensive review of the process.

3. Where an exclusion from the bargaining unit occurs as a result of the number of reports, the following shall apply:

a. Where there was an existing Society position and there is a change in the number of reports, the position shall remain a Society position until the requisite initial reports are in place. If the reports are not in place after a period of six months, the position shall be re-rated. The position shall be deemed to be Society represented if rated below 335 points. The Society reserves the right to use the process in paragraph 1 above if the position is rated above 335 points.

b. In all other cases, the provisions of paragraph 1 apply, provided that in the case of a new position which is filled by a non-bargaining unit person, in the event that the requisite reports are not in place at the end of a six-month period, the matter may be referred to the expedited arbitration process provided for in LOU #179.
4. There shall be a single point of contact for the Society for Job Evaluation issues within each Bargaining Unit. OPG agrees to train 1 Society designated representative for each bargaining unit.

5. With respect to outstanding challenges of positions alleged to be in the bargaining unit:
   a. Within 60 days, the Society shall advise OPG in writing as to which positions remain subject to challenge.
   b. The parties will exchange briefs in accordance with the process in LOU #179.
   c. Any outstanding case that is not pursued, by way of a written brief, within 180 days of January 1, 2006 shall be considered withdrawn.

6. It is understood that consequential amendments to Article 2.5, LOU #179, and perhaps other provisions, will be required in order to incorporate the foregoing.

7. I shall remain seized with respect to contract language.

8. Subject to the foregoing all other matters in dispute reflected in the Memorandum of Agreement dated August 22, 2003 are deemed to be resolved.

Dated at Toronto this 10th day of September 2004.

Revised in the 2006-2010 Collective Agreement

Owen B. Shime Q.C.
Mediator/Arbitrator
Appendix XVII – Notice Items for 2011-2012 Collective Bargaining

With respect to “notice of intent” practices identified by OPG as part of its bargaining agenda for the 2011-2012 agreement, except with respect to vacation carryover that was awarded upon, the parties agree to be bound by their respective interpretations of the collective agreement language and not rely upon the past practice.
PART XVI - LETTERS OF UNDERSTANDING

In Accordance with Item #24 of the October 27, 2005 Memorandum of Settlement the parties have reviewed all Letters of Understanding and Mid-Term agreements.

The following Appendices, Letters of Understanding and Mid Term Agreements have been either deleted, moved or renumbered:

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix III - Default Units of Application</td>
<td>Moved to Article 64.9.10</td>
</tr>
<tr>
<td>Appendix V</td>
<td>Moved to Article 14</td>
</tr>
<tr>
<td>APPENDIX VI - PROJECT CREW ARRANGEMENTS</td>
<td>Moved to Article 72.2</td>
</tr>
<tr>
<td>Appendix XI - Re: Peak Demand Hour Arrangements</td>
<td>Move to Article 72.1</td>
</tr>
<tr>
<td>Appendix XIII - Clarification Notes for Article 74</td>
<td>Deleted</td>
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<tr>
<td>Appendix XIV - Side Letters</td>
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<tr>
<td>- Allocation and Redeployment issues</td>
<td>- Deleted</td>
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<tr>
<td>- Side letter Re Package Agreement on Group 5</td>
<td>- Moved to Article 37.2.5</td>
</tr>
<tr>
<td>- MoS Units of Application</td>
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</tr>
<tr>
<td>- Article 41 Pregnancy Leave Extension (Unpaid)</td>
<td>- Moved to Article 41</td>
</tr>
<tr>
<td>Letter of Understanding</td>
<td>Action</td>
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<td>#1 Re: Compensation and Working Conditions - Essential Duty Assignments</td>
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<tr>
<td>#2 Re: Peak Work Hours Arrangements</td>
<td>Moved to Article 72.1</td>
</tr>
<tr>
<td>#4 Re: Pre-Mix and Match Surplus Declarations</td>
<td>Moved to Article 64.14</td>
</tr>
<tr>
<td>#8 Re: Shift Differential</td>
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<tr>
<td>#9 Re: Expediting Redeployment Grievances and Arbitrations</td>
<td>Moved to Article 16.11</td>
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<tr>
<td>#13 Re: Surplus Staff On Rotations</td>
<td>Moved to Article 64.21.3</td>
</tr>
<tr>
<td>#15 Re: Article 20.1(b) Performance Pay Grievance Process</td>
<td>Deleted* (* refer to LOU # 180 for any performance pay complaints arising from the 2005 year payout of the performance Pay)</td>
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<td>#</td>
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<tr>
<td>#23</td>
<td>Re: Redeployment of Society-Represented Employees in OHN During NAOP</td>
</tr>
<tr>
<td>#24</td>
<td>Re: Reimbursement for BNPD Home Equity Loss</td>
</tr>
<tr>
<td>#73</td>
<td>Re: Expediting Society/OPG Jurisdictional Arbitrations (Nuclear), and #73GEN Re: Expediting Society/OPG Jurisdictional Arbitrations (Non-Nuclear)</td>
</tr>
<tr>
<td>#77</td>
<td>Re: Settlement of PPM Policy Grievance (December 3, 1996) and Negotiation of New Performance Pay Plan and Job Evaluation Plan</td>
</tr>
<tr>
<td>#84</td>
<td>Re: Compensation for CRSSs, CRSOSs and SSITs</td>
</tr>
<tr>
<td>#99</td>
<td>Re: TSSD Authorization Training Supervisors (ATS's) and Discussion of the Training Supervisor - Simulator Based Training (U0 TS's) Positions for the Purpose of Conducting Simulator-Based Training Courses on Shift</td>
</tr>
<tr>
<td>#112</td>
<td>Re: New Process for Employee Initiated Job Reviews</td>
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<tr>
<td>#119</td>
<td>CRSS, CRSOS, ATS, and UOTS and SSIT Compensation</td>
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<tr>
<td>#133</td>
<td>Re: Authority to Stop Work and Joint Health and Safety Committee Training</td>
</tr>
<tr>
<td>#134</td>
<td>Re: Incident Rating and Investigations</td>
</tr>
<tr>
<td>#135</td>
<td>Re: Article 72.2- Project Crews</td>
</tr>
<tr>
<td>#141</td>
<td>Grievance Backlog Resolution Process</td>
</tr>
<tr>
<td>#142</td>
<td>Re: Amendments to LOU #119</td>
</tr>
<tr>
<td>#146</td>
<td>Re: Amendments to LOU #141 - Grievance Backlog Resolution Process</td>
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<tr>
<td>#149</td>
<td>Re: Amendments to LOU #119</td>
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<tr>
<td>#151</td>
<td>Re: EARLY HOUSEHOLD RELOCATION FOR NUCLEAR STAFF TRANSFERRING TO DURHAM HEADQUARTERS</td>
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<tr>
<td>#153</td>
<td>Re: Purchased Service for OPG and Society Involvement in the OPG Business Planning Process</td>
</tr>
<tr>
<td>#154</td>
<td>Re: Lakeview Closure</td>
</tr>
<tr>
<td>#155</td>
<td>Re: Hours of Work Reduction</td>
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<td>#157 Compensation Systems</td>
<td>Deleted</td>
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<td>#158 - Bruce Relocation Assistance</td>
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<td>#159 Hours of Work Reduction (Combine with Article 64)</td>
<td>Moved to Article 64.26</td>
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<td>#160 Re: Amendments to LOU #119</td>
<td>Moved to LOU #178 Re. Band N</td>
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<td>#167 Re: Treatment of Schedule 04 Management and Professional Trainees</td>
<td>Moved to LOU #177 Re: Treatment of Schedule 04 Management and Professional Trainees</td>
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<td>#170 Re: Addendum to Letters of Understanding #73</td>
<td>Moved to LOU #179 Re: Expediting Society/OPG Jurisdictional Arbitrations</td>
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<tr>
<td>#172 Re: Revisions to LOU #167 167 Re: Treatment of Schedule 04 Management and Professional Trainees</td>
<td>Moved to LOU #177 Re: Treatment of Schedule 04 Management and Professional Trainees</td>
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<tr>
<td>#173 Re: Trainee Expenses – Modification to LOU #167</td>
<td>Moved to LOU #177 Re: Treatment of Schedule 04 Management and Professional Trainees</td>
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**Business Unit Mid-Term**

<table>
<thead>
<tr>
<th>#2 Re: Nuclear Unit of Application - Future Downsizing(Combine with Article 64)</th>
<th>Moved to Article 64.9.2</th>
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<tbody>
<tr>
<td>#10 Re: PND Local Agreement for #1 Shift Coverage by Society-Represented Employees Assigned to Days</td>
<td>Moved to LOU #181 Re: PND Local Agreement for #1 Shift Coverage by Society-Represented Employees Assigned to Days</td>
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<tr>
<td>#12 Re: Compensation &amp; Working Conditions - 12-Hour Shift Schedule</td>
<td>Moved to LOU #182 Re: Compensation &amp; Working Conditions - 12-Hour Shift Schedule</td>
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<td>#13 Re: Society Represented Employees in NTS - Periodic Assignment to Shift Work (Final)</td>
<td>Moved to LOU #183 Re: Society Represented Employees in NTS - Periodic Assignment to Shift Work (Final)</td>
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<tr>
<td>Business Unit Mid-Term #14 Re: Society Representation of Authorized Nuclear Operators in Rotations</td>
<td>Moved to LOU #184 Re: Society Representation of Authorized Nuclear Operators in Rotations</td>
</tr>
</tbody>
</table>
LETTER OF UNDERSTANDING

#5 Re: Society-Management Function/ESR Boundary Issues

Intent

This LOU seeks to clarify employee rights during the operation of Article 64 related to positions at or near to the boundary between The Society and Management Function and provide an equitable means for employees to participate in competitions or a mix and match and follow their work where it has been transferred in or out of The Society’s jurisdiction as a result of a reorganization. It is not intended to provide enhanced employment continuity rights in comparison to employees whose work has not changed jurisdiction.

The Problem

1. Position X is in the old organization and is in The Society. The duties change very little in the new organization but the change is sufficient to alter the jurisdiction of the position (e.g., the span of supervision and control is expanded and there will be more Society direct reports).

Under the current rules The Society-represented employees currently in position X will not be permitted to compete for the position in the new organization during a mix and match.

2. There is a converse of 1. Position Y is currently excluded from The Society (i.e., MF or ESR). In the new organization the position is substantially the same but the jurisdiction of the job will move to The Society’s jurisdiction. Once again, the change is minimal (e.g., there is reduced supervision and fewer or no Society direct reports).

3. Position Z is being formed in the new organization. It appears that it will be excluded/included but there is uncertainty about some factors (e.g., the number of direct reports). Therefore, the jurisdiction is uncertain and may eventually change.

In this case, Management could make an arbitrary designation as excluded and The Society could challenge the designation later. If Management were to do this, then The Society-represented employees would not be able to compete for the position during a mix and match process. If the ultimate jurisdiction was within The Society, it could be that the selection process would have to be repeated.

If Management were to designate the position as included in The Society then MF and ESR would be excluded from a mix and match process. A similar result could occur, if the jurisdiction were to subsequently change.
The Solution

A joint process for identifying positions X, Y and Z will be established as follows:

1. Management will identify the X, Y and Z positions and identify the employees who could be adversely affected. The Society will have approval/veto rights. (Note: This is intended to ensure X, Y and Z positions are legitimate and not intended to increase the opportunities for MF and ESR employees or reduce the opportunities for Society represented employees to exercise their seniority rights in the mix and match process.)

2. Category X - These positions will be filled in the MF mix and match or advertised OPG wide using the normal vacancy process if not filled in the mix and match. Society represented employees identified under paragraph 1 will be treated equally to MF employees during a mix and match but may only be selected for Position X. If the position is advertised OPG wide, then the employee will be treated preferentially (i.e., be granted the same priority as surplus MF or ESR) for the specified position only. If the employee is not selected, then the employee can exercise all of his/her normal rights under Article 64. Where the employee is not selected for the position, The Society and the employee will be advised of the selection criteria and provided with reasons for non selection.

3. Category Y - These positions will be filled in The Society mix and match or advertised OPG wide using the normal vacancy process if not filled in the mix and match. MF or ESR employees identified under paragraph 1 will be treated equally to Society employees during a mix and match but can only be selected providing they meet the senior qualified criteria for Position Y (i.e., such employees cannot be placed in any other position or displace Society-represented employees). If the position is advertised OPG wide, then the employee will be treated preferentially (i.e., be granted the same priority as surplus Society) for the specified Y position only. If the employee is not selected, then the employee will be treated similarly to other MF/ESR staff in all other respects and have no additional rights.

4. Category Z - The parties will attempt to reach consensus on the jurisdiction of the position based on all available information (which will include an organization chart showing reporting relationships, selection criteria, and description of duties) prior to the selection process. Where consensus is not reached, Management will determine the jurisdiction and The Society will have the right to grieve.

5. The rights of The Society to grieve the jurisdiction of positions are unaffected by agreements reached under this process.


______________________________ ______________________________
J. Wilson S. Strome
for The Society for OPGI–Nuclear

Revised in the 2006-2010 Collective Agreement
LETTER OF UNDERSTANDING

#10 Re: Extended Health Benefits

The undersigned parties recognize and accept the fact that OPG’s Extended Health Benefits (EHB) plan is a negotiated plan which can only be revised through negotiations. In an attempt, however, to overcome the inflexibility of this plan on a case by case basis, and on a “without prejudice” basis, the parties also recognize that there may be some situations where a business case can be made that an alternative/different treatment to that allowed by the strict wording of the plan may be mutually beneficial.

As such, the parties agree that where a business case supports such action, and where it is mutually agreeable between OPG and The Society, OPG and individual employees may enter into agreements signed by the employee and a Society Principal Officer or Society Staff Officer on a “without prejudice” basis, whereby, for a limited period of time, employees may waive their rights under the EHB Plan and opt for a different or alternative treatment as agreed to by the parties. It is the intention of both parties that this would be done infrequently and only in cases where special requests have been made by individual employees for a different type of coverage. It is further agreed that while employees have no negotiated right to such treatment, the Tripartite Health and Benefits Committee Terms of Reference [i.e. (c)] would allow it to review the experience under this Letter of Understanding when considering adding or subtracting specific entitlements under the EHB Plan in keeping with the progress of medical science. It is further agreed that this Letter of Understanding would not restrict OPG from considering special treatment on an individual basis in the case of serious hardship.

The individual agreements should contain the following information:

1. the duration of the arrangement;
2. current coverage under the EHB plan;
3. the option chosen;
4. where appropriate, a clear statement to the effect that the employee is aware that they are opting out of specific items of coverage under the EHB Plan in lieu of alternative or different treatment;
5. that the arrangement is being entered into on a “without prejudice” basis.

As stated earlier, this Letter of Understanding does not bestow on employees any right under the Collective Agreement to special arrangements, but merely serves to allow, on a case by case basis, where there is mutual agreement, for special requests to be accommodated without increasing the cost of, or entitlements under, the EHB Plan. As such, neither the provisions within the individual agreements or a decision by any party not to enter into such an arrangement are grievable.

This Letter of Understanding expires on December 31, 2000.

______________________________ ______________________________
J. Wilson (for The Society)  S. Strome (for OPG–Nuclear)
LETTER OF UNDERSTANDING

#14 Re: Hours of Work for Field Management and Professional (FM&P) Staff

The undersigned Parties agree to the following changes to hours of work for Society-represented FM&P staff affected by the 1995-98 EPSCA agreements. The assignment of employees to the provisions under this Agreement will be done by Management on a project-site basis.

1. All relevant policies and agreements, including Article 69, which apply to employees will continue to apply unless specifically stated otherwise in this Agreement.

2. Normal hours of work shall consist of forty hours per week, worked between Monday and Friday, on the following terms:

   (a) Normal hours of work may be scheduled as 5 days by 8 hours/day or as 4 days by ten hours/day either Monday – Thursday or Tuesday – Friday, but not concurrently on the same project.

   (b) Each project site will notify The Society Unit Director of the hours of work that the site has elected to work (4 days by 10 ours/day or 5 days by 8 hours/day). Normal hours of work will be established for a minimum period of thirty (30) days. If a project site intends to change the normal hours of work, a minimum of fifteen (15) days written notice shall be sent to the Unit Director.

   (c) Day Work
   The standard start-time for the day work shall be 8:00 am with a possible one hour variance either way.

   (d) Shift Work
   Shift work assignments shall be in accordance with Article 60.

Collective Agreement provisions for time off shall apply except as modified for the following Special Circumstances:

On 10 hour day/shifts the following items will be credited for pay purposes on an hour-for-hour basis:

   i. Vacation
   ii. Floating Holidays
   iii. Sick Leave
   iv. Leave of Absence/Unpaid Time Off
   v. Travel Time
   vi. Medical and Dental Consultations – Periods of less than four hours shall not be deducted from sick leave credits

   (a) In the application of the above-noted items (i), (ii) and (iii), a “day’s” entitlement will mean eight hours, i.e., a 10-hour day/shift will constitute one day and two hours deducted from credits.

   (b) When an employee is scheduled to work a 10-hour day/shift and one of the under-noted conditions occurs, a “day” will be considered to be 10 hours.

   i. Jury duty and attendance at court
ii. Funerals
iii. Moving Day
iv. Time Charges for Attendance at Delegates’ Council and meetings of The Society’s Board of Directors

(c) On a 10-hour day/shift, basic statutory holiday and special time off provisions remain unchanged in that time off and pay entitlements will continue to be calculated on an eight-hour basis. Staff shall be given the opportunity to recover two hours when a statutory holiday falls on a scheduled 10-hour day/shift and the employee is not given the opportunity to work. Such hours shall be worked at straight time and shall be scheduled by mutual agreement between the employee and his/her supervisor.

(d) On a 10-hour day/shift, authorized overtime beyond 10 hours work on scheduled workdays and all hours worked on scheduled days off shall be compensated in accordance with the overtime provisions of the Collective Agreement (Article 57).

Any local modification to the conditions surrounding the scheduling of normal hours of work shall be by mutual agreement according to the terms of Article 70.

General Foremen, Supervising Field Technicians, and Field Engineers who are redeployed as a result of Article 64 will do so on the following terms:

(a) the Unit of Application shall be OPG–wide
(b) the Parties agree to formation of a standing JRPT to expedite occasional or ongoing redeployment of the above.

This Agreement operates until December 31, 2000 and shall continue thereafter subject to 90 days written notice of cancellation by either party not before October 1, 2000.

This Agreement is without prejudice to either Party’s position, and does not create a precedent, in respect of the fairness or appropriateness of any future unit of application, rights relating to hours of work, or any other matter.

J. Wilson  
for The Society

S. Strome  
for OPGI–Nuclear
Letter of Understanding
#19 Re: First Line Management Supervisory Positions (TMS)

The parties agree to maintain commitments with respect to the jurisdiction of First Line Management Supervisory positions (TMS) as set out in the following Letter of Understanding, which is in other respects terminated as complete:

(a) Implementation of the Retail Systems Agreement (August 16, 1995);

(b) Interim agreement on the Reclassification of Hydroelectric BU TMS’s (January 30, 1996);

(c) The Implementation of the Grid System Agreement on TMS (January 30, 1996);

(d) The Reclassification of the Heavy Water & Support Services Division (HWSSD) Trades Management Supervisors (TMS’s) and Trades Supervisors (TS’s) (December 3, 1997);

(e) Fossil Business Unit Local Agreement on Implementation of Requisite Organization (November 19, 1996).

J. Wilson for The Society

S. Strome for OPGI–Nuclear
LETTER OF UNDERSTANDING

#30 Re: Process for Updating the Drug Formulary to December 31, 2000

NEW DRUGS REQUIRING A PRESCRIPTION BY LAW

- New “generic substitutes” for “name brand drugs” already listed on the Formulary will automatically be added to the Formulary as soon as they are approved for use in Canada.

- New “strengths/dosages/forms” for drugs listed on the Formulary will automatically be added to the Formulary as soon as they are approved for use in Canada.

- Out-of-country drugs with the same chemical base as drugs listed on the Formulary will automatically be added to the Formulary as the need arises.

- The Chief Physician (or other employer-designated decision-maker) shall review all drugs that have been newly approved for use in Canada and advise the employer whether the drug is commonly and customarily recognized throughout the physician’s profession as appropriate in the treatment of a patient’s diagnosed sickness, injury or condition. The employer will make all reasonable efforts to make this determination as soon as possible after the drug has been approved for use in Canada. When a drug is deemed by the Chief Physician (or other employer-designated decision-maker) to meet this criteria, the drug shall be added to the formulary.

- Any drug on the Formulary that is no longer approved for use in Canada will automatically be deleted from the Formulary effective the date federal approval is withdrawn.

A. OVER-THE-COUNTER (OTC) PRODUCTS

1. A new OTC product (excluding Vitamins and Minerals) that has been approved for use in Canada, that falls into the following categories.

   (a) for allergies
   (b) for chronic illness
   (c) considered life sustaining
   (d) previously “requiring a prescription by law” and already on the Formulary
   (e) different strengths or repackaging of products already on the Formulary (same product/same company)
   (f) products already on the Formulary whose DINs may have changes as a result of a company takeover or reorganization shall be reviewed by the Chief Physician (or other employer-designated decision-maker). The Chief Physician (or other employer-designated decision-maker) will advise the employer whether” (a) the OTC product is commonly and customarily recognized throughout the physician’s profession as appropriate in the treatment of a patient’s diagnosed sickness, injury or condition; and, (b) Best Average Pricing (ie, Manufacturer’s wholesale price to the carrier) is available for the product. When the
OTC product is deemed by the Chief Physician (or other employer-designated decision-maker) to meet this criteria, the product shall be added to the formulary.

When Best Average Pricing information is not available for an OTC product, a paper claim will be reimbursed subject to determination by the Chief Physician (or other employer-designated decision-maker) that there is no reasonable alternative product on the existing formulary and that the product is commonly and customarily recognized throughout the physician’s profession as appropriate in the treatment of a patient’s diagnosed sickness, injury or condition.

1. Vitamins and Minerals which have been approved for use in Canada and which have the same chemical base as items currently on the Formulary will be added to the Formulary effective the date Best Available Pricing information is made available to the Carrier (i.e. Manufacturers’ wholesale price).

B. MISCELLANEOUS.

1. The Corporation agrees to provide the following to The Society: a full and complete copy of the list of new drugs approved for use in Canada, as received from the Carrier (usually monthly); a list of (prescription and OTC) items added to the Formulary (including, where applicable, what country it applies to); and, upon written request from The Society, a written rationale for not including a drug on the formulary.

2. Notification of the employer’s decision to not add a drug to the Formulary, and any ensuing discussion with respect to the employer’s rationale for not doing so:

   Shall not be deemed to trigger timelines under article 16 of the Collective Agreement
   Shall be without prejudice to The Society’s position with respect to whether the drug meets the “reasonable and Customary” standard; and,
   Shall not prejudice The Society’s entitlement, or the entitlement of any Society-represented employee(s), to grieve the employer’s decision at a later date.

3. The Corporation agrees to provide The Society with an electronic copy of the complete Drug Formulary on a quarterly basis (calendar year).

4. The Corporation agrees to install, and update on a quarterly basis, the complete Drug Formulary on the Intranet.
LETTER OF UNDERSTANDING
#68 Re: Centralization of the Organization Reporting to the Chief Information Officer

1. Purpose/Scope

1.1 To transfer identified employees (see section 3 below) to the organization reporting to the Chief Information Officer (CIO) and to deal with matters related to those transfers.

1.2 Except as expressly modified in this Letter of Understanding, all provisions of the Collective Agreement shall continue to be applicable.

2. Preamble

2.1 The vision for the CIO’s organization is to:

- provide the most reliable and cost effective information technology systems to Ontario Power Generation Inc. (OPG);
- plan to support all current OPG and new generation assets in North America;
- understand that in a competitive energy environment "joint operating agreements" are common and that the best Information Technology (IT) organization will support a generation asset, regardless of who owns the electricity output;
- ideally, perform work internally where employees can perform it well and effectively.

2.2 OPG and The Society of Ontario Hydro Professional and Administrative Employees (The Society) agree that the CIO’s vision shall be pursued having due regard for the need to:

- treat Society represented employees in a fair and equitable manner;
- protect, to the greatest extent possible, the employment security of Society represented employees;
- vigorously pursue training and career development for Society represented employees so that they remain a valuable asset of the CIO organization.

3. Organization Transfers

Employees identified in the attached organization charts and lists, which charts and lists shall form part of this Letter of Understanding, will be transferred to the CIO organization and the OPG (non-nuclear) bargaining unit effective the date of approval of this Letter of Understanding. Society represented IT employees in what is currently known as Ontario Power Technologies (OPT) will have the opportunity to be transferred to the CIO organization.

3.1 Transferring Employees After the Implementation of the CIO Organization

All Society represented employees dedicated fully to Information Technology (IT), including employees currently assigned to Y2K projects, will be transferred
to the CIO organization effective the date of approval of this Letter of Understanding. Should other Society represented IT employees be identified after the date of approval of this Letter of Understanding, they will be transferred to the CIO organization following discussions with and the agreement of the Society.

3.2 The CIO Organization

The CIO organization includes employees involved in Information Technology (IT) as described below.

Definition

Information Technology is any business solution that supports an organization to achieve its business objectives; for example:

- business applications development and support;
- call centre support;
- centralized computer system configuration and management;
- mainframe data centre configuration and support;
- distributed computing (e.g., desktop, LAN shared services and peripherals);
- database technology;
- voice technology and network.

4. Unit of Application

For the duration of this Letter of Understanding, there will be one unit of application for all employees reporting to the CIO.

5 Other Commitments

Management shall complete the commitments set out below in 5.1 and 5.2.

5.1 Review of Job Documents

- Rewrite job documents to move toward more generic job documents.
- Rationalize pay grades.
- Review internal relativity and make changes/improvements where necessary.
- Develop a limited set of job descriptions.
- Review and revise, as necessary, the Promotion in Place (PIP) documents that are currently in operation in the CIO organization.
- Where PIPs are not in place, management will identify advancement criteria from one pay grade to another and integrate those advancement criteria with the Personal Development Plans (PDPs - see 5.2 below) of Society represented employees. The identification of advancement criteria and their integration with PDPs will not guarantee advancement/promotion, but will identify for employees what is required of them to be advanced/promoted.

It is expected that the commitments in 5.1 will be completed by August 31, 1999.
5.2 Employee Training and Development

- It is important to keep employees' skills current.
- On average, every employee will receive a minimum of 20 hours of IT specific technical training per year. Over a three-year period, an employee will be provided with, on average, 120 hours of technical training. This commitment does not provide a guarantee for any specific employee, but is an average for the CIO organization that will be maintained. These commitments to provide training become effective June 1, 1999.
- Non-technical training will be provided to employees where it is required for their career development. The commitment to provide non-technical training is separate from and in addition to the required amount of technical training.
- Training will be linked to, and integrated with, both the employees' Personal Development Plans (PDPs) and the CIO organization's business plans.
- Management will begin the process of developing Personal Development Plans for all employees.
- Every Society represented employee in IT will have a PDP and his/her training needs identified no later than October 1, 1999.
- A joint review of training will take place in January, 2000. The purpose of the review is to ensure that training has taken place and is scheduled to take place in accordance with the commitments set out in 5.2.

6. Article 64

Article 64 will not be invoked in the CIO organization until:

- the commitments in 5.1 have been met; and,
- the commitments in 5.2 have been demonstrated to be in place or satisfactorily in progress*; or,
- the expiration of the 1999-2000 Collective Agreement.

* The three-year training commitment set out in 5.2 will be deemed to be "satisfactorily in progress" and this management commitment to have been satisfied if by December 31, 1999 Society represented employees in the CIO organization have been provided, on average, with 10 hours of technical training.

7. Purchased Services

7.1 Management will identify all contractors performing work in the CIO organization. All current contracts will be jointly examined no later than June 30, 1999 to determine the extent of the use of purchased services in the CIO organization.

7.2 A new purchased services implementation plan will be jointly developed for the CIO organization (pursuant to subsection 67.6.1 of the collective agreement) that will guide management and Society decision-makers. The new implementation plan will be developed in keeping with the CIO's perspective on the appropriate use of purchased services.

8. Relocation Assistance
All of the entitlements described in paragraphs 5 and 6 of the Letter of Understanding "Redeployment of Society Represented Employees in OPGIN During NAOP" shall continue to apply to employees at the Bruce site. The letter dated June 19, 1998 from the Vice President - Labour Relations (Corporate Human Resources) to John Wilson, President of The Society of Ontario Hydro Professional and Administrative Employees and captioned "Bruce Nuclear Redeployment" shall also continue to apply to employees located at the Bruce site.

9. Duration

This Letter of Understanding shall operate until December 31, 2000 and shall continue thereafter subject to 90 days' written notice of cancellation by either Party.

Brian Story
For Ontario Power Generation Inc.
May 18/99

John Wilson
For The Society
May 18/99

John Mather
EVP Chief Information Officer
May 19, 1999

Gary Knowles
Society Unit Director (CIO)
May 18/99
LETTER OF UNDERSTANDING

# 91 Re: Policy #04-03-04 - "Rehabilitation and Reemployment"

1. Employees in receipt of LTD benefits, who are determined to be medically able to return to work, shall be provided with appropriate rehabilitation services. Such services shall be set out in a rehabilitation plan developed in accordance with the LTD and Rehabilitation and Re-employment policy. It is understood that a six-month period of rehabilitation employment may be insufficient for an LTD benefit recipient returning to work and that, therefore, the rehabilitation plan may provide for a period of rehabilitation employment that is reasonable in the circumstances. The ultimate goal of the rehabilitation plan is continuing employment in a full-time position. However, it is recognized that some employees have medical disabilities that may not be supportive of working full time.

2. Where the rehabilitation process identified reduced hours (minimum of 14 hours, maximum of 28 hours) as a permanent medical restriction (as supported by medical evidence), the employee will be re-employed, and accommodated, in an available and suitable on-going position while retaining his/her LTD status. This re-employment will be in accordance with the terms set out in Article 45 of the Collective Agreement.

3. Employees under this arrangement (as set out above) shall:

   (a) In accordance with their LTD status, continue to receive full (ie full-time) service credit during this period and have full coverage (ie in accordance with the Pension Plan; with no pro-rating) maintained in, but will not be required to contribute to, the Ontario Power Generation Pension Plan and the Ontario Power Generation Group Life Insurance Plan;

   (b) Receive the greater of; the appropriate salary level for hours worked; or LTD benefit entitlement; and,

   (c) Be eligible for Incremental Pay Step increases and the performance appraisal process, where medical restrictions do not preclude its application, shall take into account medical restrictions with respect to establishing goals and measuring achievements. For clarity, Article 43.4.1 of the Collective Agreement continues to apply to employees covered by this consent award.


Tim English   Jim Blair   Lanny Totton
For Ontario Power Generation For The Society For The Society

Revised 2011-2012 Collective Agreement
LETTER OF UNDERSTANDING
# 122 Re: The implementation of the PSA agreements:

A review has been completed of the level of augmented staff, managed task PSAs and the current regular staff levels in OPG. In the event of a significant change in the level of augmented or managed task, the parties will meet to update the dues level.

The following is an amount that represents a dues replacement formula:

1. The Society will receive $750,000 per year in lieu of dues for all augmented staff contingent upon reaching agreement for the respective business planning year. The amount for 2003 will be paid out in March 2003. Subsequent payments will be paid in each September following the completion of the Business Planning review. For clarity the 2004 payment would be due following the completion of the business planning process in September 2003.

2. Failure to reach an initial agreement or expiration of any of the three LOUs will lead to a proportional adjustment (the proportions to be determined prior to signing the final agreement) of the amount in #1 above.

3. This agreement will automatically expire when all of the three (OPG-N; OPG-EP; OPG Corporate Groups) LOUs expire.

John Murphy
Ontario Power Generation

Rodney Sheppard, Lanny Totton
The Society

February 12, 2003
LETTER OF UNDERSTANDING
# 124  Re: Article 67 Purchased Services Agreement (PSA) Nuclear (including Nuclear Waste and Nuclear Regulatory Affairs)

1. For the term of this Letter of Understanding the PSA is suspended.

2. The parties agree to meet during the annual business planning process to review the business plan and the work that is to be contracted out for the years 2003 and 2004.

3. During this process Management will consult with the Society regarding the regular and temporary staff levels for Society - represented staff. Management will also identify the level of proposed contracting out. The parties will attempt to reach agreement on the appropriate level of regular and temporary staff and the work to be contracted out for the business planning years. The 2004 levels shall be agreed to, based upon the business plan forecast for 2004 with an agreed upon monetary total for contracted work for 2004. There will be a +7.5% contingency for contract work for the 2003 business planning year and a +12.5% contingency for the 2004 business planning year.

4. Management agrees to provide the Society with reasonable access to available information (with appropriate consideration for confidentiality) on a regular basis in order to monitor the agreed level of contracted work in paragraphs #3 and #6.

5. Failure to reach an agreement on the levels as outlined in paragraph #3 above shall not be subject to arbitration as such failure shall result in the LOU being null and void and the parties reverting back to Article 67.

6. In the event of major projects, new and emergent work that may alter the agreed to level of contracted work, including the contingency, the parties will attempt to reach agreement on the impact of this change, including the exclusion of some or all of this work from the agreed to levels. The parties may also agree as to the amount, if any, of this work that should not be contracted out. If the parties fail to reach an agreement on the major projects, new and emergent work, the default shall be the Article 67 process, including arbitration, for the resolution of any disputes related to this unplanned for work.

7. The parties will meet on a regular basis to review the regular and temporary staff levels and the levels of contracted work. At the end of the business planning year there will be a final review of the outcome compared to the initial agreement.

8. In the event that the level of contracting out (including the contingency amount) at the end of the business planning year exceeds the agreed level, the parties
will discuss and attempt to reach agreement on the impact of this change and any remedy if appropriate. If the parties fail to reach an agreement, the portion of contracted work that exceeds the agreed level may be referred to arbitration. The arbitrator may fashion any remedy he/she may deem appropriate, including an order to hire Society-represented staff. It is understood that the work which is contracted to spin off companies (where the work is being performed by Society-represented employees) is excluded from this arbitration process.

9. The Society may also arbitrate failure to meet under paragraph #2. The arbitrator may fashion any remedy he/she deems appropriate.

10. The final agreement of this LOU is contingent upon the parties reviewing the business plans and reaching agreement on the level of work to be contracted out during 2003 and 2004. This will be completed by February 21, 2003 or as soon as possible thereafter. Final agreement of the LOU resolves all outstanding PSA grievances under the collective agreement.

11. This LOU shall expire on December 31, 2010 unless there is agreement to renew this LOU for the business planning year 2011 by September 30, 2010. In the event that there is no agreement to renew, Article 67 will apply for work to be contracted out in 2011.

12. All discussions and/or attempts to reach agreement as defined above shall be without prejudice and without precedent to any position either party may take before an arbitrator under the Article 67 process, should no final agreement be arrived under this LOU.

Julie Mitchell                                       Rodney Sheppard
Ontario Power Generation                             The Society

February 12, 2003

Revised in 2006-2010 Collective Agreement
LETTER OF UNDERSTANDING
# 125  Re: Article 67 Purchased Services Agreement (PSA) in Electricity Production

1. For the term of this Letter of Understanding the PSA is suspended.

2. The parties agree to meet during the annual business planning process to review the business plan and the work that is to be contracted out for the years 2003 and 2004.

3. During this process Management will consult with the Society in each Plant Group regarding the regular and temporary staff levels for Society - represented staff. Management will also identify the level of proposed contracting out. The parties will attempt to reach agreement on the appropriate level of regular and temporary staff and the work to be contracted out for the business planning years. The 2004 levels shall be agreed to, based upon the business plan forecast for 2004 with an agreed upon monetary total for contracted work for 2004. There will be a +7.5% contingency for contract work for the 2003 business planning year and a +12.5% contingency across Electricity Production for the 2004 business planning year.

4. Management agrees to provide the Society with reasonable access to available information (with appropriate consideration for confidentiality) on a regular basis in order to monitor the agreed level of contracted work in paragraphs #3 and #6.

5. Failure to reach an agreement on the levels as outlined in paragraph #3 above shall not be subject to arbitration as such failure shall result in the LOU being null and void and the parties reverting back to Article 67.

6. In the event of major projects, new and emergent work that may alter the agreed to level of contracted work, including the contingency, the parties will attempt to reach agreement on the impact of this change, including the exclusion of some or all of this work from the agreed to levels. The parties may also agree as to the amount, if any, of this work that should not be contracted out. If the parties fail to reach an agreement on the major projects, new and emergent work, the default shall be the Article 67 process, including arbitration, for the resolution of any disputes related to this unplanned for work.

7. The parties will meet in each plant group on a regular basis to review the regular and temporary staff levels and the levels of contracted work. At the end of the business planning year there will be a final review of the outcome compared to the initial agreement.
8. In the event that the level of contracting out (including the contingency amount) at the end of the business planning year exceeds the agreed level, the parties will discuss and attempt to reach agreement on the impact of this change and any remedy if appropriate. If the parties fail to reach an agreement, the portion of contracted work that exceeds the agreed level may be referred to arbitration. The arbitrator may fashion any remedy he/she may deem appropriate, including an order to hire Society-represented staff. It is understood that the work which is contracted to spin off companies (where the work is being performed by Society-represented employees) is excluded from this arbitration process.

9. The Society may also arbitrate failure to meet under paragraph #2. The arbitrator may fashion any remedy he/she deems appropriate.

10. The final agreement of this LOU is contingent upon the parties reviewing the business plans and reaching agreement on the level of work to be contracted out during 2003 and 2004. This will be completed by February 21, 2003 or as soon as possible thereafter. Final agreement of the LOU resolves all outstanding PSA grievances under the collective agreement.

11. This LOU shall expire on December 31, 2010 unless there is agreement to renew this LOU for the business planning year 2011 by September 30, 2010. In the event that there is no agreement to renew, Article 67 will apply for work to be contracted out in 2011.

12. All discussions and/or attempts to reach agreement as defined above shall be without prejudice and without precedent to any position either party may take before an arbitrator under the Article 67 process, should no final agreement be arrived under this LOU.

Julie Mitchell ........................................ Lanny Totton
Ontario Power Generation .......................... The Society

February 12, 2003

Revised in 2006-2010 Collective Agreement
LETTER OF UNDERSTANDING

# 126  Re: Article 67 Purchased Services Agreement (PSA) in the Corporate Groups (Finance, Human Resources, Corporate & Environmental Affairs, Law & Corporate Development, Energy Markets-including Evergreen Energy, CIO)

1. For the term of this Letter of Understanding the PSA is suspended.

2. The parties agree to meet in each of the Business Units listed above during the annual business planning process to review the business plan and the work that is to be contracted out for the years 2003 and 2004.

3. During this process Management in each of the Business Units will consult with the Society regarding the regular and temporary staff levels for Society - represented staff. Management will also identify the level of proposed contracting out. The parties will attempt to reach agreement on the appropriate level of regular and temporary staff and the work to be contracted out for the business planning years. The 2004 levels shall be agreed to, based upon the business plan forecast for 2004 with an agreed upon monetary total for contracted work for 2004. There will be a +7.5% contingency for contract work for the 2003 business planning year and a +12.5% contingency for the 2004 business planning year.

4. Management agrees to provide the Society with reasonable access to available information (with appropriate consideration for confidentiality) on a regular basis in order to monitor the agreed level of contracted work in paragraphs #3 and #6.

5. Failure to reach an agreement on the levels as outlined in paragraph #3 above shall not be subject to arbitration as such failure shall result in the LOU being null and void and the parties reverting back to Article 67.

6. In the event of major projects, new and emergent work that may alter the agreed to level of contracted work, including the contingency, the parties will attempt to reach agreement on the impact of this change, including the exclusion of some or all of this work from the agreed to levels. The parties may also agree as to the amount, if any, of this work that should not be contracted out. If the parties fail to reach an agreement on the major projects, new and emergent work, the default shall be the Article 67 process, including arbitration, for the resolution of any disputes related to this unplanned for work.

7. The parties will meet, in each of the business units, on a regular basis to review the regular and temporary staff levels and the levels of contracted work. At the end of the business planning year there will be a final review of the outcome compared to the initial agreement.
8. In the event that the level of contracting out (including the contingency amount) at the end of the business planning year exceeds the agreed level, the parties will discuss and attempt to reach agreement on the impact of this change and any remedy if appropriate. If the parties fail to reach an agreement, the portion of contracted work that exceeds the agreed level may be referred to arbitration. The arbitrator may fashion any remedy he/she may deem appropriate, including an order to hire Society-represented staff. It is understood that the work which is contracted to spin off companies (where the work is being performed by Society-represented employees) is excluded from this arbitration process.

9. The Society may also arbitrate failure to meet under paragraph #2. The arbitrator may fashion any remedy he/she deems appropriate.

10. The final agreement of this LOU is contingent upon the parties reviewing the business plans and reaching agreement on the level of work to be contracted out in each of the business units above during 2003 and 2004. This will be completed by February 21, 2003 or as soon as possible thereafter. Final agreement of the LOU resolves all outstanding PSA grievances under the collective agreement.

11. This LOU shall expire on December 31, 2010 unless there is agreement to renew this LOU for the business planning year 2011 by September 30, 2010. In the event that there is no agreement to renew, Article 67 will apply for work to be contracted out in 2011.

12. All discussions and/or attempts to reach agreement as defined above shall be without prejudice and without precedent to any position either party may take before an arbitrator under the Article 67 process, should no final agreement be arrived under this LOU.

Julie Mitchell                            Lanny Totton
Ontario Power Generation                  The Society

February 12, 2003

Revised in 2006-2010 Collective Agreement
LETTER OF UNDERSTANDING  
#166 Re: Coal Plant Closure

The purpose of this LOU is to provide fair and reasonable treatment of Electricity Production employees at the coal fired generating stations identified for future closure per the government’s plan and to facilitate the continued safe operation of these stations until their closure.

The intent of this document is to minimize the impact on affected staff at these sites by affording employees an opportunity for placement in Electricity Production or an avenue to voluntarily depart with the associated separation entitlements.

PROCESS:

For clarity, the term “closure” applies to both full and partial station closures (e.g. unit closure or fuel conversion) as announced by the Government.

Effective on the date the Company officially informs the Society that a station is to be closed (hereinafter called “the affected station”), it is agreed that the following shall apply:

Based on requirements at the station, management will determine the release date for employees. Local management and the Vice President of the OPGI Society local, or a delegate as appointed by the VP, will meet regularly to discuss issues associated with release dates.

Local management may hire Society represented temporary employees to occupy positions as a result of the departure or proposed departure of regular employees. Society represented temporary employees may be hired at other locations in the company to hold a position or to facilitate longer release dates for employees who were successful candidates for positions outside the station.

Notwithstanding Article 67, if qualified temporary employees are not available, local management will meet with the Vice President of the OPGI or OPG-N Society local as appropriate, or a delegate as appointed by the VP in order to facilitate the use of contract employees required as a result of circumstances outlined in point #2 above. A business case will not be required in this circumstance, however, the agreement of the appropriate Local Vice-President shall be required and such approval shall not be unreasonably withheld.

Local Management will keep the Vice President of the OPGI Society local, local Unit Director, and the local Delegate informed on a bi-monthly basis of staffing changes as a result of employees departing from the station.

Notwithstanding the provisions of Article 3.3.1, temporary employees will retain their temporary status until the position they were hired to cover is no longer required. Severance of two weeks per year of service (prorated for the partial year) shall be paid upon termination of employment for other than cause.

Approximately one year prior to the specific closure:
In the case of a partial closure, management will identify employees whose experience skills and qualifications are necessary for the on-going operation of the station based on Unit viability and employee choice (senior choice/junior force). Management will discuss the foregoing with the Society Vice-President of the OPGI Society local. All other employees not identified, with the exception of those who have accepted a vacancy outside of the station, will elect either A, B or C below.

In the case of a full closure, all employees within the affected station, with the exception of those who have accepted a vacancy outside the station, will elect either A, B or C below.

Option A: Voluntary surplus in accordance with the collective agreement. The termination date will be determined by management, however, such termination date cannot be extended beyond 21 months from the date that the employee’s application is confirmed and finalized, unless the employee agrees otherwise.

Employees will be allowed to delay their termination dates for a period not to exceed twenty one (21) months in order to achieve the earliest of the following pension milestones:

- Twenty-Five (25) years service
- Rule of 82
- Or age 65

Employees who avail themselves of this option will have their severance reduced by the amount of time elapsed between the date the employee’s application is approved and finalized and their actual termination date.

Consideration of voluntary surplus will be based on seniority. Voluntary surplus may be denied in order to maintain the skills and qualifications required to operate the affected plant.

Option B: Employees will rank all of the available EP locations, in order of preference. Placements will be made on a seniority and qualification basis.

Where Option B is elected, the employee must return their rankings within 14 days or they will be deemed to have elected Option A.

Option C: Employees who cannot elect either Option A or Option B because of compelling personal circumstances will identify themselves to management.

(i) If management agrees that the employee has a compelling personal circumstance the employee will be declared surplus and may use his/her full search notice period as a surplus employee, as of the date of closure, to search for another acceptable position:

If located at Atikokan or Thunder Bay, within NW Fossil or NW Plant Group;
If at another affected station, within the local community of the affected station.

If management does not agree that the employee has a compelling personal circumstance, management will meet with the Local Society Vice-President and attempt to resolve the issue. If the issue cannot be resolved the parties agree to expedited arbitration in accordance with paragraph (7) below.

If the arbitrator agrees that he/she has compelling personal circumstances, then he/she will be declared surplus in accordance with Option C (i) above.

If the arbitrator does not agree that he/she has compelling personal circumstances, then he/she shall have the option of accepting the position under Option B above within two (2) working days or terminating with 75% of lump sum payments as per Article 64.9.2(a).

All arbitration decisions will be non-precedent setting.

7. Elections and placements will be confirmed and finalized approximately 3 months prior to the closure, and discussed with the Local Society Vice President prior to finalization.

8. Management agrees this LOU will be used to deal with the reduction of staff at an affected station. There will be no involuntary surplus of staff at other affected stations to accommodate the placements under Option (B) above.

All disputes regarding an election under Option (A) or Option (B) will be filed within 20 working days following the confirmation in paragraph (7) above. All disputes will be heard within 30 working days following the 20 working day filing period. All such disputes shall be governed by the provisions of Article 16 of the Collective Agreement.

If, during the life of this agreement there is a significant change to the timeframe for the coal station closure, management may terminate any process initiated in paragraphs (1) through (7) above.

The Society reserves the right to grieve any unreasonable or arbitrary exercise of management rights and violations in the execution of this LOU.

This agreement will expire upon completion of the closure of the Fossil Stations or 2015 whichever comes first.

__________________________________
Date

on behalf of the Society OPGI Bargaining Unit on behalf of OPG

__________________________________
on behalf of the Society OPG-N Bargaining Unit
LETTER OF UNDERSTANDING
#171 Re: Dental Codes

This will confirm that the attached* are the dental codes agreed to by the Society of Energy Professionals and Ontario Power Generation as referenced in the “Health and Dental Benefits – Understanding Your Plan” brochure dated January 1, 2006 and residing on the OPG Internal Web.

Any changes to this list will be agreed to by the parties.

__________________________ __________________
Ontario Power Generation Inc. The Society

________________________________________
Date

(signed by Chris Davy, Ontario Power Generation and Joe Fierro for the Society - 04/02/2007)

*Clarity Note: Please note that the full list of dental codes has not been included in the Collective Agreement, but the full list can be accessed through the OPG Intranet.
LETTER OF UNDERSTANDING
#173 Re: Trainee Expenses - Modification to LOU #167

Amend Section 25.8 of Appendix “A” of LOU #167 to read as follows:

“Articles contained in Part XI (Relocation Assistance) will not apply to Management and Professional Trainees in the Nuclear business organization, except as noted below:

i) Management and Professional Trainees in the Nuclear business organization will be paid for any additional travel costs when assigned to a temporary work headquarters for short duration assignments (i.e. meetings, conferences, seminars, or similar type of functions) as long as these are job assignments requested by Management. Additional travel costs are defined as the mileage to the new work location minus the mileage to the normal work location.

ii) Articles contained in Part XI (Relocation Assistance) will apply to Management and Professional Trainees when they are appointed to an M&P or FM&P job, or are progressed to Step 3 on either the MP 2, MP 3 or MP 4 band.

iii) Any other reimbursement for expenses for Management and Professional Trainees will be at management’s discretion.

Chris Davy Lanny Totton
_________________________ _________________________
Ontario Power Generation Inc. The Society

January 7, 2008
_________________________ Date
Filed: 2014-03-19
EB-2013-0321
Exhibit L
Tab 6.8
Schedule 17 SEC-107
Attachment 2
LETTER OF UNDERSTANDING
#174 Re: Band N

*This LOU includes and replaces the former LOUs #84, #99, #119, #142, #149, #160 and #174 Re: Band N, this new LOU is to update collective agreement references

The undersigned parties agree to the following:

This Letter of Understanding (LOU) supersedes LOU # 84, 99, 119, 142, 149, and 160 and Article 63 of the Collective Agreement. It outlines compensation and working conditions as they relate to the SSIT training program and the compensation and working conditions for CRSS, CRSOS, ATS, and U0TS positions. This LOU supersedes all other articles in the Collective Agreement that relate to base pay, performance/incentive pay, or bonuses.

Recognizing both the need for flexibility and appropriate compensation for the CRSS, CRSOS, ATS, and U0TS, and SSIT, the parties agree that the following is retroactive to January 1, 2007 unless otherwise specified. This agreement is subject to ratification by both parties.

A. Non-Monetary

1.0 SSIT

1.1 Upon CNSC certification Society-represented SSITs will be placed in a CRSS or CRSOS position without the requirement to post the vacancy.

SSIT Training Program

1.2 OPG and The Society are committed to an SSIT training program that will produce a high calibre of licensed staff. To accomplish such, the parties agree to the following principles:

a. Training and experiential activities to become licensed staff are the priority of all parties while on the SSIT program

b. Management shall consider the relevance of experiential assignments to the various phases of the program and the ultimate goal of certification.

c. SSITs shall have effective management mentoring during the program

d. SSITs shall be pro-active to bring concerns and issues to the Mentoring Shift Manager/Operations Manager’s attention on any aspect of their training or assignments that they believe would jeopardize the ultimate goal of certification.

1.3 The SSIT with the assistance of the Operations Training Liaison and Authorization Training Section Manager will prepare a schedule that provides adequate time to complete all the activities for the success of
management will assign work as set out in each SSIT’s Individual Development and Training Plan and the Development and Training Program. There may be times when station work priorities will take precedence and assignments will not have direct relevance to their individual development within the certification program. In the event of such circumstances, the work assignment shall not significantly impact the SSIT’s Individual Development and Training Plan or their progression through the Development and Training Program or have a significant negative financial impact upon the SSIT.

**Issue Resolution**

1.4 Issues related to 1.2 and 1.3 may be referred to the Operations Manager. If any issue remains unresolved, the Director of Operations and Maintenance Training, The Society and the Director of Operations and Maintenance will be involved to resolve the issues taking into consideration the candidates concerns and the best long term interest of the Business. Failing resolution with respect to 1.3, either party may advance the issue through the Article 16, Complaint and Grievance/Arbitration Procedure of the Collective Agreement for resolution.

2.0 CRSS/CRSOS, U0TS and ATS

2.1 a. Effective January 1, 2008, CRSS, CRSOS, U0TS and ATS classifications will be eligible for payments under Article 66.4 if the employee exceeds 900 cumulative hours in a higher rated position for the duration of this LOU. The parties agree that a TEMPUS work event will be generated for such occurrences.

b. CRSSs and CRSOSs may be rotated into training positions. Management will first seek volunteers to fill these rotations. In addition, Shift Managers may be rotated into the ATS position in order to provide a mentoring, testing and evaluation role for Shift Managers.

c. The Employer agrees that there should be no more than twenty five percent (25%) of the ATS/U0TS staff positions filled on a rotational/contractor basis. The Employer agrees that effective July 31, 2009 at least 75% of the ATS/U0TS positions will be filled by regular Society represented employees on an average overall annual basis. It is recognized, however, that this percentage may drop below 75% due to retirements, promotions, etc. and temporary staffing measures may be utilized as long as proactive measures are being taken to achieve the 75% level. An annual audit report demonstrating the above shall be provided to the Society in July of each year.
2.2 Article 67 – Purchased Service Agreement is suspended with respect to work performed by the CRSS, CRSOS, U0TS, and ATS classifications.

2.3 The requirement to obtain agreement for rotations by ANOs within the Society’s jurisdiction for CRSS, CRSOS, U0TS, and ATS classifications (see Business Unit Mid-term #14) is suspended.

2.4 In the event that overtime beyond 48 hours cannot be filled on a voluntary basis, OPG will require individual CRSS, CRSOS, U0TS, or ATS employees to work overtime up to 60 hours per week. The Society agrees on behalf of CRSSs, CRSOSs, U0TSs, or ATSs that notwithstanding an employee’s regular hours of work, they may be required to work up to 60 hours per week in accordance with the Employment Standards Act, subject to the following:

Such forced overtime:

e. Is limited to refilling scheduled or prearranged control room CRSS/CRSOS positions;

f. Is limited to simulator based training or simulator based exam development ATS or U0TS positions;

g. Is limited to 3 non-consecutive weeks per employee per calendar year; and

h. Forced overtime will be equitably rotated.

2.5 The U0TS and ATS positions will be classified as a "shift position" for the purpose of conducting simulator based training courses or the use of the simulator for exam/training material development only.

i. OPGI-Nuclear will propose shift arrangements for employees and seek The Society’s input on proposed shift arrangements.

j. Such shift arrangements will normally be on a voluntary basis. However, in the absence of any qualified volunteers, OPGI-Nuclear reserves the right to appoint specific individuals to perform the work.

k. An employee who has volunteered to work a scheduled series of shifts may request a change in work assignment. Management will consider such a request.

l. Except in an emergency situation, at least seven days’ notice will be given with respect to shift change notices.

m. There are no posting or voting requirement with respect to shifts scheduled.

2.6 Shifts for ATS and U0TS shall be as follows:
a. Normal Days
   • Monday to Friday: 08:00 to 16:00

b. 10 Hour Shifts-Days
   • Monday to Thursday: 08:00 to 18:00
   • Tuesday to Friday: 08:00 to 18:00

c. 10 Hour Shifts-Afternoons
   • Monday to Thursday: between 12:00 to 24:00
   • Tuesday to Friday: between 12:00 to 24:00

d. 8 Hour Shifts-Afternoons
   • Monday to Friday: between 12:00 to 24:00

2.7 Night Shift Conditions for ATS Conducting Simulator Based Training Courses shall be as follows:

a. 10 Hour Shifts-Nights
   • Monday to Thursday: between 20:00 to 08:00
   • Tuesday to Friday: between 20:00 to 08:00

b. Night shift provisions are effective from January 1, 2008 to December 31, 2010 at Pickering B and Darlington;

c. The total of night shifts worked will not exceed the number of hours required to execute two initial authorization programs, to a maximum of twenty (20) weeks per program;

d. Night shifts beyond (c) above require joint agreement;

e. Management will seek volunteers first but failing that, may assign qualified employees in accordance with 2.5 above;

f. ATS conducting simulator based training courses, on night shift will receive a non-pensionable shift premium of 50% of the employee’s base rate for all normally scheduled hours on a night shift.

2.8 There will be no shifts other than those set out above without the prior agreement of the Society.
3.0 Compensation Treatment and Security

3.1 Compensation Security will be effective January 1, 2008. Compensation security for CRSS/CRSOS, ATS and U0TS and the compensation treatment for SSITs reflects the following principle:

No provision in this section other than those expressly provided for shall apply to circumstances where an employee elects to leave their position voluntarily or where an employee is moved from role due to performance issues.

3.2 Compensation Treatment for SSITs:

a. The security treatment for an SSIT who has left the program prior to completing their Station Specifics will result in the employee being returned to their former classification or, if unavailable, a lateral classification. The employee will revert to their previous wage rate, including any automatic progressions that they would have been entitled to had they not entered the SSIT program and they will immediately begin the hours of work schedule for that position.

b. The security treatment for an SSIT who has left the program and has completed their Station Specifics will be as follows:

i. for an SSIT who has left the program due to removal by management for cause will be returned to their former classification, or, if unavailable, a lateral classification. If the new position is a 40-hour position, the employee’s present base rate will be “red-circled”. If the position is a 35-hour position, the wage rate will be “red-circled” and treated in accordance with Article 64.26.2.

ii. for an SSIT who has left the program with mutual agreement or due to disability caused by accident or illness, or due to exculpatory performance issues and that personal career decisions are not involved, will be to return to their former classification, or, if unavailable, a lateral classification and the employee’s present base rate will be “green-circled”. If their position is a 35-hour position, the wage rate will be “red-circled” and treated in accordance with Article 64.26.2.

3.3 Compensation Security for CRSS/SOS, ATS or U0TSs

The compensation security for a CRSS/SOS, ATS or U0TS who has left the program upon mutual agreement or failure to satisfy the requirements of the Certified Continuing Training and Re-qualification Testing, or due to disability caused by accident or illness, or due to exculpatory performance issues and not for personal career decisions (except with respect to positions listed 3.4 below) will be as follows:

a. If the employee has less than 10 years in a certified and/or Band N position, they will receive no authorization bonus. If their new
position is a 40-hour position, the employee's present base wage rate will be “green-circled”. If the position is a 35-hour position, the wage rate will be “red-circled” and treated in accordance with Article 64.26.2.

b. If the employee has been certified and/or in a Band N position for greater than or equal to ten years but less than fifteen, they will continue to receive 50% of the earned authorization bonus. If the new position is a 40-hour position, the employee's present base rate will be “green-circled”. If their position is a 35-hour position, the wage rate will be “red-circled” and treated in accordance with Article 64.26.2.

c. If the employee has been certified and/or in a Band N position for greater than or equal to fifteen years or is within 3 years of undiscounted pension, they will continue to receive their earned authorization bonus to a maximum of 20%. If the new position is a 40-hour position, the employee’s present base rate will be “green-circled”. If their position is a 35-hour position, the wage rate will be “red-circled” and treated in accordance with Article 64.26.2.

3.4 The Company further agrees to provide compensation security to employees in the CRSS, CRSOS, ATS and U0Ts classifications who are successful to the following positions provided these positions remain within the Society’s jurisdiction:

Operations FIN – Shift Manager
Work Control / IPG Single Point of Contact
Days Operations – Shift Manager
Section Manager Outages
Section Manager Examinations

4.0 Rotational Positions

4.1 The length of rotations in CRSS/SOS, ATS and U0TS positions will be in accordance with Article 65. All ATS and U0TS rotations greater than 6 months in duration will be posted. Selection for posted rotations shall be as per Article 65.6.3 from among regular Society-represented applications first, followed by all others.

5.0 CRSS/SOS, ATS, U0TS and SSIT Issues Committee

5.1 The parties agree to create a CRSS/SOS, ATS, U0TS and SSIT Issues Committee (subsequently referred to as the Issues Committee), which will include a maximum of 5 Society members drawn from SSIT, CRSS, CRSOS, ATS, U0TS, or Society Staff Representative positions and 5 members from Management. Additional resources may attend the committee meetings with the agreement of the parties.
This Committee shall meet quarterly unless otherwise agreed to by the parties. Either party may request a meeting of the Issues Committee with three weeks notice.

In order to make the most efficient use of the time in committee, agenda items and details of issues to be discussed will be provided to all committee members two weeks in advance of any committee meeting.

The initial meeting of the Issues Committee will be no later than March 10, 2008.

The Issues Committee will continue to operate as a standing committee and will make regular reports to the Nuclear JSMC.

The Issues Committee will discuss and attempt to resolve, through consensus, identified issues. Any resolutions reached by this committee are subject to approval by both parties’ internal processes.

The Terms of Reference for the Issues Committee shall be as follows:

The Issues Committee will be structured to address and have meaningful consultation on the following Non Monetary issues, including but not limited to:

1. SSIT/CRSS/CRSOS/ATS/U0TS Testing and Training:
   - Provide input and make recommendation regarding the design and implementation of the existing and future initial and continuing training and testing programs.

2. Emerging Issues:
   - Provide a forum for input and recommendations on emerging issues related to CRSSs, CRSOSs, ATSS, U0TSs and SSITs.

3. Rotational Positions:
   - Provide a forum for input and recommendations on issues regarding rotational positions as follows:
     - Position identification,
     - Duties,
     - Selection criteria

4. Complement/Staffing Issues:
   - Provide input and make recommendations for the determination of the staffing plan.
   - Provide input where these resources are deployed and determine the priority of deployment. This will be a dynamic process that is reviewed annually at a minimum and more often as needed.
5.8 Nothing in this Letter of Understanding shall limit either parties rights to access the dispute resolution processes with respect to Articles contained in the Collective Agreement.

B. Monetary

6.0 SSITs

6.1 Shift Supervisors in Training (SSITs) will move through the training program and receive compensation on the following basis:

i. SSITs presently in the training program will be placed on Band N (Table 1). The salary range for SSITs will be from $111,500 to $129,685 in 2007. These SSITs will be placed in the range taking into account their present program completion status. SSITs whose base rate is within the range but above their present program completion status wage rate, will have their base rate green circled until such a time as their program completion status wage rate equals or is greater than their base rate. SSITs whose base rate prior to placement is at or above the top of the range will continue to receive their base rate and will be “green-circled”.

ii. SSITs entering the program after the signing of this agreement will be placed on Band N. SSITs whose base rate prior to placement is lower than the minimum of the salary range will receive the minimum of the range. SSITs whose base rate is within the range will continue to receive their base rate and are entitled to the increases in (iii) to (vii) below up to the top of the range. SSITs whose base rate prior to placement is at or above the top of the range (i.e. $129,685 in 2007) will continue to receive their base rate and be “green-circled”.

iii. Upon successful completion of the Generals and Science Fundamentals, SSITs within the salary range will receive 4% base rate increase.

iv. Upon successful completion of Station Specifics, SSITs within the salary range will receive a 4% base rate increase.

v. Upon successful completion of SS Supplementals, SSITs within the salary range will receive a 4% base rate increase.

vi. Upon successful completion of Simulator Training, SSITs within the salary range will receive a 3% base rate increase.

vii. When certified by the CNSC, SSITs within the salary range will receive an increase in base salary to the top of the SSIT salary range.

viii. All SSITs will receive a $7000 non-pensionable bonus upon certification by the CNSC.
ix. In no case will the increases in (iii) to (vii) above result in a base rate increase beyond the top of the salary range (i.e. the top of the range is a cap). SSITs who are at the top or above the salary range will continue to receive annual negotiated economic increases. If the annual economic increase is such that an employee who was at the top or above the salary range is now within the salary range, then they will be eligible for the increases in (iii) to (vii) up to the cap.

7.0 Compensation

7.1 The CRSS, CRSOS, ATS, U0TS classifications are eligible to receive an annual non-pensionable results based payment not to exceed 8.0%. Details of the payment are as follows:

i. The payment will be a lump sum payment based on meeting and/or exceeding targets and is not guaranteed;

ii. The payment will be paid as soon as practicable each year by the end of 1st quarter;

iii. The maximum payment will be calculated using the percentage of the appropriate year (base weekly salary times 52.1786 weeks per calendar year). The bonus will be prorated for any period less than a full calendar year based on full months completed;

iv. The targets will be measured from January 1st through to December 31st of each performance year;

v. Targets, measures, and assignment of values to each performance area will be discussed and agreed to by local joint teams (members appointed by Society and Management) for each of the classifications. In the event that a joint team is unable to agree the matter will be referred to the appropriate Director of the applicable work group and the appropriate Society Unit Director who will endeavor to resolve the matter. Failing a joint resolution the matter will be referred to the appropriate OPG Senior Vice-President for a final decision;

vi. The results based payment is not subject to the grievance procedure;

7.2 Effective January 1, 2008 CRSS, CRSOS, ATS, U0TS employees shall receive a 1% annual base salary increase unless the employer demonstrates a performance problem.

In addition, there shall be annual performance pay of 1% of base payroll for CRSS, CRSOS, ATS and U0TS who are below the top of Band N. The base rate of employees who are at or above the top of Band N will not be used in the determination of base payroll. The annual performance adjustment is based on individual performance. In the absence of any
mutually agreed to alternative, the practice for administering the annual performance adjustment will be as outlined in Articles 20, 21 and LOU 77 of the 2005 Society/OPG Collective Agreement. These adjustments shall be made in the first payroll period in the year following the performance year. In no case will these increases result in a base rate increase beyond the top of the salary range (i.e. the top of the range is a cap).

7.3 For the purposes of calculating the number of years for the pensionable bonus and for the purposes of Compensation Security as found in this Letter of Understanding, the parties agree to recognize years in a CRSS, CRSOS, ATS or U0TS position and all years since initially certified in a CNSC and/or formerly AECB position. The calculation of years shall be from January 1 in the first year that they became certified.

7.4 Effective January 1, 2006, CRSS and CRSOS employees who are certified for less than or equal to 10 years will have a monthly pensionable bonus equal to 15% of base annual pay (based on 52.1786 weeks per calendar year). CRSS and CRSOS employees who are certified for more than 10 years will have an additional 0.75% for each year certified to a maximum of 28%.

7.5 Effective January 1, 2006 for CRSS and CRSOS employees who are within three years of an undiscounted pension, and instead to the 0.75% increase in 7.4 above, they will receive a bonus increase of 2% for the entire third year prior to an undiscounted pension and 3% for all years thereafter, to a maximum of 28%.

7.6 The increase to the CRSS and CRSOS bonus in 7.4 and 7.5 above, will also result in a retroactive increase to the ATS and UOTS bonus for the time period of January 1, 2006 to December 31, 2007 and in the same proportion as the bonus payments under LOU #119 (i.e. 50% for ATS and 25% for U0TS).

Effective January 1, 2008, ATS and formerly authorized staff selected into an ATS position will receive an annual pensionable Past Authorization Bonus (PAB) equal to 75% of all amounts in Sections 7.4 and 7.5 above, calculated in the same manner.

Effective January 1, 2008, U0TS who were formerly certified as Unit 0 CRO’s will receive an annual pensionable bonus equal to 67.5% of all amounts in Section 7.4 and 7.5 above, calculated in the same manner.

7.7 Employees selected to the ATS and UOTS position during a calendar year will have their bonus pro-rated to the nearest full week worked. This bonus will be paid on the first pay period in December of each year.

7.8 Employees selected to the CRSS and CRSOS positions during a calendar year will receive the monthly bonus in the month they commence work in these classifications, pro-rated to the nearest full week worked.
CRSS, CRSOS, ATS, U0TS employees covered by this agreement shall only be entitled to one of the bonuses detailed in Sections 7.4, 7.5 or 7.6 above.

The bonuses detailed above will be used for pension, insurance, and the “Long Term Disability” program.

Band “N” is a salary schedule exclusively for SSIT, CRSS, CRSOS, U0TS and ATS classifications. The band ranges from $111,500 to $145,000 in 2007. The starting rate for CRSS, CRSOS, ATS and U0TS will be the top of the salary range of SSITs (i.e. $129,685 in 2007), or their current base rate whichever is higher. The Band N salary range, see Table 1, will be increased by the annual negotiated economic increases. Any performance pay increase received will be compounded upon the base rate increases.

Employees as of the effective date of this LOU who exceed the top of CRSS, CRSOS, ATS and UOTS salary range on Band N will be green circled i.e. they will continue to be eligible for all monetary provisions of this LOU, except for Section 7.2, in the same manner as other employees.

Where Management intends to revoke an employee’s certified license, the employee will be given written notice (with a copy to the Society), on the reasons for removal. The employee may be removed from the certified position pending the outcome of the process below.

The employee has the right to grieve the intention to remove their certified license within thirty (30) working days of receiving written notice through the normal grievance/arbitration procedure as outlined in the collective agreement.

The employee’s authorization bonus will continue throughout the grievance/arbitration procedure and shall cease if removal of the license is upheld at arbitration.

Except as expressly modified herein, all relevant provisions of the collective agreement shall continue to apply. For greater clarity, employees on Band N shall be treated as M&P employees where such a distinction is drawn in the Collective Agreement.

The Society hereby withdraws the grievances/complaints on Table 2, attached, which encompass SSIT, CRSS, CRSOS, ATS and Shift Manager positions subject to a review of all outstanding grievances.

The parties agree that this LOU will be effective upon the date of signing except where noted otherwise. This agreement will operate until December 31, 2012 and shall continue thereafter subject to ninety (90) days cancellation by either party.
<table>
<thead>
<tr>
<th>Salary Band N</th>
<th>Ontario Power Generation Inc.</th>
<th>Standard 40 Hours PER WEEK Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROUNDED DOLLARS PER YEAR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2011 January 1 - 2012 April 1 - 2012</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSIT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>125,494</td>
<td>128,004</td>
</tr>
<tr>
<td>Maximum</td>
<td>145,961</td>
<td>148,880</td>
</tr>
<tr>
<td>CRSS/CRSOS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATS/UOTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>145,961</td>
<td>148,880</td>
</tr>
<tr>
<td>Maximum</td>
<td>163,198</td>
<td>166,462</td>
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### Table 2

#### Society Grievance to be Withdrawn

<table>
<thead>
<tr>
<th>Case Number</th>
<th>Policy Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPGN-2007-5289</td>
<td>Society Policy</td>
<td>Management performing Society Work</td>
</tr>
<tr>
<td>OPGN-2007-5236</td>
<td>Society Policy</td>
<td>ATS's being assigned work outside their job Doc.</td>
</tr>
<tr>
<td>OPGN-2007-5237</td>
<td>Society Policy</td>
<td>ANO on Rotation as an ATS without posting under 65.5.2</td>
</tr>
<tr>
<td>OPGN-2007-5248</td>
<td>Society Policy</td>
<td>Excessive OT LOU 119</td>
</tr>
<tr>
<td>OPGN-2007-5272</td>
<td>Society Policy</td>
<td>Bonus Structure ANO stepped up in ATS</td>
</tr>
<tr>
<td>OPGN-2007-5293</td>
<td>Society Policy</td>
<td>Art 65 Extending Rotation without Society agreement</td>
</tr>
<tr>
<td>OPGN-2007-5308</td>
<td>Society Policy</td>
<td>Violation of Article 65 by failing to advertise and filling regular ATS positions with rotation vacancies</td>
</tr>
<tr>
<td>OPGN-2005-2489</td>
<td>Society Policy</td>
<td>Not paid Step up of 3%</td>
</tr>
<tr>
<td>OPGN-2006-5081</td>
<td>Society Policy</td>
<td>New Incentive plans not applicable to Band N</td>
</tr>
<tr>
<td>OPGN-2006-5082</td>
<td>Society Policy</td>
<td>Band N being denied $2K non pensionable bonus</td>
</tr>
</tbody>
</table>
Letter of Understanding
#175 Re: Purchased Services Agreement (PSA) Nuclear (including Nuclear Waste and Nuclear Regulatory Affairs)

*This LOU replaces the former LOU #153 Re: Purchased Service for OPG and Society Involvement in the OPG Business Planning Process*

1. For the term of this Letter of Understanding the PSA (Article 67) is suspended.

2. Without prejudice or precedent, for the purpose of this agreement only, “base work” shall be defined as OM&A work of an ongoing nature typically executed by Society-represented staff. This work would include, but not be limited to, items such as stress analysis, preparing bills of materials, equipment performance monitoring, addressing outage and non outage AAA holds or elimination of backlogs. It does not include OM&A or capital modification projects.

3. For the purposes of this agreement, “Augmented Staff” shall be defined as staff hired either directly by OPG, or through a managed task contract, that perform work regularly performed by Society-represented employees and are taking work direction from OPG.

4. The parties agree to meet during the annual business planning process to review the business plan and the work that is to be contracted out for the years 2006 to 2010.

5. The fixed dollar envelope for Nuclear, including Nuclear Waste and Nuclear Regulatory Affairs, will be the dollar amounts agreed to for 2006. The proportion of this fixed dollar envelope that represents base work will not exceed 10%. The fixed dollar envelopes will each have a 5% contingency for each year.

For further clarity, parties agree to the following amounts for contracting out of Society work, including all AECL work not specifically excluded by Appendix IV:

<table>
<thead>
<tr>
<th>Total Contracting out Envelope by Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year</strong></td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>Base Work Maximum</td>
</tr>
<tr>
<td>Contingency</td>
</tr>
</tbody>
</table>
6. Amounts from each year cannot be carried forward from one year to the next.

7. The contingency amounts can be used for base work but cannot be used to increase the “base work maximum” beyond the $12.5M maximum for each year. The term “base work” is defined in paragraph 2 above.

8. In accordance with the side letter attached to LOU 153, all BOM work will cease to be contracted out upon signing of this agreement. If base P.E. staff from elsewhere in Nuclear are assigned to perform work that would have been considered to be BOM work, then OPG may backfill those base P.E. staff with augmented staff or managed task.

9. In the event of major projects, new and emergent work that may alter the agreed to level of contracted work, including the contingency, the parties will attempt to reach agreement on the impact of this change, including the exclusion of some or all of this work from the agreed to levels. The parties may also agree as to the amount, if any, of this work that should not be contracted out.

If the parties fail to reach agreement on the major projects, new and emergent work, the default shall be the Article 67 process, excluding arbitration, for the resolution of any disputes related to this unplanned for work.

10. Arbitrations for disputes over amounts above the envelope will be expedited, i.e.

- Business case briefs no longer than 10 pages;
- No witnesses;
- No lawyers (save and except LR and Society staff);
- Multiple cases per day if possible;
- Expanded list of arbitrators;

Agreed to arbitrator(s)** will be used who will hear cases on short notice and will give a verbal ruling on the day of the hearing or as soon as possible thereafter.

11. The company will report on an annual basis on the status of expenditures on the envelopes above. Further, management will also report on an annual basis the dollar expenditures of work performed by NSS, Kinectrics, AECL and other Society represented companies. For further clarity the dollar expenditures of work includes all work done (e.g. MG, PWU and Society work) and not solely Society work.

12. This LOU shall expire on December 31, 2010 unless there is agreement to renew this LOU for the business planning year 2011 by September 30, 2010. In the event that there is no agreement to renew, Article 67 will apply for work to be contracted out in 2011.
Letter of Understanding
#176 Re: ESA Hours of Work Permit

Whereas the parties wish employees covered by the parties’ collective agreement to work extra hours as contemplated in the collective agreement and which are allowed by the Employment Standards Act 2000 (ESA) through agreements by the parties;

And whereas the parties understand that the Director of Employment Standards is required to approve agreements between employers and bargaining agents to permit employees to work more than 48 hours in a week;

Therefore in accordance with the ESA the parties hereby agree to the following with respect to the hours of work of employees covered by the parties’ collective agreement:

1. In accordance with the ESA the Society consents to employees working extra hours beyond their daily normal hours of work, to a maximum of 13 hours.

2. Also in accordance with the ESA the Society consents to employees working extra hours beyond 48 hours in a work week, to a maximum of 60 hours.

3. Nothing in this agreement shall be construed to interfere with the Corporation’s right to rely on the exceptions in the ESA in appropriate circumstances.

4. This letter of understanding will come into effect the date it is signed by both parties and shall form part of the collective agreement between the parties.

Dated this 13th day of May, 2008

Lanny Totton            Scott Martin
For the Society         For OPG
OPGN is displacing the Durham Regional Police (DRPS) who currently constitute a Nuclear Response Force in favour of creating its own Nuclear Response Force (NRF). To ensure an effective transition of the work from the DRPS to the NRF, the parties have agreed as follows:

1. The current security FLM classification will be comprised of both FLMs who supervise NSOs and FLMs who supervise NRF qualified NSOs.

2. Security FLMs (NSO who express interest to become NRF qualified will be selected on the basis of seniority, for BTOC training prior to the posting of a vacancy. Similarly, where interest is expressed and an FLM (NSO) vacancy exists, an NRF qualified security FLM will be selected to fill the vacancy.

3. The requirements to get into BTOC will include the following:
   Medical;  
   Psychological;  
   Physical;  
   Aptitude;  
   Security Clearance;  
   Driver’s License;  
   Possession Acquisition License (PAL);  
   CPR and First Aid

4. A retention bonus will be applied for maintaining the NRF status. This bonus will be structured annually from January to December. An employee who is granted NRF status between January and December and successfully completes any required re-qualification prior to the end of the year will receive a pro-rated bonus. For example, if an employee commences role in February, that employee would receive 11/12ths of the first year bonus.

   The annual amount for the bonus will be $3,000 per year, adjusted upwards annually at the same rate as the negotiated general wage increase.

5. All NRF qualified security FLMs are required to report to work 15 minutes prior to the commencement of their shift with payment at the appropriate overtime rate.
Dated at Ajax this 3 day of July, 2008.

J. Fitzsimmons
For OPG

L. Totton
For the Union

Ontario Power Generation

The Society
Letter of Understanding
#179 Re: Expediting Society/OPG Jurisdictional Arbitrations

*This LOU replaces the former LOU #73 Re: Expediting Society/OPG Jurisdictional Arbitrations.*

Without prejudice and without creating a precedent in respect of any other matter, the undersigned Parties agree to the following:

1. This Agreement applies to jurisdictional grievances advanced by the Society pursuant to Articles 2 and 16.3 and other relevant provisions of the Collective Agreement which do not involve the interests of any intervening trade union.

2. The referral to arbitration shall be made by the Society delivering a brief to OPG setting out the facts and evidence on which it relies. OPG shall deliver a responding brief within 20 business days thereafter, and the Society may file a reply brief within a further 10 business days after receipt of the responding brief.

3. If a party does not deliver a brief within the above time lines it may only file a brief and lead evidence at arbitration with leave of the arbitrator, on such terms as the arbitrator may impose.

4. Arbitrations will be held in an expedited med./arb. format. The arbitrators will be selected from the following group:
   a. Jules Bloch
   b. William Kaplan
   c. George Surdykowski

   This roster of arbitrators will be reviewed by the parties every year that this agreement continues. Prehearing issues may be referred to Jules Bloch or his designate for resolution.

5. Prior settlements made without prejudice and without precedent shall not be determinative of any grievance.

6. In addition to jurisdiction under the collective agreement under which the dispute was filed, the arbitrator shall have the jurisdiction set out in s. 99 of the Ontario Labour Relations Act, 1995, except that the arbitrator shall not have power to alter a Society bargaining unit as determined in a certificate and/or defined in the Voluntary Recognition Agreement or an applicable collective agreement.

7. Arbitration awards will be precedent setting.

8. The parties agree that arbitrator George Adams shall decide the issues raised in the "Referral to Arbitration - Policy Grievance re Excluded 'Individual Contributor' Positions" (December 10, 1997) at a hearing scheduled [SUBJECT TO CONFIRMATION - February 29, 2000] or his first available date thereafter, and shall issue a pattern-setting award on the following terms:
   a. On or before November 15, 1999 the Society will identify up to four reference positions to provide a factual foundation and by November 26,
1999 OPG will provide all current and predecessor job documentation (including TIRRs and TARRs where applicable), current organization charts, and any other current documentation of the nature and function of the work organization relevant to these positions;

b. The Society will file its Primary Brief by the later of December 10, 1999 or within 15 business days of receiving the complete reference material; OPG will file a Responding Brief by the later of January 28 or within 30 business days of receiving the Society's Primary Brief, and the Society will file its Reply Brief by the later of February 15 or within 10 business days of receipt of the Responding Brief;

c. Arbitrator Adams will have jurisdiction as set out in other provisions of this Agreement except that either party, on request, shall have the right to oral evidence including proof of documents and cross-examination;

d. If either party intends to call oral evidence it will provide the other party with a will-say statement of all such evidence not less than ten days prior to the hearing;

e. Any individual contributor grievances which are not expressly decided by arbitrator Adams award may be referred by the Society to another arbitrator under the provisions of this Agreement.

9. Except as expressly modified herein, all relevant provisions of the Society's Collective Agreement shall continue to apply.

10. Either party may withdraw from this agreement on six months written notice to the other party.

John Wilson                      Brian Story  
On behalf of the Society          On behalf of OPGI

Nov. 9/99                      Date
LETTER OF UNDERSTANDING

#181  Re: PND Local Agreement for #1 Shift Coverage by Society-Represented Employees Assigned to Days

In 1987, a memo was issued to adopt the M&P 12-Hour Shift Task Group recommendations. One recommendation dealt with the pay treatment when Society-represented employees assigned to days are required to work 12-hour #1 shifts (20:00 to 08:00). Recently, we have encountered situations where different interpretations of these guidelines have resulted in inconsistent compensation.

In order to ensure a uniform approach and remain consistent with The Society Collective Agreement, the following guidelines will be adopted if a Society-represented employee assigned to days is required to provide coverage for one to three consecutive #1 shifts. For coverage of greater than three consecutive shifts, the employee will be assigned to the appropriate crew as per The Society Collective Agreement Section 59.2.

Our intent is to clarify timekeeping practices and ensure a consistent approach to compensation – these rules are not retroactive for shifts worked prior to the date of this memorandum.

1. (a) If the day prior to the first #1 shift is a normal scheduled day of work, the employee will be granted that day off, consistent with Section 2.1 of the attached memo and Section 59.2(c) of The Society Collective Agreement.

For example, if the first shift to be covered is a Tuesday #1 shift, the employee will be granted Monday off, reporting to work Monday at 20:00.

Hours worked on the granted day, including the first four hours of the #1 shift, will be paid or banked for future time off at the appropriate premium rate, consistent with Sections 57.1, 57.2, 57.4, and 57.5 of The Society Collective Agreement.

In the above example, the hours worked Monday from 20:00 to 24:00 will be paid or banked at the appropriate premium rate. If the employee is required to work part of the granted day shift (e.g., required to work Monday morning in the example above), those hours worked will be paid or banked at premium rate.

(b) If the day prior to the first #1 shift is a Saturday, Sunday, or statutory holiday, the first four hours of the 12-hour shift will be paid or banked for future time off at premium rates, consistent with Sections 57.2, 57.4, and 57.5 of The Society Collective Agreement.

For example, if the first shift to be covered is a Monday #1 shift, the four hours worked Sunday 20:00 to 24:00 will be paid or banked at double-time.
2. If the #1 shift occurs on a Saturday, Sunday, or statutory holiday, the hours worked from 00:00 to 08:00 will be paid or banked for future time off at premium rates, consistent with Sections 57.2, 57.4, and 57.5 of The Society Collective Agreement.

For example, if the employee works a Saturday #1 shift, the eight hours Saturday from 00:00 to 08:00 will be paid or banked at the appropriate premium rate.

3. When two or more consecutive #1 shifts are worked, hours in the calendar day in excess of the normal number of hours worked per day shall be paid or banked for future time off at premium rates.

If Tuesday #1 shift and Wednesday #1 shift are worked, for example, an additional four hours of overtime will be paid or banked at the appropriate premium rate for the hours worked Tuesday 20:00 to 24:00.

4. The night shift premium will be paid on all hours which are not compensated at premium rates, consistent with Section 2.3 of the attached memo. In example 1(a) above, the night shift premium would be paid for the eight hours worked from Tuesday 00:00 to 08:00.

5. The next shift to be worked following the last covered shift will be the next regularly scheduled day shift, consistent with Section 59.2(d) of The Society Collective Agreement.

In example 1(a) above, the next shift to be worked following the Tuesday #1 shift will be the regularly scheduled Wednesday day shift.

Several examples of #1 shift pay treatment for 40 hour/week and 35 hour per week employees are provided on the following pages.

As per The Society Collective Agreement Section 61.9.8, all hours worked during the #1 shift will be recorded and treated as if they occurred during the calendar day in which the shift ends. The time code “N” should be entered on the timesheet if the #1 shift is worked on a normal scheduled day of work; otherwise (i.e., for Saturdays, Sundays, or statutory holidays) the time code “R” should be used.

(prepared by Randy Leavitt, approved by Frank Vanderbruggen for The Society, John Walker for The Society, and Mike Williams for Management)
### Tuesday #1 Shift Worked by 40 Hour/Week Employee Assigned to Days

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Total hours worked: **36**

Compensation: 40 hours at normal rate + 4 hours at time-and-one-half + 8 hours of night shift differential

### Monday #1 Shift Worked by 40 Hour/Week Employee Assigned to Days

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Timesheet coding: **D** **D** **R** **R** **N** **D** **D**

Total hours worked: **44**

Compensation: 40 hours at normal rate + 4 hours at double-time + 8 hours of night shift differential
### Saturday #1 Shift Worked by 40 Hour/Week Employee Assigned to Days

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Total hours worked: 44

Compensation: 40 hours at normal rate + 12 hours at time-and-one-half

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### Tuesday and Wednesday #1 Shifts Worked by 40 Hour/Week Employee Assigned to Days

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Total hours worked: 40

Compensation: 40 hours at normal rate + 8 hours at time-and-one-half + 16 hours of night shift differential
### Monday and Tuesday #1 Shifts Worked by 40 Hour/Week Employee Assigned to Days

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**Timesheet coding:** D D R R N N D

**Total hours worked:** 48

**Compensation:**
40 hours at normal rate + 4 hours at double-time + 4 hours at time-and-one-half + 16 hours of night shift differential

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### Saturday and Sunday #1 Shifts Worked by 40 Hour/Week Employee Assigned to Days

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**Timesheet coding:** D R R R D D D

**Total hours worked:** 56

**Compensation:**
40 hours at normal rate + 16 hours at time-and-one-half + 8 hours at double-time
Tuesday #1 Shift Worked by 35 Hour/Week Employee Assigned to Days

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Timesheet coding: D D R R R N D

Total hours worked: 33
Compensation: 35 hours at normal rate + 5 hours at time-and-one-half + 7 hours of night shift differential

Monday #1 Shift Worked by 35 Hour/Week Employee Assigned to Days

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Timesheet coding: D D R R R N D D

Total hours worked: 40
Compensation: 35 hours at normal rate + 4 hours at double-time + 7 hours of night shift differential
Saturday #1 Shift Worked by 35 Hour/Week Employee Assigned to Days

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Total hours worked: 40
Compensation: 35 hours at normal rate + 12 hours at time-and-one-half

Tuesday and Wednesday #1 Shifts Worked by 35 Hour/Week Employee Assigned to Days

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61:4.0 71:1.0
Total hours worked: 38
Compensation: 35 hours at normal rate + 10 hours at time-and-one-half + 14 hours of night shift differential

Revised in 2006-2010 Collective Agreement
LETTER OF UNDERSTANDING

#182    Re: Compensation & Working Conditions - 12-Hour Shift Schedule

1. The following will be applicable to Hydroelectric employees in the Commercial Resource Management Centre when working a 12-hour schedule.

2. General Provisions

2.1. The 12-hour shift schedule will average the regular scheduled hours per week for employees and will indicate the days and hours of work (shift) for each employee. Payment will be determined in accordance with this Letter of Understanding and as outlined in Article 59 of the Collective Agreement ("Shift Work (M&P, TMS/TS)").

2.2. The implementation of 12-hour shift work will be on the understanding that its application will not result in any appreciable increase in cost to Hydroelectric.

2.3. Hydroelectric or The Society Local Vice-President shall have the right to terminate 12-hour shift work. Written notice must be provided by the Department Manager to The Society Local Vice-President or vice versa.

   a) If the notice is two months prior to the end of the current schedule, 2-hour shift work will terminate at the end of the current schedule. Reason(s) for termination will be provided by the respective party.

   b) The 12-hour shift schedule may be canceled immediately by Hydroelectric should any of the following be adversely affected: safe operation of plant; health of shift workers; public safety.

   c) When employees at any Department have exercised the right to opt out of time-balanced 12-hour shift work, no new 12-hour shift work may be introduced for those employees without the mutual agreement of local management and the local Society Unit Director.

2.4. All policies and Agreements which normally apply to employees will continue to apply unless specifically stated otherwise in this LOU.

3. Shift Differential

A shift differential of $1.10 per hour worked will be paid to 12-hour shift employees for each night shift hour worked, in accordance with Article 59.3 ("Shift Work (M&P, TMS/TS)").
4. **Shift Premium**

   Hourly shift allowances shall be paid to M&P shift workers in accordance with Article 59 ("Shift Work (M&P, TMS/TS)").

5. **Overtime**

   5.1. Authorized overtime beyond 12 hours of work on scheduled workdays Monday to Saturday inclusive and all hours worked on scheduled days off Monday to Saturday inclusive shall be compensated in accordance with the overtime provisions of this Agreement.

   5.2. Authorized overtime beyond 12 hours of work on scheduled workdays which are Sundays or statutory holidays and all hours worked on scheduled days off which are Sundays or statutory holidays shall be compensated in accordance with the overtime provisions of the Collective Agreement.

6. **On-Call**

   6.1. On-call service payments will not be applied to those employees on the Minimum Availability Requirement (MAR) list (see Section 9).

7. **Special Conditions**

   7.1. The following items will be credited for pay purposes on an hour-for-hour basis:

   a) Vacation
   b) Floating Holidays
   c) Sick Leave
   d) Time Off Without Pay
   e) Travel Time
   f) Medical and Dental Consultations - Periods of less than four hours shall not be deducted from sick leave credits.

   7.2 In the application of the above-noted items (a), (b) and (c), a reference under the current provisions of this LOU to a "day's" entitlement will mean eight hours. Therefore a 12-hour shift will constitute one and one-half days deducted from credits.

   7.3. When an employee is scheduled to work a 12-hour shift and one of the under-noted conditions occurs, a "day" will be considered to be 12 hours.

   7.4. Jury duty and attendance at court.
7.5. Funerals.


7.7. Time Charges for Attendance at Delegates' Council and meetings of The Society's Board of Directors.

8. The basic statutory holiday and special time off provisions remain unchanged in that time off and pay entitlements will continue to be calculated on an eight-hour basis.

9. Minimum Availability Requirement (MAR) List

9.1. In order that a sufficient number of shift employees are on duty to maintain and ensure a continuous operation at any Department utilizing 12-hour shifts, a MAR List will be prepared.

9.2. A sufficient number of employees, by job classification and qualifications, will be determined by Hydroelectric. Employees will volunteer their willingness to be called in to work in this situation, by placing their name on the MAR List under the day(s) they wish to be called. If there are no volunteers, Hydroelectric reserves the right to assign employees to the MAR List. Employees will not be placed on the MAR List who are scheduled to work on an adjoining shift.

9.3. An employee on the MAR List agrees to be available during the Required Availability Period (RAP), to report to work to cover short-term absence. The RAP is the period of time commencing two hours prior to each shift change and ending one hour after each shift change.

9.4. If an employee whose name is on the MAR List cannot be available for the specified day(s), the employee must arrange for a substitute acceptable to Hydroelectric, whose name then would be added to the MAR List.

9.5. Volunteering or being assigned to the MAR List for RAP periods does not entitle the person to any compensation, i.e., on-call pay, etc., nor does it guarantee that overtime will result.

9.6. In the event that an employee is called to work from the MAR List, he/she will be entitled to overtime premium rates (outlined in Section 61.4) for all hours worked.

10. Time-balanced 12-hour shift work will be introduced in the CRMC Department when the following conditions are met:

10.1. More than fifty percent (50%) of employees who vote in that Department must vote in favour of 12-hour shift work.

10.2. More than fifty percent (50%) of all eligible shift workers who vote
in that Department must vote in favour of the 12-hour shift work.

10.3. The process for taking the Vote and counting it will be agreed upon by The Society Unit Director and the Department Managers.

10.4. Employees eligible to vote are those employees in the CRMC normally assigned to shift.

10.5. Although the content, preparation, costing and administration of shift schedules is the sole responsibility of Hydroelectric, the preference of the majority of shift workers in a department for a particular basic type of schedule will be considered. Such preferences must be made known to Hydroelectric 4 months in advance of the starting date of the new schedule.

10.6. Supernumerary Shifts while working on the 12-hour shift schedule, will be 08:00 – 16:00.

10.7. Three supernumeraries can be exchanged for working two 12-hour regular days off.

10.8. When a regular shift commences before midnight and continues after midnight, all hours during the continuous shift shall, for pay and time balance purposes, be recorded and treated as if they occurred during the calendar day in which the shift ends.

10.9. Exception: The statutory holiday shift premium shall be paid on an actual hourly-as-worked basis.

10.10 Shift workers with a plus or minus four hours time balance assigned to day work or shift for an indeterminate period of time may be required to take off or work a four-hour period respectively, but no payments, premium or otherwise, will apply to such time worked as an extension of a normal eight-hour day to resolve a minus time balance.

10.11 For the day on which an election occurs and up to three days before and after, all employees on a 12-hour schedule will be changed to an eight-hour schedule unless joint agreement is reached to do otherwise.

10.12 A minimum of 48 hours off per pay period except for MAR list needs.

11. An excessive number of 12-hour shifts cannot be worked in sequence. Three would be the maximum for nights and four would be the maximum for days.

(signed by M.K. Robinson on April 25, 1996 for Ontario Hydro, and G. Murphy on May 2, 1996 for The Society) Revised in the 2006-2010 Collective Agreement
LETTER OF UNDERSTANDING

#183 Re: Society Represented Employees in IMS - Periodic Assignment to Shift Work (Final)

This Agreement, pursuant to Article 72 of the CA, establishes conditions if Society represented staff in Nuclear Inspection Maintenance Services Division of Ontario Power Generation are assigned to work shift or provide 24 hour coverage.

1. Principle:

Society Represented staff (staff) in IMS may be assigned to shift work or 24 hour continuous coverage work schedules from time-to-time as required. Management will endeavour to equitably distribute assignments taking into consideration business and employee needs.

2. Assignment:

Society represented staff, who are assigned to shift work, may be assigned for up to six (6) months in total per year per employee provided that no single period of shift work exceeds three (3) consecutive months. Society represented staff assigned to perform SLAR work may be placed on shift for up to eight (8) months in the year.

When assigned to shift, articles 59, 60, 61, 62 and 70 of the Collective Agreement do not apply except 59.3, 60.3, 60.4, 60.7, 61.3, 61.6 (reference 1995-96 Agreement or subsequent applicable revisions).

3. Fiscal Year:

For purposes of this Agreement, a "year" will be a year commencing April 1. The defined fiscal year will not be changed in future periods.

4. Shift/Work Schedule Design:

The design of the shiftwork schedule(i.e., length and pattern):

a) may result in scheduled work for an employee on average exceeding normal base hours.

b) will not result in an employee being scheduled to work less than 35 hours on average over pay periods, inclusive of any normal scheduled work on days.

c) will be the same shift length and pattern as the associated PWU crews on shift or 24 hour coverage work schedule when:

i) The PWU Crew is from IMS;

ii) Society Staff must work alongside the PWU Crew to provide supervision or direct support to the work being conducted by the PWU Crew;

unless otherwise agreed.
5. Notice:

A minimum seven (7) days notice will be provided when an employee’s shift schedule is changed or when putting an employee on shift with the following exceptions:

a) Three (3) days notice if a forced unit outage occurs. The applicability of the three (3) day notice period is dependent upon a shift change notice being issued to the affected employees within 48 hours of the occurrence of the forced unit outage.

b) In cases of illness, four (4) days notice will be given.

Failure to provide the above notice will require payment at the appropriate overtime rates for work performed outside of normal hours during the notice period.

6. Overtime:

Work performed outside of scheduled hours is overtime and will be compensated at the appropriate overtime rates.

7. Compensation while on shift:

7.1 During each pay period in which scheduled shift hours are worked:

a) All scheduled hours worked, either OR days or on shift, will be credited to the time bank at straight time.

b) The employee will be paid their base pay, and the equivalent number of base hours at straight time will be deducted from the time bank.

c) The employee will be paid the premium and differential portion for scheduled hours worked on weekends, and night shifts during each pay period.

7.2 At the end of the fiscal year, the remaining cumulative hours in the time bank will be paid out, or, time may be taken off at times throughout the fiscal year which are mutually agreeable to management and the employee, as follows:

a) The cumulative total will be divided into groups of 7 hours (or fraction if there is a residual amount).

b) For each group, the first four hours will be at time-and-one-half and the second three hours will be paid at double-time.

c) Negative time balances existing at the fiscal year end will be written off.

d) For purposes of calculating time bank compensation provisions under this Agreement, the number of base work hours in a pay period will be equivalent to the number of current standard hours.
7.3 Periods of time required at the start and end of a shift, to effectively carry out any turnover to the incoming or outgoing crew will not be compensated, if the total time required is less than 30 minutes. Turnovers requiring more time, if authorized by the Superintendent or that person designated by the Superintendent, will be compensated according to the overtime provisions of the Agreement.

8.0 Relativity-

8.1 In the event that Society staff are required to work alongside an associated PWU crew as determined under 4(c)(i) and 4(c)(ii) above, who are on a work schedule that provides 24 hour coverage but are not on an assigned shift schedule under a PWU Agreement, equivalent premiums will be paid in lieu of any premium (weekends, shift differentials, time bank) payments as determined under this Agreement.

8.2 When working alongside an associated PWU crew, as described in 8.1, and a minimum payment is provided to the PWU crew for the purposes of maintaining normal base hours, the equivalent treatment will be afforded to The Society staff.

9.0 The implementation plan requirement of Letter of Understanding Re. Peak Work Hours Arrangements (LOU-6), is as follows:

a) This LOU may be jointly re-negotiated in April of 1998 if requested by either party in advance, and during the month of April of each second year subsequently. Unresolved disputes during this re-negotiation may be referred to the dispute resolution process as defined in Article 72 of the 1995/96 Collective Agreement.

b) The effective start date will be April 1, 1997, which will be declared the start of the fiscal year for purposes of this Agreement.

(signed by B.J. Murdoch on behalf of NTSD and J. Gierlach on behalf of The Society) Revised in the 2011-2012 Collective Agreement
LETTER OF UNDERSTANDING

#184  Re: Society Representation of Authorized Nuclear Operators in Rotations

To implement the OPG Procedure Authorized Nuclear Operator Staffing of Days Based on Rotational Positions within OPG Divisions and the tripartite Memorandum of Understanding addressing matters of union representation dated January 11, 1996 (attached), the undersigned Parties agree:

Ontario Power Generation will remit to The Society on a quarterly basis, a dollar amount equal to the weekly dues requirement in effect for Society represented staff.

The funds will be remitted for each week an Authorized Nuclear Operator is on rotational assignment to a position within The Society's jurisdiction, ending at the conclusion of the rotational assignment.

In addition to its jurisdiction over the position, The Society's representational rights and its Collective Agreement shall apply to any employee grievance for which the PWU does not have representational rights under the Memorandum of Understanding.

The Authorized Nuclear Operator Career Path Team produced an Ontario Hydro Nuclear (OHN) Procedure titled, “Authorized Nuclear Operator Staffing of Days Based Rotational Positions within OHN Divisions”. Contained in this procedure was a process for determining applicants to be selected for a rotational assignment to a position within The Society's jurisdiction. This Memorandum will address the matters of union representation and compensation to the unions.

1.0 CONDITIONS OF THE AGREEMENT

a) Except as expressly modified in representation (Item 3), below, the Collective Agreement signed between Ontario Hydro and the Power Workers Union and Ontario Hydro and The Society apply.

b) This Memorandum of Understanding is without prejudice to any Party's position in any other matter between the Parties and does not constitute a precedent.

c) This Memorandum of Understanding is revocable upon one (1) year's written notice by any Party.

2.0 GENERAL PRINCIPLES

a) Agreement must be reached with the responsible Society Unit Director to fill a position within the Jurisdiction of The Society on a rotational basis.

b) Power Workers Union represents the individual Authorized Nuclear Operator as well as the position of Authorized Nuclear Operator.

c) OHN regularly requires an Authorized Nuclear Operator on a rotational assignment within The Society's jurisdiction to perform Power Workers Union jurisdiction work.

3.0 REPRESENTATION

When an Authorized Nuclear Operator is selected to fill a rotational assignment within the jurisdiction of The Society the following will apply:

a) The Society represents the position.

a) The employee is represented by the Power Workers' Union except for representation with respect to established working conditions for the position as set out in LOU 27 (“Re: Article 5 ‘Established Working Conditions’ for Employees Temporarily Included in The Society's Jurisdiction”) of The Society Collective Agreement.

(signed by T. Pigeau for the Power Workers' Union, J. Wilson for The Society, and D. Ivany for Ontario Hydro, dated January 11, 1996.)
LETTER OF UNDERSTANDING
#185  Re: Purchased Services Agreement (PSA) Nuclear (including Nuclear Waste and Nuclear Regulatory Affairs)

Re: Reduction of Nuclear PSA Envelope as a Result of Establishment of Nuclear Waste Management Organization (NWMO)

Whereas The Society and OPGI have previously agreed to a Purchased Services Agreement (PSA) for Nuclear (LOU #175); and

Whereas OPGI and the Nuclear Waste Management Organization (NWMO) are negotiating an asset transfer agreement under which certain assets and liabilities of OPGI will be transferred to the NWMO to be effective on or about January 1, 2009; and

Whereas a portion of Society work that was previously contracted out by OPGI Nuclear will now be contracted out by the NWMO;

1. The Society and OPGI hereby agree to amend paragraph 5 of LOU #175 to reflect that the project portion of the “Total Contracting Out Envelope by Year” shall be reduced by $13 million for each of 2009 and 2010, resulting in a revised projects envelope of $99.5 million and base envelope of $12.5 million, for a total envelope of $112 million for each of 2009 and 2010.

OPGI agrees to make a one-time, lump sum payment in lieu of dues in the amount of $25,000 to The Society before the end of 2008.
LETTER OF UNDERSTANDING
#187 RE: IM&CS Termination of Services with Bruce Power

It is jointly agreed that the following Letter of Understanding (LOU) shall form part of the Collective Agreement between the parties. This LOU is limited to the IM&CS Termination of Services with Bruce Power and supersedes any provision of the Collective Agreement dealing with employee transfers. The intent of this LOU is to afford options for IM&CS employees located at the Bruce site who are affected by the termination of services with Bruce Power and to ensure the Company can fulfill its contractual obligations to Bruce Power during the transition.

The parties enter into this LOU without prejudice to either parties’ position in future matters involving identical and/or similar circumstances.

Except as expressly modified by this LOU, all other provisions of the Collective Agreement apply.

1. This Agreement is contingent on an agreement between OPG and Bruce Power on the transition of IM&CS services, and on the understanding that Bruce Power will offer positions to OPG employees who on acceptance will terminate employment from OPG and begin employment with Bruce Power under the terms of the collective agreement between Bruce Power LP and The Society at a date established between the employers, and on the understanding that Bruce Power and The Society will reach an agreement in respect of employees accepting employment with Bruce Power, for the recognition of service under the Collective Agreement between Bruce Power and the Society. It is also understood and agreed that an employee accepting an offer of employment with Bruce Power under the terms of this agreement must transfer all of their OPG pension from the OPG pension plan to the Bruce Power pension plan.

2. This agreement is limited to regular IM&CS employees permanently located at the Bruce site. Beyond the application of this agreement, in the event the ceasing of IM&CS services provided by OPG to Bruce Power results in an adverse impact on employment continuity for Society IM&CS employees working in Durham Region, Article 64 will apply to those affected employees.

3. The following options will be made available to IM&CS employees who are permanently located at the Bruce site on the date of this agreement and remain at the Bruce site on the date that the options are presented:

   a) Offer of employment with Bruce Power at the Bruce Site under
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the terms of paragraph 1; or

b) A lump sum retirement allowance equal to one year's base salary. Eligibility for a retirement allowance is contingent on qualifying for an undiscounted pension as of June 5, 2011. The retirement allowance will be paid effective the date of retirement as determined by OPG. Where contractual obligations to Bruce Power, or continued operations are impacted an employee's retirement may be delayed no later than June 5, 2011; or

c) Placement of affected staff in available vacancies for transfer, at the Bruce site, IM&CS business unit, or Nuclear Business Unit.

4. Redeployment Process

A joint team of Society and Management representatives will be formed to oversee an expeditious staff redeployment process. The joint team will be comprised of 2 members from The Society and 2 members from Management plus any required support staff.

The joint team will operate under the principles of fairness, reasonableness and equality to ensure employee seniority, preference and qualifications are considered as outlined below in the allocation of staff while also ensuring the needs of the business are satisfied. Where agreement cannot be reached Management will determine the placements. The Society reserves the right to grieve any placements not jointly agreed to.

a) Management will prepare a list of available vacancies for transfer

b) Employees will be required to rank a location preference

c) Employees will be matched to vacancies for transfer in the following order:

   • 1Same job document ~ location preference on the basis of seniority and qualification
   • Lateral placement - location preference on the basis of seniority and qualification,
5. OPG will execute a pension transfer agreement, where permitted by law, that will allow IM&CS employees located at the Bruce Site to transfer their pensions to Bruce Power.

6. All elections are irrevocable except where the employee has subsequently experienced a significant life altering event that requires consideration by OPG.

7. The Society consent to the use of Purchase Services, which for clarity will not be accounted for under any PSA envelope, for the preservation of vacancies for the future transfer of IM&CS employees. Once the employees are matched through the redeployment process outlined in paragraph #4 only those positions being held for matched employee transfers will continue to be exempt from any PSA envelopes, The Society further consent that all contractors hired in IM&CS at the Bruce site or not at the Bruce site but providing services to Bruce Power will also not be counted against the current PSA envelopes.

This agreement is subject to OPG providing The Society an electronic monthly summary regarding the use of purchased services, which will contain, date and expected end of the contract, purpose of hiring and the roles and responsibilities.

8. The Society also agree to waive any rights to jurisdictional claims where the number of reports is reduced as a result of preserving vacancies for the future transfer of IM&CS employees, or deferred release dates of employees. This condition does not apply where the positions held (if filled), would not allow the supervisor to meet the exclusion criteria as set out in the collective agreement. This condition is removed once all employee transfers are completed.

9. Any offer made after the completion of the redeployment process outlined in paragraph #4 to an employee over age 55 at the time of reporting will outline the extent and terms of relocation assistance that will be provided pursuant to Article 52,5,2 of the 2005 collective agreement.

10. This agreement will expire upon completion of the transfer of services to Bruce Power or June 5, 2011 whichever comes first. This does not alter the eligibility date associated with the retirement allowance.

11. The Society reserves the right to grieve any unreasonable exercise of
management in the application, and interpretation of this LOU.

1 Same job document defined - an employee performing their current role in a different location.

2 Significant life altering event defined – exceptional circumstances that management would consider material in informing an employee choice and which can be alleviated by providing reconsideration where the option still exists.
LETTER OF UNDERSTANDING  
# 188  Re: Article 67 Purchased Services Agreement

For the term of this Letter of Understanding the PSA (Article 67) AND LOU’S 122, 124, 125, 126 and 175 are suspended, subject to the exceptions set out in this LOU.

SECTION A

1. Without prejudice or precedent, for the purpose of this agreement only, “Nuclear base work” shall be defined as OM&A work of an on going nature typically executed by Society-represented staff. This work would include, but not be limited to, items such as stress analysis, preparing bills of materials, equipment performance monitoring, addressing outage and non outage AAA holds or elimination of backlogs. It does not include OM&A or capital modification projects.

2. For the purposes of this agreement, “Augmented Staff” shall be defined as staff hired either directly by OPG, or through a managed task contract, that perform work regularly performed by Society-represented employees and are taking work direction from OPG.

3. The Parties agree that there shall be three PSA Envelopes for OPG as a Company in the total amount of 165 Million dollars for each year of this Agreement.

- A maximum 17 Million dollar envelope can be used for base work in Nuclear.
- A maximum 4 Million dollar envelope can be used for base work in Corporate.
- The remaining 144 Million dollar envelope is for OM&A projects, non-standard projects, capital projects, provisional projects and non-nuclear base work (excluding Corporate base work).

4. Any amounts in excess of the 144 Million dollar envelope up to 164 Million dollars shall attract a 0.5% payment to The Society. Any amounts above 164 Million dollars shall attract a payment of 1% to the Society.

5. Any amounts in excess of the 17 Million dollar base work envelope for Nuclear or in excess of the 4 Million dollar base work envelope for Corporate shall attract a 1% payment to the Society.

6. The parties agree that any amounts in a PSA envelope in any given year cannot be reallocated to any other year or any other envelope.

7. The parties shall form an OPG PSA Review Committee that will be a subcommittee of the Joint Society Management Committee (JSMC). The main discussions regarding PSA will take place at the OPG PSA Review Committee. Ad hoc local discussions may take place for clarification.
purposes. The Committee will be comprised of one OPG Management and one Society representative from each of the following business units: Thermal, Hydro, Corporate, and Nuclear. Additional resources can be added as required by the Committee.

8. The OPG PSA Review Committee will meet during the term of this agreement on a quarterly basis where Management will present the following:
   - Society actual and planned staffing levels; including Regular, Temporary and Augmented Staff
   - A report on the status of the Envelopes in sufficient detail to identify the information currently included in the 2009 Report which is provided by Nuclear (to be provided 10 working days in advance of the quarterly meeting)
   - The approved business plans for each year of this agreement (to occur in Q1)
   - The PSA plan for the current year (to occur in Q1)
   - Any payment amounts required for envelope exceedance will be finalized at the Q2 meeting of the following year, for each year of this agreement

9. Society designated representatives shall be granted system access using customized PSA reports to view purchase orders that are included and excluded on the report and will be provided appropriate training.

10. The Parties agree that in the event work performed by Society-represented employees is removed from the existing service provider, as provided for in the 2009 Information Technology Service Agreement (ITSA), and transferred to another service provider, base work as currently performed (not project work) shall not be dealt with under the envelopes available under Part A of this LOU. OPG shall process any PSA relating to such work pursuant to Article 67. The Information Technology organization at OPG has full access to Parts B and C of this LOU.

11. OPG agrees to pay the Society the sum of $1.25M per year of this agreement. In lieu of this payment, OPG agrees to provide the benefit improvements detailed in Section “E” of this agreement.

SECTION B

PSA’s representing major, multi year projects such as, but not limited to, New Business Development, New Build, Biomass/Gas Conversion, Niagara Tunnel, Lower Mattagami Project, Darlington Refurbishment, etc. shall be dealt with in the following manner:

i. The existing PSA Agreements for the Niagara Tunnel Project and the Lower Mattagami Projects are not part of this PSA Agreement and their existing PSA agreements will continue to be in effect until they expire or the projects are completed.
ii. The Parties will meet to determine the amount and type of work involved in the Project that would normally be performed by Society represented employees.

iii. OPG shall meet with The Society to discuss the hiring of additional “regular” or temporary staff and/or deployment of existing staff to assist on the project, respecting all of the requirements of the applicable provisions of the Collective Agreement.

iv. Discussions with respect to (ii) and (iii) above will be concluded within 30 days of notice from the Company to the Society, unless there is mutual agreement to extend the discussions. The Company shall provide The Society with at least 10 working days notice of such a meeting and such notice shall include reasonably adequate and relevant information for the Society to prepare for the meeting.

v. If the parties reach an agreement on the requirements of (ii) and (iii) above, the Society will be paid an amount of money which is equal to 0.5% of the total amount of work normally performed by Society represented staff based upon the initial contract estimate. This payment will be divided annually over the life of the contract commencing in the year the contract begins.

vi. If there is no agreement under (ii) and (iii) above then the matter will be processed pursuant to Article 67 which will then be active for that particular project/contract.

vii. For those projects contracted out under this process (Section B of this LOU), OPG agrees to meet with the Society on a regular basis to keep them apprised of the status of the Projects. Material changes with respect to contracted out work normally performed by Society represented employees will require recalculation of the payment amount and payment schedule.

SECTION C

**Exclusions from the PSA Envelope**

The following work is excluded from the envelope in Section A and in the calculation of Society represented work in Section B, above:

1. Work performed under a manufacturer’s warranty
2. Any arms length or proprietary work required to be performed
3. Where a service is obtained for OPG from a business which has Society represented employees who are providing the service.

- For the purposes of this LOU, “Arms Length” shall be defined as work that must be performed by a 3rd party as a condition of ISO certification, regulatory or statutory compliance. It is understood that there are circumstances that could arise wherein OPG may seek Society concurrence for additional exclusions for work performed by a third party. These issues will be advanced to the OPG PSA Review Committee for discussion.
For the purposes of this LOU, “Proprietary” shall be defined as work that only a vendor or their licensee can perform on a system since no one else is allowed to work on it as the vendor either built it or retains sole rights to do repairs or work on it after it is purchased.

All items meeting these exclusions will be included on the report with an explanation of the exclusion.

SECTION D

Staffing

1. During the term of this Agreement there shall be no involuntary layoff of any Society represented employees as a result of contracting out.

2. Over the term of this Agreement, OPG agrees to hire a total of 120 regular Society represented employees, of which 70 will be graduate trainees and 50 will be hires from outside of the Society bargaining unit. OPG shall inform the Society of its progress in meeting these commitments, on an annual basis.

SECTION E

Benefit Improvements

1. Benefit improvements will be made and shall continue for the term of this Agreement in the following areas:

   a) OPG will find an Insurance Carrier to provide Group Out of Country coverage. The Company will pay up to $35 per year for the cost of Family Coverage for Regular employees and $35 per year towards coverage for retirees who choose to participate. This benefit improvement will exist for a period of five years, from the date that the plan is initiated.

   b) Dispensing Fees coverage shall be increased from $5.00 to $11.00.

It is understood that these benefits shall cease at the end of this Agreement unless the parties expressly negotiate their continuation. It is also understood that in the event this Agreement ceases to exist, the Dispensing Fee shall revert back to $5.00 as it existed prior to the signing of this LOU.

The parties agree that any disputes arising from the implementation, administration or interpretation of this agreement are subject to the grievance process, with the exception of specifically negotiated provisions contained within this agreement that default to the Article 67 dispute resolution process.

This agreement shall expire on December 31, 2015 unless there is an agreement by the Parties to renew this agreement for the business planning year 2016.
September 30, 2015. In the event that there is no agreement to renew, Article 67 shall apply to any work to be contracted out in 2016.
LETTER OF UNDERSTANDING
#189 Re: ESA Averaging Hours of Work Approval

1. In accordance with the ESA the Society consents to employees working schedules that average hours over a period of greater than two weeks. Specifically, the Society agrees to average employees' hours over a period of five weeks for A-E crews and over a period of 52 weeks for project crews.

2. This letter of understanding will come into effect April 1, 2011 and shall form part of the collective agreement between the parties and shall continue in effect until March 31, 2016.
SEC Interrogatory #108

Ref: F4-3-1/p.20-21

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please provide details of the approvals and oversight process for determining management compensation? Please provide copies of any relevant policies and/or procedures.

Response

Details surrounding the approvals and oversight process for the overall management compensation program are explained in the evidence provided on pages 22 - 23 of Ex. F4-3-1.

Management compensation is determined in accordance with OPG’s Compensation and Benefits Policy, which is provided as Attachment 1 to this response. A copy of OPG’s Management compensation salary banding structure is provided as Attachment 2.
Title: COMPENSATION AND BENEFITS POLICY

Policy Statements: Ontario Power Generation (OPG) will provide compensation to its employees (base salaries/wages, performance-based incentives, benefits, pension, and non-cash rewards) that will support the business strategy and competitive environment by facilitating the attraction, retention, motivation and recognition of competent talent.

Requirements: A total compensation program will be flexible enough to be tailored where required to specific functional/business needs and employee needs.

The competitiveness of the total compensation program will be assessed with due regard to appropriate external comparator companies.

Base salaries for non-represented staff will be established on the basis of competencies and salary bands. Base salaries for represented staff will be based on job evaluation plans agreed to with the appropriate unions and the negotiated wage and salary schedules.

Compensation will be designed to develop, encourage and acknowledge a performance-based culture.

Pensions and benefits will be competitive and provide for a reasonable level of health security and financial protection and retirement benefits.

Employee achievements, consistent with corporate values and principles, will be encouraged and recognized through Corporate Awards programs and a Service Recognition program.

Sponsoring Unit: Senior Vice President, People & Culture and Chief Ethics Officer

Approval: President and CEO

Effective Date: May 3, 2012
### Management Group Base Salary Structure

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SEC Interrogatory #109

Ref: F4-3-1/p.23

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

What types of information are provided to the Compensation and Human Resources Committee when providing oversight of the management compensation program?

Response

As broadly discussed in the pre-filed evidence on pp. 22 - 23 of Ex. F4-3-1, the types of information provided to the Compensation and Human Resources Committee include: management analysis in support of compensation program recommendations (structure, objectives, principles, etc.); regulatory filings (Executive Compensation Filing Form 51-102F6); third party analysis, salary surveys and benchmarking information in support of compensation program recommendations; compensation program results; the Corporate and CEO Balanced Scorecards and performance results; executive compensation and performance targets; executive employment offers and contract provisions; and, any other relevant or requested information.
SEC Interrogatory #110

Ref: F4-3-1-Attach 1

Issue Number: 6.8
Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory
With respect to “An Assessment of the Industrial Relations Context and Outcomes at OPG” prepared by Richard P. Chaykowski, please provide copy of:

(a) the engagement letter and/or retainer between OPG and Mr. Chaykowski.

(b) the Electricity Sector Council (2012) cited in footnote 48.

(c) the Memorandum of Settlement Between OPG and the PWU (March 20, 2012) cited in footnote 56

(d) the Albertyn Award (2013) cited in footnote 57

(e) the Burkett Award (2011) cited in footnote 60

Response

(a) Dr. Chaykowski’s engagement letter is provided as Attachment 1.

(b) The Electricity Sector Council (2012) report cited in footnote 48 is provided as Attachment 2.

(c) The Memorandum of Settlement between OPG and the PWU (March 20, 2012) cited in footnote 56 is provided as Attachment 3.

(d) The Albertyn Award (2013) cited in footnote 57 is provided as Attachment 4.

(e) The Burkett Award (2011) cited in footnote 60 is provided as Attachment 5.
February 29, 2012

PRIVILEGED AND CONFIDENTIAL

Dr. Richard P. Chaykowski
55 Watts Crescent
Kingston, Ontario
K7M 2P4

Dear Dr. Chaykowski:

Re: Ontario Power Generation Payment Amounts Application

We represent Ontario Power Generation Inc. ("OPG") in connection with an application to be brought by OPG to the Ontario Energy Board (the "Board") to determine payment amounts for the 2013 and 2014 test period.

I confirm that Torys LLP ("Torys") has agreed to retain you as an expert in this matter, to:

(a) provide us with labour relations related advice in order to assist us in providing legal advice to our client;

(b) prepare an independent expert report, or provide other evidence within your area of expertise, if requested; and

(c) testify before the Board and assist in the preparation of interrogatories asked in respect of any evidence prepared by you, if requested.

Our agreement with you is subject to the following terms:

1. You agree to hold in confidence: (a) the facts of this retainer, (b) all information provided to you, and (c) your opinions to us as they relate to the information, whether the information or opinions are documentary or oral. You will not disclose the information or opinions to any person unless we authorize you in writing to do so. All documents given to you in connection with this retainer remain the property of our firm, and are held in trust by you as our agent. You agree to return these documents on request.

2. You agree during this engagement not to provide, directly or indirectly, without our written consent, your consulting services to the Board, Board staff or any party intervenor to Board proceedings.

3. You confirm that you are free to provide your services to Torys in connection with Torys' representation of our clients in this litigation, and that our firm and our clients are free to use and disclose such information in any manner whatsoever.
4. You agree to refrain from referring to our firm or the defendants, directly or indirectly, in connection with the promotion of your services, without obtaining the prior written approval of our firm.

5. You are to be compensated at your hourly rate of $300 for all services and will bill for actual expenses as incurred without mark-up. You will bill for travel expenses only in accordance with OPG's Standard Form Business Expense Schedule provided by Torys to you as the same may be amended, supplemented or replaced from time to time. Please direct your accounts to my attention at the address above.

6. In the event that we request that you prepare an expert report for filing with the Board, Rule 13A of the OEB’s Rules of Practice applies, a copy of which is attached. You agree to accept the responsibilities that are or may be imposed on you as an expert pursuant to the provisions of Rule 13A.06.

Please indicate your agreement to the terms of your retainer as set out above, by signing a copy of this letter and returning it to me.

Thank you for your assistance.

Yours truly,

Crawford G. Smith

Tel 416.865.8209
csmith@torys.com

Enclosure

Agreed, this 29 day of February, 2012

Dr. Richard Chaykowski

cc: Carlton Mathias
STANDARD FORM
BUSINESS EXPENSE SCHEDULE
Effective June 17, 2009
For
ONTARIO POWER GENERATION INC.

Updated July 27th, 2010
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OPG Standard Form Business Expense Schedule - Effective June 17, 2009
BUSINESS EXPENSE SCHEDULE

RECITALS

A. Ontario Power Generation Inc. ("OPG") entered into an agreement (the "Agreement") with the other party to the Agreement (the "Contractor"). This schedule (this "Schedule") forms part of the Agreement. Under the Agreement, OPG agreed to reimburse the Contractor for certain business expenses incurred by employees of the Contractor ("Eligible Employees") in performing work for OPG under the Agreement.

B. This Schedule sets out the terms on which OPG will reimburse the Contractor for business expenses incurred by Eligible Employees in performing work for OPG.

SECTION 1 - INTERPRETATION

1.1 Three Types of Reimbursement

OPG will reimburse the Contractor for expenses that are eligible for reimbursement in accordance with this Schedule. OPG will make the reimbursements in one of three ways respecting each Eligible Employee in respect of whom reimbursements are payable. The three ways of reimbursement are:

(a) reimbursement of individually incurred Allowable Expenses as set out in section 2 through section 5;

(b) payment on a flat rate daily basis as set out in section 6; or

(c) payment on a flat rate monthly basis as set out in section 7.

Except as expressly set out in section 6 or section 7, if OPG pays the Contractor the daily or monthly rate in respect of an Eligible Employee, OPG will reimburse the Contractor no Allowable Expenses in respect of that Eligible Employee.

1.2 Definitions

In this Schedule, the following terms have the respective meanings set out below.

(a) Agreement is defined in Recital A.

(b) Allowable Expenses is defined in section 2.1.


(d) Contractor is defined in Recital A.

(e) Eligible Employees is defined in Recital A.

OPG Standard Form Business Expense Schedule – Effective June 17, 2009
(f) **Home Base** means the permanent residence of the Eligible Employee.

(g) **OPG Representative** is defined in section 2.1(d).

(h) **Schedule** is defined in Recital A.

(i) **Work Site** means a location at which the Eligible Employee is ordinarily required to provide services to OPG under the Agreement.

1.3 **Headings**

The division of this Schedule into sections, the insertion of headings and the provision of a table of contents are for convenience of reference only and are not to affect the construction or interpretation of this Schedule.

1.4 **Expanded Definitions**

Unless otherwise specified, words importing the singular include the plural and vice versa and words importing gender include all genders. The term “including” means “including without limitation”, and the terms “include”, “includes” and “included” have similar meanings. The term “will” means “shall”.

1.5 **Business Day**

If under this Schedule any payment or calculation is to be made on or as of a day which is not a Business Day, that payment or calculation is to be made on or as of the next day that is a Business Day.

1.6 **Payment Currency**

Except as expressly set out in the Agreement, amounts to be paid or calculated under this Schedule will be paid or calculated in Canadian dollars. Any amounts to be paid or calculated which are denominated in a foreign currency will be converted into Canadian dollars, within three Business Days of the invoice date, using the Bank of Canada nominal noon exchange rate, as posted on the Bank of Canada website (currently located at [www.bankofcanada.ca](http://www.bankofcanada.ca)).

1.7 **Conflict**

If there is conflict between any term of this Schedule and any term in another part of the Agreement, the relevant term in the other part of the Agreement will prevail.

1.8 **Notice**

Any notices to be given under this Schedule will be given in accordance with the notice terms set out elsewhere in the Agreement.
SECTION 2 - REIMBURSEMENT OF ALLOWABLE EXPENSES

2.1 Allowable Expenses

OPG will only reimburse the Contractor for the following eligible expenses ("Allowable Expenses") to the extent they otherwise meet the requirements of this Schedule and the rest of the Agreement:

(a) air, rail and bus travel expenses permitted under section 3;
(b) vehicle expenses permitted under section 4;
(c) lodging expenses permitted under section 5; and
(d) any other expenses which have been approved in writing by the OPG individual managing the Agreement (the "OPG Representative").

2.2 Expenses Minimised

Notwithstanding any term in this Schedule, the Contractor will use all reasonable efforts to ensure that Eligible Employees minimise Allowable Expenses and the Contractor will ensure that all Allowable Expenses are reasonable and properly incurred in a manner consistent with effective and efficient business practice. OPG is not obliged to reimburse any expenses which are not so incurred. Eligible Employees who normally live together are expected to share accommodations and vehicle expenses, where reasonable.

2.3 Excluded Items

Notwithstanding any term in this Schedule, OPG will not reimburse any amounts to the Contractor or any Eligible Employee for any hospitality, food or incidental expenses, including, but not limited to, in respect of the following:

(a) meals, snacks, alcoholic and non-alcoholic beverages
(b) any expense whatsoever if the one way distance between the Eligible Employee's Home Base and the Work Site is less than 100 kilometres;
(c) gratuities;
(d) airline or railway club dues, fees or other charges;
(e) personal service expenses, including hair care, shoe shine, toiletry and spa treatment expenses;
(f) laundry, dry cleaning or valet expenses;
(g) hotel telephone charges or internet access;
(h) personal telephone calls;

OPG Standard Form Business Expense Schedule – Effective June 17, 2009
(i) cellular telephone data devices (for example, Blackberries) or other communication devices;

(j) entertainment or recreation expenses, including pay-per-view, video, compact disk or DVD rental, in-room entertainment, games, gaming, reading, sports or exercise expenses;

(k) headsets or other in-flight expenses;

(l) dependant care expenses

(m) pet care expenses;

(n) mini bar charges or sundry items (including gum and snacks);

(o) credit card interest or other credit card expenses;

(p) automobile washes;

(q) fines or other expenses assessed or otherwise incurred in respect of traffic or parking violations; or

(r) fees or other expenses for toll highways or vehicle rental agency administration charges for use of toll highways.

2.4 Method of Reimbursement

OPG will reimburse the Contractor for Allowable Expenses which otherwise meet the requirements of this Schedule and the rest of the Agreement in accordance with the following terms.

(a) **Monthly Invoice.** The Contractor will deliver to OPG, to the address indicated in the purchase order or Agreement, on a monthly basis, an invoice for Allowable Expenses in a form and manner acceptable to the OPG Representative, acting reasonably. The Contractor will deliver to the OPG Representative, a copy of the invoice and will ensure that the invoice legibly itemises and, if necessary, briefly describes all Allowable Expenses. The Contractor will not invoice or otherwise charge OPG for any expenses other than Allowable Expenses. The Contractor will ensure that all expenses claimed on each such invoice meet the requirements of this Schedule and the rest of the Agreement and are first approved by the Contractor. If the Contractor fails to deliver an invoice to OPG for an expense within six months of the expense being incurred, OPG will not be obliged to reimburse the Contractor for such expense.

(b) **Receipts.** The Contractor will deliver to the OPG Representative, together with a copy of the invoice, original official itemised receipts for each Allowable Expense claimed (including airline, railway or bus ticket passenger coupons or electronic tickets, boarding passes, vehicle rental contracts, itemised hotel bills and travel itineraries). The Contractor will separate expenses for each Eligible Employee. Debit card and credit card receipts are not acceptable without the
itemised receipt. OPG will not accept electronic, photocopied or fax copies of receipts.

(c) **GST/HST Deducted.** The Contractor will deduct all Canadian goods and services tax/harmonized sales tax levied under the *Excise Tax Act* (Canada) recovered or recoverable by the Contractor on the payment of expenses before submitting any invoice to OPG covering any Allowable Expenses. The Contractor will ensure that each such invoice will separately set out all Canadian goods and services tax/harmonized sales tax levied under the *Excise Tax Act* (Canada) and reimbursable by OPG under this Schedule.

(d) **Reimbursement.** OPG will reimburse the Contractor for Allowable Expenses which meet all of the requirements of this Schedule, received and approved by OPG before the 25th of each month on the 25th of the following month.

The Contractor will ensure that all Eligible Employees initially pay for expenses using their own payment methods. OPG will not provide any advances respecting Allowable Expenses. The Contractor is exclusively responsible for the reimbursement of expenses to all Eligible Employees. Failure by the Contractor to comply with the requirements of this Schedule and the rest of the Agreement may result in delay of reimbursement of expenses or rejection of any invoice in whole or in part.

### 2.5 Travel Agency

OPG has and may in the future negotiate rates with a travel service to reduce travel and lodging expenses. Unless OPG provides the Contractor with written notice stating otherwise, or the Contractor can demonstrate it can obtain lower rates from providers other than American Express Business Travel, the Contractor will ensure that all Eligible Employees process travel requirements through American Express Business Travel. OPG also encourages the Contractor to have all vehicle rental and hotel arrangements made through American Express Business Travel. American Express Business Travel may be reached in Canada and the United States at 1-866-868-4441. The Contractor will ensure that all Eligible Employees travelling for the purpose of providing services under the Agreement identify themselves to American Express Business Travel as such.

### 2.6 Confirming Rates

The Contractor will ensure that the rates booked by it or an Eligible Employee are the same or lower than that listed on the travel itinerary.

### 2.7 Home Base and Work Site

Where applicable, the Contractor will specify in each invoice the Home Base and the Work Site for each Eligible Employee. At OPG’s request, the Contractor will provide written confirmation from each Eligible Employees as to the employee’s permanent residence and street address. A post office box is not an acceptable street address.

OPG Standard Form Business Expense Schedule – Effective June 17, 2009
SECTION 3 – AIR, RAIL OR BUS TRAVEL

3.1 Air, Rail or Bus Travel

The expense of air, rail and bus travel is an Allowable Expense to the extent the actual amount of airfare or, rail or bus fare was incurred by an Eligible Employee in providing services to OPG under the Agreement and to the extent of compliance with the other requirements of this Schedule and the rest of the Agreement. The Contractor will cause Eligible Employees, to the extent possible, to take advantage of hotel and airport shuttles where available. OPG will reimburse the Contractor for the expenses actually incurred by an Eligible Employee for travel between the Eligible Employee’s Home Base, Work Site or hotel and the airport, railway station or bus terminal where the Eligible Employee arrives or departs. In addition, the amount of any such reimbursement may not exceed the lesser of:

(a) the expense of the taxi fare or other similar out of pocket charge to travel to or from the airport, railway station or bus terminal; and

(b) if applicable, parking charges at the airport, railway station or bus terminal.

3.2 Economy Class

Air expenses are not Allowable Expenses unless the Eligible Employee travels on economy class or equivalent. Rail expenses will be permitted for travel by VIA 1 or equivalent.

3.3 Vehicle Instead of Air, Rail or Bus Travel

OPG will only reimburse the Contractor for use of a personal vehicle or rental car for trips which would customarily be travelled by air, rail or bus, for the amount which is equal to the lesser of:

(a) the expense of the airfare, rail fare or bus fare that would have been reimbursed by OPG to the Contractor under section 3; and

(b) the amount that would otherwise be reimbursable by OPG to the Contractor for vehicle travel pursuant to section 4.

OPG will not reimburse the Contractor for any lodging that would not have been incurred had the trip been made by air, rail or bus.

3.4 Visits Home

OPG will reimburse air, rail or bus travel expenses for a maximum of one round trip home per month for each Eligible Employees on assignment at a Work Site where the duration is more than 45 days and the Home Base of that employee is greater than 400 kilometres from the Work Site.

3.5 Minimising Expenses

The Contractor will, to the extent possible, cause all air travel, to be by “lowest logical airfare”, to take advantage of weekend specials and other discount fares and to reduce overall expenses and plan ahead (booking at least two weeks before the departure date is expected).

OPG Standard Form Business Expense Schedule – Effective June 17, 2009
SECTION 4 - VEHICLES

4.1 Reimbursable Vehicle Expenses

The expense of rental vehicles or personal vehicles used by Eligible Employees will be an Allowable Expense to the extent that:

(a) the use of the vehicle was for official OPG business;

(b) the one way distance between the Eligible Employee’s Home Base and the Work Site is greater than 100 kilometres or the Eligible Employee is required to provide services at a location other than the Eligible Employee’s Work Site;

(c) the use of the rental vehicle was pre-approved in writing by the OPG Representative; and

(d) the expense otherwise meets the requirements of this Schedule and the rest of the Agreement.

4.2 Terms of Rental

The Contractor will make all bookings of rental vehicles through American Express Business Travel or directly with one of the OPG approved rental car agencies. The Contractor will book only mid size or smaller vehicles unless otherwise approved in writing by the OPG Representative where circumstances require it (for example, a van to carry equipment or a large group). When the Contractor books a rental vehicle, the Contractor will make the following selections when asked to select insurance coverage:

(a) where collision damage waiver is provided through the credit card company, the Contractor will decline collision damage waiver insurance; and

(b) where collision damage waiver is not provided through the credit card company, the Contractor will accept collision damage waiver insurance.

Where the Contractor fails to comply with sections 4.2(a) or 4.2(b), any additional expense that is incurred by failing to comply with either of those sections will not constitute an Allowable Expense.

4.3 Personal Vehicle

OPG will not reimburse the Contractor for use of a personal vehicle by an Eligible Employee for the first 200 kilometres of any trip (round trip), except if the Eligible Employee is required to provide services at a location other than the Eligible Employee’s Work Site. If otherwise in accordance with the terms of this Schedule, OPG will reimburse the Contractor as an Allowable Expense for all personal vehicle travel by an Eligible Employee in excess of 200 kilometres (round trip), at the published rates per kilometre on the date of invoice, for vehicle expenses for Ontario set out on the Canada Revenue Agency website (http://www.cra-arc.gc.ca/tax/lirts/menu-eng.html). This Canada Revenue Agency amount covers all vehicle related expenses, except parking.
4.4 Reducing Expenses

The Contractor will use all reasonable attempts to reduce the expenses of vehicle travel by:

(a) arranging for employees to share vehicles to minimise travel expense;
(b) requiring Eligible Employees to use a rental vehicle and refuel it before returning it;
(c) considering a long-term lease for lengthy work assignments (that is, more than 30 consecutive days) when the Eligible Employee requires a rental vehicle; and
(d) requiring Eligible Employees to use public transit when travelling to locations within or around urban centres.

4.5 Multiple Users

OPG will only reimburse the Eligible Employee whose vehicle is used when two or more Eligible Employees travel in one vehicle. If two or more Eligible Employees share a rental vehicle, OPG will only reimburse the Eligible Employee who incurred the expense.

SECTION 5 - LODGING

5.1 Overnight Accommodation

The expense of overnight accommodation for Eligible Employees will be an Allowable Expense to the extent that the overnight stay was pre-approved in writing by the OPG Representative and to the extent that the expense otherwise meets the requirements of this Schedule and the rest of the Agreement. The OPG Representative will not approve any overnight accommodation unless:

(a) the presence of the Eligible Employee is required at a Work Site which is more than 200 kilometres (one way) from that Eligible Employee’s Home Base; or
(b) poor weather creates hazardous driving conditions and the Eligible Employee cannot safely return to the Eligible Employee’s Home Base.

The Contractor will include a written explanation for all overnight accommodation with the invoice.

SECTION 6 - DAILY RATES

6.1 Daily Rates Instead of Allowable Expenses

To the extent this section 6 applies to any Eligible Employee, none of the terms of section 2 to section 5 apply, except for any Allowable Expenses for air, rail or bus travel between an Eligible Employee’s Work Site and Home Base that is reimbursable in accordance with section 3.
Notwithstanding the previous sentence, the Eligible Employee’s residence (where the Eligible Employee resides while working on the OPG project) will be considered the Home Base for the purposes of calculating Allowable Expenses in the event the Eligible Employee is required to travel to a location other than the Work Site.

6.2 Daily Rates

Before the commencement of, or at any time during, a work assignment for any Eligible Employee, OPG may elect based on the remaining duration of the work assignment, the distance between the Eligible Employee’s Home Base and the Work Site or for other reasons to pay the Contractor a daily rate in respect of that Eligible Employee rather than to reimburse the Contractor for Allowable Expenses.

6.3 All Inclusive

Except as expressly set out in this section 6, the daily rate set out in section 6.4 is inclusive of all expenses whatsoever that will be reimbursed by OPG, including expenses respecting accommodation, local transportation, work permits and fees, utilities, communication charges, furnishings, insurance and any Allowable Expenses that would otherwise be reimbursable to the Contractor under section 2 to section 5.

6.4 Rates

Subject to adjustment under section 6.5, the following are the daily rates that OPG will pay the Contractor in respect of Work Sites:

(a) City of Toronto, $150; and

(b) all other locations, $120 (including Mississauga, Pickering, Whitby and Darlington).

6.5 Application of Rate

Where OPG has elected to pay the daily rate for an Eligible Employee, OPG will pay the daily rate to the Contractor on a monthly basis for that Eligible Employee for each full day that the Eligible Employee provided services under the Agreement and for each weekend day unless the Eligible Employee surrendered his or her accommodations. The daily rate will not be paid for any period of an unexcused absence or when the Eligible Employee has surrendered the Eligible Employee’s accommodation during a home visit or absence (includes unavailability to work on weekends if trip home was taken on the weekend). The daily rate will be reduced by $35 for each day of approved trips home and on the last day of providing services under the Agreement. Where OPG has elected to pay the daily rate for Eligible Employees who normally live together, the Eligible Employees are expected to share accommodations. Adjustments may be made to the daily rate set out in section 6.4 if Eligible Employees share accommodations and other expenses.

6.6 Method of Reimbursement

OPG will pay the Contractor the applicable daily rate in accordance with the following terms.
(a) Monthly Invoice. The Contractor will provide OPG, on a monthly basis, with an invoice listing the number of Eligible Employees for whom the Contractor is claiming the daily rate and the number of days being claimed for each Eligible Employee. The Contractor will ensure that the invoice includes a description of the work package or project name and project number (and work breakdown structure element if applicable).

(b) Evidence of Expenses. The Contractor will provide OPG with original itemised receipts and time sheets evidencing that the Eligible Employee attended the Work Site and made use of temporary accommodation on each day for which the daily rate is being requested. Debit card and credit card receipts are not acceptable without the itemised receipt.

Failure by the Contractor to comply with the requirements of this Schedule and the rest of the Agreement may result in delay of reimbursement of expenses or rejection of any invoice in whole or in part.

6.7 Absences

Unless authorised in writing by the OPG Representative, OPG will not be required to pay the daily rate for an Eligible Employee where that Eligible Employee was absent from the Work Site without having been excused by the OPG Representative or where that Eligible Employee did not make use of the Eligible Employee’s accommodation during an absence from the Work Site (other than an absence required to perform services to OPG under the Agreement). The OPG Representative may consider authorising payment of the daily rate for absences such as an infrequent sick day or medical appointments requiring exams or tests.

SECTION 7 – MONTHLY RATES

To the extent this section 7 applies to any Eligible Employee, none of the terms of section 2 to section 6 apply, except for any Allowable Expenses for air, rail or bus travel between an Eligible Employee’s Work Site and Home Base that is reimbursable in accordance with section 3. Where OPG elects to pay on a monthly basis in respect of any Eligible Employee, OPG will pay the Contractor $1800 per month (or pro-rated portion of a month). All the terms of section 6 apply to the calculation of this monthly rate, with such modifications as the circumstances require.
13A. Expert Evidence

13A.01 A party may engage, and two or more parties may jointly engage, one or more experts to give evidence in a proceeding on issues that are relevant to the expert's area of expertise.

13A.02 An expert shall assist the Board impartially by giving evidence that is fair and objective.

13A.03 An expert's evidence shall, at a minimum, include the following:

(a) the expert's name, business name and address, and general area of expertise;

(b) the expert's qualifications, including the expert's relevant educational and professional experience in respect of each issue in the proceeding to which the expert's evidence relates;

(c) the instructions provided to the expert in relation to the proceeding and, where applicable, to each issue in the proceeding to which the expert's evidence relates;

(d) the specific information upon which the expert's evidence is based, including a description of any factual assumptions made and research conducted, and a list of the documents relied on by the expert in preparing the evidence; and

(e) in the case of evidence that is provided in response to another expert's evidence, a summary of the points of agreement and disagreement with the other expert's evidence.
13A.04 In a proceeding where two or more parties have engaged experts, the Board may require two or more of the experts to:

(a) in advance of the hearing, confer with each other for the purposes of, among others, narrowing issues, identifying the points on which their views differ and are in agreement, and preparing a joint written statement to be admissible as evidence at the hearing; and

(b) at the hearing, appear together as a concurrent expert panel for the purposes of, among others, answering questions from the Board and others as permitted by the Board, and providing comments on the views of another expert on the same panel.

13A.05 The activities referred to in Rule 13A.04 shall be conducted in accordance with such directions as may be given by the Board, including as to:

(a) scope and timing;

(b) the involvement of any expert engaged by the Board;

(c) the costs associated with the conduct of the activities;

(d) the attendance or non-attendance of counsel for the parties, or of other persons, in respect of the activities referred to in paragraph (a) of Rule 13A.04; and

(e) any issues in relation to confidentiality.

13A.06 A party that engages an expert shall ensure that the expert is made aware of, and has agreed to accept, the responsibilities that are or may be imposed on the expert as set out in this Rule 13A.
Power in Motion

2011 LABOUR MARKET INFORMATION (LMI) STUDY FULL REPORT

electricity

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Executive Summary

Canada’s electricity and renewable energy industry will be recruiting over 45,000 new employees between 2011 and 2016. This is almost half of the starting workforce and more than twice the number recruited in the last five years. Recruits will face two major tasks. First, many of them will be filling the ranks behind a wave of specialized and experienced employees who are retiring. Second, all of the new employees will be on the leading edge in integrating the next generation of infrastructure. These tasks require both knowledge of corporate history and new skills that are tied to a very different system of generation, transmission and distribution.

Who are all these new recruits and where will they come from? This report is the 2011 update to the Electricity Sector Council (ESC) 2008 Labour Market Information (LMI) study and the third round of in-depth research addressing these questions. Each successive update has found a higher level of urgency attached to major human resources challenges to renew and rebuild the industry workforce. Findings are gathered into three themes:

- The transition from Legacy to Next Generation Infrastructure
- Labour Requirements for this transition and beyond
- Assessment of future markets using the ESC LMI Model

Legacy to Next Generation

The report studies past trends and creates projections covering the past Legacy and the next generation of infrastructure for the electricity and renewable energy sector. The Legacy goes back to the 1960s when the current infrastructure was started. The next generation of infrastructure began to appear around 2006 when investment began to replace the aging Legacy systems and build renewable energy systems that apply new technologies to meet environmental and regulatory requirements.

The transition from Legacy to Next Generation provides a good roadmap setting out the key features of both the retiring workforce and their replacements. Using 2006 as the turning point provides a detailed profile of the old labour force. At the same time, 2006 marked the start of major policies and plans for the investment projects that will define the next generation of infrastructure. These projects are described in a new Conference Board Study that estimates that the next generation of infrastructure will cost at least $293 billion and construction will last from 2010 to 2030.1

Over the transition much of the existing system will be replaced or upgraded and as much as one-third of the generating capacity will switch to renewable sources – especially wind. The report concludes that the electricity and renewable energy industry in 2011 is in the middle of a major investment boom that starts the transition.

These conditions create the most severe skills shortages and labour market challenges that the industry may have ever faced.

---

1 See “Canada’s Electricity Infrastructure, Building a Case for Investment”, Conference Board of Canada, April 2011
Labour Requirements

Electricity sector employers will need to recruit over 45,000 new workers between 2011 and 2016 which represents over 40% of the current workforce. This massive inflow will be needed to replace retiring workers and needs to be available for building and operating the next generation of infrastructure, which includes renewable energy, refurbished generation, and transmission and distribution systems. Of these new employees, 23,000 will be in the critical occupations covered in this report. A list of key occupations was identified via industry consultation in the earlier LMI reports and includes:

Employment in the Electricity Industry by Occupation, Canada, 2006 and 2010

<table>
<thead>
<tr>
<th>19 Electrical Occupations</th>
<th>Employment</th>
<th>2006</th>
<th>2010</th>
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<tbody>
<tr>
<td>Engineering Managers</td>
<td>545</td>
<td>628</td>
<td></td>
</tr>
<tr>
<td>Utility Managers</td>
<td>3635</td>
<td>4189</td>
<td></td>
</tr>
<tr>
<td>Construction Managers</td>
<td>155</td>
<td>179</td>
<td></td>
</tr>
<tr>
<td>Financial Auditors and Accountants</td>
<td>1330</td>
<td>1411</td>
<td></td>
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<tr>
<td>Civil Engineers</td>
<td>550</td>
<td>634</td>
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<tr>
<td>Mechanical Engineers</td>
<td>2330</td>
<td>2685</td>
<td></td>
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<tr>
<td>Electrical and Electronic Engineers</td>
<td>4225</td>
<td>4869</td>
<td></td>
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<tr>
<td>Information Systems Analysts and Consultants</td>
<td>1750</td>
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<tr>
<td>Civil Engineering Technicians and Technologists</td>
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<td>Mechanical Engineering Technicians and Technologists</td>
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<tr>
<td>Electrical and Electronic Engineering Technicians and Technologists</td>
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<td>4074</td>
<td></td>
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<td>Contractors and Supervisors, Electrical Trades and Telecommunications</td>
<td>1190</td>
<td>1371</td>
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<tr>
<td>Electricians (Except Power Systems and Industrial)</td>
<td>255</td>
<td>294</td>
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</tr>
<tr>
<td>Industrial Electricians</td>
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<td>363</td>
<td></td>
</tr>
<tr>
<td>Electrical Power Line and Cable Workers</td>
<td>8395</td>
<td>5313</td>
<td></td>
</tr>
<tr>
<td>Power Systems Electricians</td>
<td>4610</td>
<td>10548</td>
<td></td>
</tr>
<tr>
<td>Power System and Power Station Operators</td>
<td>6380</td>
<td>6769</td>
<td></td>
</tr>
<tr>
<td>Stationary Engineers and Auxiliary Equipment Operators</td>
<td>760</td>
<td>806</td>
<td></td>
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<tr>
<td>Construction Millwrights and Industrial Mechanics</td>
<td>2050</td>
<td>2362</td>
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<tr>
<td><strong>Total Electrical Occupations</strong></td>
<td><strong>43405</strong></td>
<td><strong>50033</strong></td>
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<tr>
<td><strong>Total Support Occupations</strong></td>
<td><strong>50345</strong></td>
<td><strong>58019</strong></td>
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<tr>
<td><strong>Total All Occupations</strong></td>
<td><strong>93760</strong></td>
<td><strong>108052</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Statistics Canada, Census 2006,CASE, 2011 ESC Employer Survey

Based on past behaviour, employers expect to take as many as 30% of these recruits from the ranks of other employers in the electricity and renewable energy industry. But moving the existing workforce among firms will not meet the labour requirements found here. For the industry as a whole, at least 50% of the new hires must be found in other Canadian industries or among immigrants.

Employers in the electricity and renewable energy industry together face an unprecedented recruiting challenge. Individually they will not be able to succeed by following their past human resources strategies. United action is needed.

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Most of the current workforce was trained and recruited at least twenty years ago. Few young people have been added since the early 1990s. In the meantime, labour markets have changed. To fit the new Canadian reality, the electricity sector workforce will soon need to include a far higher proportion of women, Aboriginals, new Canadians and diversity groups.

The pace of change in the mix of the workforce will accelerate as demographics change and investment projects multiply. Current industry initiatives recruiting youth, diversity groups and immigration will grow larger and more targeted.

Traditional partners in building the electricity and renewables sector workforce, including post-secondary programs, contractors and consultancies, are adapting to help meet the challenge. But their capacity to support employers in the task ahead is restricted. Government funding will be limited. Other industries are competing for the same support. And the electricity and renewable energy industry has expensive, complex and specialized training and education needs. It is not certain that the expansion of these supporting groups will meet the growing needs of the sector employers.

The older age profile of the Legacy workforce and attractive pension benefits will move a very large proportion of the workforce to retirement from 2011 to 2016. While there is a large cohort of 45 to 54 year old workers preparing to take their place, there are many fewer in the 35 to 44 age group. Retirements will create a ripple effect that will soon focus attention on hiring many new workers with five or more years of experience. But other Canadian industries face the same demographics and this group is far more difficult to recruit than new entrants and junior candidates.

If sustained or increased, the traditional industry preference for hiring recent graduates and supporting coop, internship and apprenticeship programs will help fill in these gaps.

Projections from 2011 to 2016 focus attention on attracting immigrants and workers from other industries. These opportunities will open in some labour markets. But more often electricity sector employers will meet other, competing employers who seek skilled, experienced and specialized workers. Like the electricity sector employers, others will be seeking help to find immigrants and investments in post secondary programs. Their HR challenges have much in common. For example, their focus is on the engineers, technicians and technologists, information technology (IT) specialists and skilled trades with five or more years of experience.

Electricity sector employers share common labour requirements that are distinct from those of competing industries. Acting together on initiatives that target these needs will maximize the impact of limited resources.

The industry has unique human resources advantages and distinct strategies to apply.

Electricity sector employers are among the largest and best known employers in many provinces. They are often the employer of choice and can attract new workers through their career opportunities, internal

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2 See Exhibit 2.11. Employment began a steep decline in the early 1990s, shedding workers until 2000. Net new hiring really only resumed early in the millennium.
training initiatives, strong benefit packages and history of employment security. Renewable energy providers have the important advantage of promising fast growth, green jobs and work with rapidly changing technologies.

Managing the retirement losses will shift attention to existing efforts on transferring knowledge from the retiring group to a relatively large cohort of senior workers poised to fill the gap. Strong industry traditions of supporting licensing and certifications have built a path for new graduates and apprentices. These programs fill in the crucial gaps in middle management, and can provide specialized and experienced technical skill needs.

Building new technical skills into the arriving workforce for the next generation of infrastructure will require a combination of new and expanded post secondary programs, along with internal training and certification. Much has already been accomplished in this area. New courses and certifications are appearing and the industry’s relatively strong connection with post secondary programs will help. The biggest challenge will be internal and regulatory barriers related to rising costs. Technology costs were identified by the colleges and universities as the primary barrier. Evidence of the unique and potentially limiting impacts of skill shortages presented in this report may help make a case for new investments.

Findings also highlight how labour requirements, especially for the next generation of occupations and trades involved in construction, will be accessed by contractors and consultancies. Outsourcing shifts the human resource challenges to other employers and allows for flexibility and workforce mobility so available skills are used most efficiently.

These groups face their own challenges related to demographics, skills and tight labour markets. Three companion LMI reports from the Construction Sector Council (CSC), Engineers Canada and the Information and Communications Technology Council (ICTC) provide important insights into these broader and crucial markets. ICTC and Engineers Canada have found much differentiated market conditions for new entrants versus those with over five years of experience. New entrants and recent graduates from post secondary programs often lack the skills required by employers and their job search may lead to work outside their training. Conversely, employers are all searching for candidates with special technical qualifications, and experience or business knowledge related to that particular employer’s industry. Markets for these candidates are very tight. Where electricity sector employers anticipate filling vacancies with these candidates they will face stiff competition.

To meet the challenges set out in the 2011 LMI Study, human resource managers in the industry will need to add, expand, target and refine many programs:

- Develop strategies and programs targeting permanent immigrants, including initiatives that integrate new arrivals into the community
- Target temporary foreign workers in key occupations and moving the best candidates into Provincial Nominee Programs
- Work with Provincial governments, colleges and universities to add new programs and certifications for technicians, technologists and specialized trades for work with new technologies
• Develop a strategy for attracting more women, Aboriginals and diversity groups that take advantage of existing programs offered by individual employers and other groups
• Expand knowledge transfer programs that are preparing candidates for the replacement of skilled retirees
• Work with unions to build the skilled workforce and add specialized and advanced qualifications and certifications
• Work with unions on adding diversity to the workforce and integrating permanent immigrants and temporary foreign workers
• Work with other stakeholders who are participating in initiatives aimed at improving the transition from post secondary training to the workplace. This would include aiming for higher rates of apprenticeship completions, enhanced internship programs for engineers and carefully targeted coop programs for IT grads.

The 2011 LMI Study confirms the findings of the two earlier LMI studies and adds a new degree of urgency to the initiatives that have grown from this research. Changes are accelerating and competitive forces are growing stronger. Further, the 2011 findings suggest new initiatives:

A focus on the requirements of the next generation investments including:

• Tracking construction trades and markets for contractors
• Tracking emerging labour markets for specialized installers, maintenance and related work in solar, wind turbine and geothermal systems

Assessing the competition in other markets including:

• Industries and regions where labour requirements will be rising
• Training and certification programs that compete for resources
• Collaboration with other employer groups with common objectives

Existing electricity sector programs address most of the issues that are raised here. Findings in the 2011 LMI Study highlight a rising urgency as labour market change accelerates. Priority areas are covered in a number of initiatives completed or underway by the Electricity Sector Council (ESC), including the development of National Occupational Standards, the International Trained Workers Project, Labour Market Transition, Succession Planning and Knowledge Transfer research tools, and trades oriented initiatives like the Refresher Training for Powerline Technicians study as part of the Line Trade Development project.

A new ESC Labour Market Tracking System has been prepared to assist the industry as it plans new HR policies and tracks labour markets. Market assessments are provided for both the overall supply / demand gaps across all industries, along with more focused measures for the electricity and renewable industry alone.

For many key occupations the available workforce will not meet the unprecedented labour requirements described in this report. Investment in human resources needs to grow in line with the major new
infrastructure projects. Canada cannot renew its electricity system and shift to renewable sources on the planned scale without comparable additions to the skills of the workforce.

Reliable and low emission electricity networks are essential to a modern economy. Building these networks depends on renewing Canada’s current workforce.
1. Introduction

Stakeholders in Canada’s electricity and renewable energy industry face multiple human resources challenges as they plan for the next five years. Some challenges are familiar (e.g. retirements and competition with other industries), others are new (e.g. hiring and training staff for large, renewable energy projects), the scale increases and the pace of change accelerates. Challenges vary by region, sector and occupation. Consistent, comprehensive and credible analysis is essential to draw practical insights and guide human resource management.

This 2011 Labour Market Study provides new evidence about demographics, major investments and changes in labour markets, training programs, and human resource management practices. Findings are linked to the 2008 “Powering Up the Future” report from the Electricity Sector Council (ESC), and the original 2004 “Keeping the Future Bright” report from the Canadian Electricity Association. New dimensions added to this update include detailed labour supply analysis for key occupations and market assessments that point out potential areas of competition, job opportunities and successful recruiting.

Findings describe overall trends for employers and the workforce (in Section 2) including special results for thirty occupations, conclusions, implications and recommendations for all stakeholders. Section 3 applies a new LMI model to project these trends into the future. Regional results are available in the Appendices to this report.

Results are built up from new employer and post secondary program surveys and over fifty interviews with stakeholders. These consultations have increased the coverage and reliability of the widely consulted and highly regarded earlier studies. The Electricity Sector Council would like to thank the record number of employers, union leaders, trainers and other stakeholders who contributed. This includes the 89 employer organizations that completed a detailed survey and the 47 post-secondary institutions who provided detailed information on key programs. Responses for this 2011 study exceeded the 2008 research and add further depth and credibility to the findings. Insights provided by the industry are the most important source for the report.

Employers and the workforce have begun a major transformation from Legacy Systems to the Next Generation of infrastructure that will expand, replace and refurbish most of Canada’s electricity infrastructure by 2030. The transition began as early as 2006 and gained important momentum in 2010. A new infrastructure is emerging, employing a very different workforce. This report describes the next five years of these changes in over 140 labour markets covering 30 occupations and six regions.

In recognition of the fundamental importance of human resources in the electricity and renewables sector, the Electricity Sector Council has commissioned this comprehensive study to aid in developing a labour market information system that will provide accurate information and viable projections of current and future labour supply and demand in the electricity and renewables sector.
1.a The Electricity Sector Council

The Electricity Sector Council (ESC) was formed in 2005 in response to industry concern about the workforce challenge posed by the high proportion of the existing electricity industry workforce facing retirement by 2010. The Electricity Sector Council is an independent, not-for-profit organization, funded by the Government of Canada’s Sector Council Program. ESC brings together key stakeholders to address human resource issues such as recruiting and retaining workers, facilitating school-to-work transitions, and developing sector and career awareness strategies.

The ESC’s mission is to develop “sector based initiatives which strengthen the ability of stakeholders in the Canadian electricity industry to meet current and future needs for a skilled, safety focused, and internationally competitive workforce”\(^3\). More specifically, the key objectives of ESC are to:

- Conduct and disseminate research on the human resources of the electricity industry in Canada
- Develop and implement strategies, programs, educational initiatives and projects that will assist stakeholders in the Canadian electricity industry to achieve and sustain the skilled and diverse labour force that will meet the industry’s current and future human resource needs
- Promote awareness of current and future career and employment opportunities in the electricity industry
- Form partnerships that will better enable the sector to meet its human resources needs

Further information on the Electricity Sector Council can be accessed by visiting the website www.brightfutures.ca

1.b Purpose and Objectives of the Study

The current study is designed to provide a labour market information system of the current and future labour supply and demand to assist decision makers in industry, government, and education organizations in planning their human resource strategies accurately and effectively. The immediate purpose of the system is to reduce the impact of the upcoming loss of up to 40% of the electricity industry’s existing workforce due to retirements by effective human resource planning. The system is also intended to enable organizations in the electricity sector to have a better understanding of labour supply and demand on an ongoing basis in order to make informed human resource decisions.

To meet these project objectives, the research team adopted a comprehensive approach based on the synthesis of information obtained through a range of activities including an extensive literature review, national surveys, informational interviews and a review of secondary data available from Statistics Canada (including data on college, university and apprenticeship completion/graduation).

\(^3\) Electricity Sector Council. [http://www.brightfutures.ca/](http://www.brightfutures.ca/)

This section focuses on the human resource implications of past trends and the current situation.

### 2.a Employers in Transition

Transition from Legacy Systems to the Next Generation infrastructure has many dimensions that are reshaping the industry. Electricity generation and distribution is a capital intensive process with a large scale, complex, specialized infrastructure and an established workforce. The infrastructure was built over 25 years ago and time and technology have eroded this Legacy. Events are moving more rapidly towards the “Next Generation” of infrastructure. The transition has at least seven aspects that are changing the work environment for employers, post secondary and other training institutions, regulators, suppliers, the workforce and job seekers.

#### Exhibit 2.1

**Legacy to Next Generation**

<table>
<thead>
<tr>
<th>Legacy</th>
<th>Next Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twenty plus years of limited growth</td>
<td>Twenty years of rising investment</td>
</tr>
<tr>
<td>High concentration of capacity and workforce</td>
<td>Distributed generation of renewable capacity</td>
</tr>
<tr>
<td>Established support systems in post secondary programs, regulations</td>
<td>Deregulation, change to specialized, flexible training and certification</td>
</tr>
<tr>
<td>Stable, large scale operations</td>
<td>Large number of smaller new entrants</td>
</tr>
<tr>
<td>Long asset lives</td>
<td>Rapid replacement, high maintenance</td>
</tr>
<tr>
<td>Large employers, and a specialized, qualified, experienced workforce</td>
<td>Exit of experienced workforce; shortage of entrants with midlevel experience</td>
</tr>
<tr>
<td>Dominant, preferred employers in local labour markets</td>
<td>Intensifying competition in labour markets, post secondary programs</td>
</tr>
</tbody>
</table>

Source: 2011 ESC Employer Survey
2.a.i Employers and the Workforce

The transition from Legacy Systems to the Next Generation involves changes for all industry stakeholders. Employers included in the electricity sector system are in the electricity industry (NAICS 2211) and its subsectors, including electricity generation, transmission and distribution.4

This group includes employers building and operating the next generation of infrastructure, the growing renewable energy sector, retailers and their contractors and consultants.

There are just under 700 establishments in Canada in these sectors, varying from large, government owned or regulated utilities to small start-up businesses. Large organizations dominate as the 32 largest employ over 78,000 workers or 78% of the workforce.5 This concentration places electric utilities among the largest employers in Canada.

Deregulation and restructuring of the industry has been breaking down and decentralizing this structure. For example, deregulation has encouraged retail and wholesale providers to enter most markets. New technologies and government programs have brought many suppliers of renewable energy into the industry at several levels. These changes are examples of the forces moving Legacy Systems to the Next Generation.

Previous Electricity Sector Council (ESC) LMI reports divided the industry’s direct employees into two groups: sixteen electricity sector occupations (including managers, engineers, technicians and the skilled trades) and a remaining group of other, support workers. Analysis in the update focuses on an expanded set of electricity sector occupations and their role managing, maintaining and operating the facilities.

Exhibit 2.2 tracks employment in the nineteen occupations in the electricity industry from 2006 to 2010. The 2006 Census estimates are the most reliable starting point. Estimates for 2010 are based on historical growth trends and the Statistics Canada Labour Force Survey and serve as the starting base for this report’s assessment of markets over a forecast period from 2011 to 2016.

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4 The definition of this industry is taken from the North American Industrial Classification (NAICS) 2211 covering Hydro-electric Power Generation, Fossil fuel (e.g. coal, gas, oil), Nuclear, and other including renewable sources like solar, wind and geothermal. Activity includes the work of bulk transmission and distribution systems. Some closely related industries are also studied including Utility Construction, Large Civil Construction and Engineering Consulting.

5 Several sources compile inventories or directories of establishments by industry. The Statistics Canada Business Registry counts 628 establishments (with employees) in NAICS 2211 and 32 employ over 500 people. The Info USA data base counts 852 establishments with just 20 large employers. These 20 large employers have over 78,000 workers.
Exhibit 2.2
Employment in the Electricity Industry by Occupation,
Canada, 2006 and 2010

<table>
<thead>
<tr>
<th>19 Electrical Occupations</th>
<th>Employment</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Managers</td>
<td>545</td>
<td>628</td>
<td></td>
</tr>
<tr>
<td>Utility Managers</td>
<td>3635</td>
<td>4189</td>
<td></td>
</tr>
<tr>
<td>Construction Managers</td>
<td>155</td>
<td>179</td>
<td></td>
</tr>
<tr>
<td>Financial Auditors and Accountants</td>
<td>1330</td>
<td>1411</td>
<td></td>
</tr>
<tr>
<td>Civil Engineers</td>
<td>550</td>
<td>634</td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineers</td>
<td>2330</td>
<td>2685</td>
<td></td>
</tr>
<tr>
<td>Electrical and Electronic Engineers</td>
<td>4225 4869</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Systems Analysts and Consultants</td>
<td>1750 1857</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil Engineering Technicians and Technologists</td>
<td>485 559</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineering Technicians and Technologists</td>
<td>910 1049</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical and Electronic Engineering Technicians and Technologists</td>
<td>3535 4074</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contractors and Supervisors, Electrical Trades and Telecommunications</td>
<td>1190 1371</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricians (Except Power Systems and Industrial)</td>
<td>255 294</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Electricians</td>
<td>315</td>
<td>363</td>
<td></td>
</tr>
<tr>
<td>Electrical Power Line and Cable Workers</td>
<td>8395 5313</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Systems Electricians</td>
<td>4610 10548</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power System and Power Station Operators</td>
<td>6380 6769</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stationary Engineers and Auxiliary Equipment Operators</td>
<td>760 806</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Millwrights and Industrial Mechanics</td>
<td>2050 2362</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Electrical Occupations</strong></td>
<td><strong>43405</strong></td>
<td><strong>50033</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Support Occupations</strong></td>
<td><strong>50345</strong></td>
<td><strong>58019</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total All Occupations</strong></td>
<td><strong>93760</strong></td>
<td><strong>108052</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Statistics Canada, Census 2006, Centre for Spatial Economics, ESC Employer Survey 2011

The nineteen occupations listed in Exhibit 2.2 are expanded later in the report as the survey results identified power system operators and power station operators as separate occupations in the employer survey. This latter approach is closer to general industry practices. At other points in the research the number of occupations is reduced because of data reliability concerns.

Other key industries are building the Next Generation of infrastructure – often on contract with the industry employers. Employers include engineering consulting firms, information technology and other service firms, construction contractors and others. These firms and their workforce are connected to the Legacy System through complex and changing roles. The 2011 LMI Study considers labour market conditions and human resources implications for Next Generation designers and builders and the key occupations they employ.

Working conditions for the nineteen electricity sector occupations are changing as part of the transition from Legacy to Next Generation. Managing the training, certification and recruiting that will implement these changes is one major HR challenge. The design and construction of the Next Generation
infrastructure involves most of the electricity sector occupations and another group of trades and specialists. Labour market conditions and skill requirements are another aspect of the transition. Human Resource issues here impact contractors and consulting firms as well as in-house design, management and construction workforces. Construction trades are the largest groups of distinct occupations not included in the electricity sector occupations, required to build the next generation of infrastructure. A group of Next Generation trades and occupations in construction, as described in Exhibit 2.3, is included in the 2011 Study.

Exhibit 2.3
Employment in the Next Generation, Construction and Design

<table>
<thead>
<tr>
<th>Next Generation/Construction Occupations</th>
<th>2006 Construction</th>
<th>2006 All Industries</th>
<th>2010 Construction</th>
<th>2010 All Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boilermakers</td>
<td>7553</td>
<td>10318</td>
<td>8289</td>
<td>11079</td>
</tr>
<tr>
<td>Carpenters</td>
<td>122090</td>
<td>143995</td>
<td>120860</td>
<td>143613</td>
</tr>
<tr>
<td>Crane operators</td>
<td>4620</td>
<td>13020</td>
<td>5494</td>
<td>14206</td>
</tr>
<tr>
<td>Electricians (including industrial and power system)</td>
<td>60800</td>
<td>99005</td>
<td>64303</td>
<td>102874</td>
</tr>
<tr>
<td>Heavy-duty equipment mechanics</td>
<td>4125</td>
<td>37535</td>
<td>5187</td>
<td>43534</td>
</tr>
<tr>
<td>Heavy equipment operators (except crane)</td>
<td>39985</td>
<td>73405</td>
<td>50262</td>
<td>84342</td>
</tr>
<tr>
<td>Ironworkers and structural metal fabricators &amp; fitters</td>
<td>6710</td>
<td>21925</td>
<td>8147</td>
<td>23955</td>
</tr>
<tr>
<td>Sheet metal workers</td>
<td>20090</td>
<td>29374</td>
<td>21049</td>
<td>29109</td>
</tr>
<tr>
<td>Steamfitters, pipefitters and sprinkler system installers</td>
<td>10305</td>
<td>19925</td>
<td>11416</td>
<td>21118</td>
</tr>
<tr>
<td>Trades helpers and labourers</td>
<td>115150</td>
<td>152130</td>
<td>119220</td>
<td>158896</td>
</tr>
<tr>
<td>Truck drivers</td>
<td>16035</td>
<td>285005</td>
<td>19733</td>
<td>292606</td>
</tr>
<tr>
<td>Welders and related machine operators</td>
<td>8300</td>
<td>96670</td>
<td>10097</td>
<td>102019</td>
</tr>
<tr>
<td>Total</td>
<td>415763</td>
<td>982307</td>
<td>444057</td>
<td>1027351</td>
</tr>
</tbody>
</table>

Source: Construction Sector Council (CSC)

These twelve trades and occupations are selected for their roles in building the Next Generation of electricity infrastructure, either with contractors and consultants or with in-house teams working with the electricity sector employers. Labour requirements for work with renewable energy providers are changing and many new training programs are qualifying specialists in, for example, design and installation of solar and wind systems. These occupations are not captured in standard statistical sources and it is not yet possible to assess these emerging labour markets.

Surveys and interviews with stakeholders and the ESC LMI system focus on the labour market issues, training and HR management practices for each of the 19 electricity sector occupations and the 12 Next Generation / Construction occupations.
2.a.ii Technology and the Environment

Pressure to replace the Legacy infrastructure has been increasing over the past decade with change driven by environmental requirements, advances in technology and the deterioration in the original facilities. Changes impact the major sectors differently.

There are many large scale projects and proposals to add new technologies. Some technologies are uncertain and policy decisions are pending. These uncertainties extend to the needed adjustments to the labour force. What is certain is that there will be significant change. A recent Conference Board study “Canada’s Electricity Infrastructure; Building a Case for Investment” analyses the options and projects a specific scenario for the value, timing and distribution of these investments.

New investments in generation systems are related to replacement demands, environmental concerns and policy. Canada has a relatively low emissions system with large scale historical development in hydro-electric. But Canada is a high emissions jurisdiction in other areas and is bound by international agreements to reduce carbon emissions. Coal generation in Ontario and Alberta has grown to be a significant proportion of supply and plans to replace or upgrade these plants are driven by regulations and the potential of “clean coal” technology. Major investments are also underway to refurbish and upgrade nuclear facilities. Plans for the addition of major base load capabilities with new nuclear technologies are also under consideration. The expansion of the nuclear system is certainly part of the next generation for the industry but major expansion projects are not projected to start, as per the Conference Board Study, until after the five-year planning horizon presented here.

The addition of renewable energy generation systems has accelerated rapidly since the 2008 LMI Study and is poised to expand significantly from 2011 to 2016. These systems include wind, solar, geothermal, bio-fuel and others. This change is partly related to new technologies but is also driven by policy initiatives including the Ontario “Green Economy” strategy and “Feed-in Tariff” program.

An ongoing change in power generation systems has encouraged a shift to smaller scale facilities – including co-generation systems and local, gas-powered generators.

A long list of announced projects anticipates investments in all of these alternatives. The Conference Board Study notes that all the planned capacity and proposed projects are not needed and not all the potential technologies and process are proven reliable. The study applies various criteria and arrives at a projection for the change in the overall mix of generation systems that can be illustrated by Exhibit 2.4 and 2.5. Exhibit 2.4 measures the distribution of the current 118,000 MW of electrical generating capacity in Canada. Legacy investments in large hydro, coal and gas and nuclear dominate.

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6 A summary of these challenges is available in “Facing Challenges Head On”, Electricity 2010, Canadian Electricity Association.
7 See “Canada’s Electricity Infrastructure; Making a Case for Investment” Conference Board of Canada, April 2011
8 For example the Canadian government has committed to reducing Greenhouse gas emissions by 17% below 2005 levels by 2020 as part of the Copenhagen Accord.
Exhibit 2.4
Distribution of Existing Generation Capacity (118,000 MW)

Source: The Conference Board of Canada, 2011

Exhibit 2.5 summarizes the projected change (a new 39,400 MW of capacity) related to new investments from 2010 to 2030. Most of these investments do not add new capacity – much of the investment replaces coal plants or refurbishes existing nuclear systems. But 30% of the new generation capacity is in renewable sources (12,000 MW) and this is mostly dominated by wind.

Exhibit 2.5
Distribution of Expected Investment in Generating Capacity 2010 to 2030 (39,400 MW)

Source: The Conference Board of Canada, 2011
Changes to generation systems, reflected in Exhibit 2.4 and 2.5, are just one part of the technology/regulation shift. These new technologies and changes related to the next generation systems impact investments to repair and refurbish the bulk transmission and distribution systems. Detailed plans for change to the bulk transmission have not been fully disclosed. But it is clear that improvements and expansion of the north-south grid are planned and that these changes will focus on the quality of the overall system.

Complex changes are also emerging in local distribution and customer systems. These are not yet well defined by designers and owners but the shift in generation capacity to smaller scale and micro facilities will impose major changes in distribution and consumption patterns. The Conference Board study comments “The growing focus on distributed generation, small and micro renewable generation downstream of the transmission grid will change the way the grid is operated and will require investments.”

Three complex and unpredictable changes will impact consumption and distribution:

- Accommodating the distribution of power generated by small facilities and maintaining quality
- Investments associated with the development of the “smart grid”
- Changing electricity requirements related to time of use and major demands (e.g. electric vehicles)

The Conference Board profiles for investments at the transmission and distribution level do not account for most of these latter changes as the extent of investments – even in the short term – is not really known. Significant investments are anticipated, however, to pay for needed repairs and expansion to the existing system. Conclusions in the Conference Board report err on the side of understating the extent of the change that is coming and the magnitude of investment needed. Change may come faster and have larger impacts.

2.a.iii Investments and the Next Generation

The transformation of the Legacy system is unfolding through a massive investment program in generating, transmission and distribution systems. Investments, estimated by the Conference Board, will total $293.8 billion between 2010 and 2030 with details included in Exhibit 2.6.

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9 See “Canada’s Electricity Infrastructure; Making a Case for Investment” Conference Board of Canada, April 2011, Page 23
Exhibit 2.6
Electricity Investment Requirements in Canada
2010 to 2030

<table>
<thead>
<tr>
<th>Sector</th>
<th>2010 $ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation</td>
<td>195.7</td>
</tr>
<tr>
<td>Transmission</td>
<td>35.8</td>
</tr>
<tr>
<td>Distribution</td>
<td>62.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>293.8</strong></td>
</tr>
</tbody>
</table>

Source: The Conference Board of Canada, 2011

While there is uncertainty about the extent and distribution of all this activity, the magnitude of the change has been anticipated for some time and work has already begun. The expected investment plans are needed to cover an infrastructure deficit that grew up over more than a decade of weak investment.

Exhibit 2.7 captures the essential story, tracking investments in Canada’s electricity utilities since the 1950s. History captures the investment build up that peaked in the late seventies and late 1980s. Most of the Legacy system was built at that time. For over a decade, starting in the 90s, investment fell and system improvements were delayed. This created a large, accumulated infrastructure deficit and demand for work to renew or upgrade the system.

Exhibit 2.7
Productive Capital Stock: Electric Power Industry
Total Investment (2002 $ Billions)

Source: Statistics Canada, CANSIM Table 031-0002

10 For example the International Energy Agency projected that in 2008, Canadian Utilities would need to invest $150 billion by 2030.
The recent trends captured in Exhibit 2.7 reflect the start of the transition. Investment in electricity infrastructure is on an upward track that will reach annual levels over $15 billion – more than 50% above the levels of the past decades. This investment captures another key dimension of the transition from Legacy to Next Generation.

The extended period of lower investment, from 1991-1992 to 2006, was associated with very limited growth in the demand for electricity and significantly lower employment. Evidence of deterioration of the infrastructure was apparent by 2005 and the process of replacing and refurbishment began in 2006 and 2007.

The Conference Board accounting for the investment of $195.7 billion in generating capacity is dominated by replacement (especially of the coal plants) and refurbishment of nuclear facilities. New capacity includes renewable energy providers (especially wind) and expansion in Alberta to accommodate other energy development there.

Estimates of $35.8 billion for transmission and $62.3 billion for distribution systems reflect mostly repair and upgrades. Few details are available from utilities and private owners on the cost of new technology and upgrades (e.g. smart grid systems) and the study emphasizes that these likely investments are not included. Estimates of $293 billion in investment between 2010 and 2030 exclude these projects and may underestimate coming activity.

2.a.iii Operations

The transition described above suggests that electrical utilities and related businesses operate in a strongly cyclical environment. But these cycles are contained in the ebb and flow of investment. Evidence on the output side shows much more stable growth. Demand for electricity has grown at a steady rate for many years. There are important variations in different markets, but these tend to average out over time, leaving a gradual increase as the rule.

Exhibit 2.8 reports the trends in output, Gross Domestic Product (GDP), for the overall economy and for electrical utilities from 1990. Values are expressed as an index = 100 in 1990 and reflect cumulative growth. GDP in the electrical industry increased slowly through moderate cycles. The total gain is just 11% in over 20 years – far less than the overall economy which grew 62% during the same period. These long term trends show the steady decline in the energy intensity of the economy after the mid 1990s. This shift to energy conservation was the result of many changes.
A second measure of long term trends in electricity demand reveals some moderate volatility within individual markets. Exhibit 2.9 reports national trends in electricity demand in gigawatt hours for the major markets. Measures are converted to an index = 100 in 1990 to capture cumulative growth. Overall demand rises just 16% with some markets leading and lagging.
It is unlikely that shifts in demand across markets impact the general operations of the generation, transmission and distribution system. Employment change, related to operations, has likely been limited and regular. Volatility is concentrated in the investment process.

2.a.iv Consultants and Contractors
The work of operating, maintaining and repairing the facilities as well as building the next generation is divided between the electricity sector employers (establishments in NAICS 2211) themselves and the contractors and consultancies that supply the industry. These two groups together provide the labour needed to build, generate, transmit and distribute electricity. Firms often contract with specialists and call
on outside resources for big projects. Plans to build the next generation signal important new specializations and very big projects. Contracting out work is an important aspect of rising investments in new facilities and technologies. Contracting out work may shift the responsibility for managing key human resources to employers outside the electricity industry. The 2011 ESC LMI employer survey investigated this issue.\textsuperscript{11}

Survey questions asked industry employers to describe their use of consultants and contractors in Information Technology, Facility Maintenance, Engineering and the Skilled Trades. The intensity of contracting out was assessed as “none”, occasionally, routinely or frequently. Exhibit 2.10 reports the results.

**Exhibit 2.10**

**Use of Contractors and Consultants by Electricity and Renewable Energy Providers**

<table>
<thead>
<tr>
<th>Service</th>
<th>Percentage Using Contractors and Consultants</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT/Information and Communications Technology (n=84)</td>
<td>Frequently - depended on for standard and specialized skills &amp; services</td>
</tr>
<tr>
<td>Trades - New Construction (n=84)</td>
<td>Routinely - supplements standard skills &amp; services to meet demand</td>
</tr>
<tr>
<td>Facility Services/Maintenance (n=83)</td>
<td></td>
</tr>
<tr>
<td>Engineering/Design - New construction (n=84)</td>
<td></td>
</tr>
<tr>
<td>Trades - Operations (n=83)</td>
<td></td>
</tr>
<tr>
<td>Engineering/Design - Operations (n=86)</td>
<td></td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011

Results suggest that much of the work is done in-house. Well over half of respondents consistently report that work is never or only occasionally contracted out. This leaves room for a large workforce that is recruited and managed outside the industry’s employers. Over 25% of work is routinely or frequently contracted. Interviews and survey questions asked about trends in this area but no consensus was apparent. It appears that there is a wide variety of approaches and no uniform approach to consultants and contracting.

Unions play an important role in many cases. Over two thirds of the industry workforce is unionized, over twice the national rate. Many of the trades listed among the electricity sector and Next Generation

\textsuperscript{11} The ESC Employer Survey 2011 findings are reported detail in Section 2.b and documented in the Methodology Appendix
occupations might be dispatched from hiring halls to the firms. In these cases the union will work with employers to plan for labour requirements, including apprentices, special training and advanced certifications.

### 2.b The Workforce – Human Resources, Demographics and Competition

From this point forward the report focuses on the workforce at progressively higher levels of detail. Attention shifts to the occupations, human resources management and policy.

#### 2.b.i Trends in the Workforce

This section describes the history and key characteristics of the workforce drawing on secondary sources and findings from the employer and post secondary program surveys. The age profile, training and qualifications, occupation and gender mix are shaped by the cycles in hiring and key institutional drivers noted above. These elements are described here.

*Employment trends and the infrastructure deficit*

Employment is driven by the output trends and investment cycles. Employees hired in the 70s and 80s joined the workforce as the Legacy system was built. Employment reached record levels in the early 1990s and then fell, in line with investment, from the mid-1990s remaining well below past peaks until 2006. Sustained employment losses exceeded 25% well into the last decade and remain, in 2010, below the peak reached in the early 1990s. This two decade long HR gap leaves important footprints in the current workforce profile.

**Exhibit 2.11**

*Employment in Electrical Power Generation, Transmission and Distribution Canada*

![Graph](image)

The year 2006 provides a natural turning point, marking the end of the Legacy period. Reliable measures of the workforce are available from the 2006 Census and this data reveals the impact of the investment/employment cycle from the 90s, 80s and earlier.

For example, the age profile of the electricity workforce reflects the surge of new entrants (age 15 to 24) in the 70s and 80s. Many in this generation remained in the industry and now fill the ranks of the 50+ year age group. Exhibit 2.12 tracks these broad trends for electricity and the overall economy. The prominent peak for the 45 to 54 age group is a defining feature. The lower share for the under 25 group tracks the impact of the employment collapse from 1992-93 to 2006.

![Exhibit 2.12](electricity_industry_age_distribution)

This age profile has important implications for retirement patterns and this report returns to these later.

Two other characteristics can be linked to this employment Legacy. The Census reveals that the electricity workforce has notably higher levels of educational achievement than the general workforce with a concentration of graduates from university, college and apprenticeship programs. These qualifications are further specialized with virtually all of the post secondary education in “Architecture, engineering and related technology” programs. The employment and age profile tells us that a large proportion of this population picked up these skills and training twenty to thirty years ago and few in the workforce completed postsecondary training in the last ten years.
The educational qualifications of the workforce are a reflection of the occupational mix which is weighted to professional and technical occupations in natural and applied sciences. Exhibit 2.14 describes the overall profile and compares it with the overall economy.

The key occupations are engineers, engineering technicians and technologists and trades, representing over half of the workforce.
Exhibit 2.14
Distribution of the Workforce by Occupation

*Includes: Stationary engineers, power station operators and electrical trades and telecommunications occupations

Source: Statistics Canada, 2006 Census

The occupation and education mix identify a high skilled and well paid workforce. Average employment income for the workforce was $78,421 in 2006, 53% above the economy average of $51,221.

Census data highlights three other dimensions of the electricity workforce. First, there are fewer women in the workforce. Electricity employers share this feature with other industries where the workforce is concentrated in the professional and technical occupation in the natural sciences and in the trades.
Exhibit 2.15a
Distribution of the Workforce by Gender
Percentage of Women in the Workforce

*Includes: Stationary engineers, power station operators and electrical trades and telecommunications occupations
Source: Statistics Canada, 2006 Census

Findings in the 2011 ESC Employer Survey suggest that these proportions have increased from the 2006 Census results noted in Exhibit 2.15a. Exhibit 2.15b extracts specific proportions for specific occupations from the Census and 2011 ESC surveys. These findings suggest some progress adding women to the workforce.
While the proportion of women in the industry is rising, it remains well below the average for the Canadian workforce and reflects the general importance of engineers, engineering technicians and technologists as well as skilled trades. Women are traditionally underrepresented in these occupations. Human resource strategies that target recruiting in general could well start with adding to the proportion of women in these key occupations.

An electricity and renewable energy industry initiative targeting women could link to ongoing efforts by engineers and many groups in the skilled trades. There is room for a unique industry program that targets the skilled trades dedicated to electricity generating and distribution (e.g. electrical power line and cable workers) – including the emerging occupations for renewable energy programs. There is also room for a targeted effort to bring women into engineering technician and technologists programs.

Finally the industry has a below average population of immigrants with over 12% of the workforce compared to 21% for all other employers. Further, the history of investment and employment is reflected in the immigrant workforce as over two thirds arrived before 1991 with a second wave of arrivals between 1995 and 2000. In other industries half of Canada’s immigrant workforce has arrived since 1991. These immigration patterns are concentrated in engineering and engineering technicians and technologist occupations.
In summary, in 2006 the electricity workforce had a distinct make up that captures much of the Legacy period. In particular, the industry has a stake in two key sources of supply:

- Canada post secondary training system in natural and applied sciences
- Immigration

2.b.ii Post Secondary Education.

The industry’s Human Resources fortunes are tied to three distinct parts of Canada’s post-secondary education system:

- Undergraduate and graduate programs in engineering
- College programs for engineering technicians and technologists
- Apprenticeship

Skills and training to meet the challenges of the next generation will come, in large measure, from these programs. This section reviews evidence on how trends in these programs will satisfy rising demands and the labour requirements.

Apprenticeship and university engineering programs prepare new entrants for ten of the electricity sector occupations listed in Exhibit 2.2. Exhibits 2.17 to 2.27 report recent trends in enrolments and graduations from these programs.
**Engineering**

Employers are seeking engineers with both the core technical skills that are taught in undergraduate programs and additional business or specialized skills and experience. Trends in graduations from both undergraduate and graduate programs are one leading indicator of future candidates. Total enrolments and subsequent graduations from the program are described here and included in the supply side of the ESC model for electricity sector occupations.

Exhibit 2.17 shows undergraduate enrolments in Canadian accredited engineering programs for the three disciplines in the electricity sector occupations. Programs offered in electrical engineering departments include specializations that might not meet the electrical power industry’s needs. Research identified computer, communications, electronics, electrical and biomedical and other courses. Exhibit 2.17 separates these specialities from general electrical engineers. The latter group seems best suited to the needs of the electrical utility industry.

There is a distinct downward trend in the electrical area and a strong upward trend in civil. Indeed enrolments in civil engineering programs rose above electrical, electronic and communications programs for the first time in 2010. Enrolments and degrees awarded in electrical (only) programs have lagged notably behind other engineering programs since 2006.

![Exhibit 2.17 Enrolments in Undergraduate Engineering Programs in Canada 2000-2010](image)

Source: Engineers Canada

Exhibit 2.18 reports recent trends in graduations from these three disciplines. There is a predictable decline in graduations from the electrical engineering programs beginning in 2006 and continuing to 2010. Enrolments are, of course, a key leading indicator with the trends in Exhibit 2.17 anticipating that graduations will likely stop their decline in the coming years but there is little prospect of significant increases across the 2011-2016 horizon. The opposite conclusion seems to apply to civil engineers where trends will generate increases in undergraduates in the coming years. Electrical engineering is notably
different than the other major disciplines as it has an established downward trend in enrolments and graduations.

Exhibit 2.18
Graduations from Undergraduate Engineering Programs in Canada 2000-2010

These same measures are repeated for graduate programs in Exhibits 2.19 and 2.20 reporting trends in enrolments and graduations from Master’s and Ph.D. programs. It was not possible to divide graduate programs in electrical and related areas to identify graduates dedicated to electrical alone.

Enrolments have risen steadily across the last decade, driving graduations upward in all the disciplines. There are relatively higher enrolments in electrical, electronic and communications programs than in the other disciplines and this is a good indicator of the potential availability of specialized engineers.

A rising proportion of the graduate programs at Canada’s engineering schools are filled with foreign (visa) students. Most of these students will return home after graduation. New government programs do target this group and encourage foreign students to stay in Canada.
Exhibit 2.19
Enrolments in Graduate Engineering Programs in Canada
2000-2010

Source: Engineers Canada

Exhibit 2.20
Trends in graduations, Graduate Programs
2000-2009

Source: Engineers Canada, CEAB programs
Not all engineering graduates are headed for the labour market. Exhibit 2.21 maps the progress of graduates from Canadian engineering programs to the workplace and estimates that 50% of undergraduates completing their degree are likely to find a long term placement in an engineering job or in the labour market. The Exhibit draws from different sources and the calculation may not capture outcomes in all areas. But these findings reflect important limitations in the flow of graduates to the available workforce. An equivalent adjustment to the flow of immigrants is included later.

These circumstances reflect the limited number of jobs available to junior engineers as employers have shifted their hiring to engineers with over five years experience.\textsuperscript{12} Limited job opportunities for junior engineers create a risk of an oversupply of new undergraduates. At the same time employers report shortages of the professional skills that come with experience. These skills include:

- Specific industry skills
- Business practice experience
- Specific technology skills

\textsuperscript{12} More details on these trends are available from the Engineers Canada report “Engineering Labour Market Conditions 2009 – 2018, September 2010” \url{http://www.engineerscanada.ca/etlms/conditions/e/}
Labour market outcomes, shown in the third panel of Exhibit 2.21, are taken from the 2006 Census. Just under half of Canadian engineering graduates were working in engineering occupations or related management occupations. The other half are divided between those applying engineering skills in other industries and those “underemployed” in occupations not requiring engineering qualifications.

Job seekers have adapted to this situation by earning additional formal qualifications including continuing on to graduate schools. A second adaptation by undergraduate engineering graduates has been to seek training as engineering technologists in the College system, acquiring specialized skill and experience that better suit them to the job market.

These labour market outcomes have been reflected in reports by human resource managers of relative ease in recruiting new entrants but on-going challenges finding specialized or experienced engineers.

Reliable and consistent data is not available for graduates from college programs for engineering technicians and technologists. Evidence collected in the 2011 ESC Survey of Post Secondary programs...
suggests that graduations from these programs have been rising, perhaps faster than other programs. These findings are reported in the next section.

**Skilled Trades**

Apprenticeship trends, shown in Exhibit 2.22, indicate large, recent gains in registrations in six electricity sector trades. Significant investments in all apprenticeship programs, in the past decade, are reflected in rising new registrations for most trades and have encouraged the introduction of new trades and related programs. Two large trades, general electricians and industrial electricians, are not common occupations in utilities but are crucial sources for the contractors who serve the industry. These trades also provide prerequisite skills for specialized electrician trades and occupations in the industry. Very large increases in these apprenticeship programs are indicators of the capacity of the trades’ workforce to adapt to the needs of the next generation of electrical infrastructure. Labour market conditions for these trades are reviewed in Section 3.

Apprenticeship programs in most provinces have developed a variety of ways to recognize specializations in the trades. It is important for electricity sector employers and their contractors to expand these programs. Programs include recognizing allied trades where core skills and training are applied in more advanced programs. Power system electricians are one important example, in some provinces, where this trade is recognized as an allied trade to electrician. In some cases advanced technological requirements can be added by combining college technician programs with trades qualifications. In other cases advanced qualifications are available to certified journeypersons.

**Exhibit 2.22**

Registrations and Completions from Apprenticeship Programs in Canada; 2000-2008

<table>
<thead>
<tr>
<th>Skilled Trades</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Millwright and Industrial Mechanic (Millwright)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>8265</td>
<td>8859</td>
<td>9039</td>
<td>9624</td>
<td>9714</td>
<td>10155</td>
<td>11391</td>
<td>11415</td>
<td>12342</td>
</tr>
<tr>
<td>Completions</td>
<td>909</td>
<td>1005</td>
<td>795</td>
<td>993</td>
<td>1032</td>
<td>900</td>
<td>933</td>
<td>1014</td>
<td>1098</td>
</tr>
<tr>
<td>Electrician, Except Industrial and Power System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>22128</td>
<td>24597</td>
<td>26547</td>
<td>28305</td>
<td>30849</td>
<td>33990</td>
<td>37980</td>
<td>42249</td>
<td>46062</td>
</tr>
<tr>
<td>Completions</td>
<td>2139</td>
<td>2322</td>
<td>2274</td>
<td>1998</td>
<td>2805</td>
<td>2946</td>
<td>3249</td>
<td>3672</td>
<td>4020</td>
</tr>
<tr>
<td>Industrial Electrician</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>7320</td>
<td>8355</td>
<td>9435</td>
<td>10377</td>
<td>10785</td>
<td>11349</td>
<td>11790</td>
<td>12351</td>
<td>6333</td>
</tr>
<tr>
<td>Completions</td>
<td>315</td>
<td>510</td>
<td>534</td>
<td>543</td>
<td>444</td>
<td>486</td>
<td>501</td>
<td>546</td>
<td>240</td>
</tr>
<tr>
<td>Power Systems Electrician</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>84</td>
<td>99</td>
<td>123</td>
<td>144</td>
<td>147</td>
<td>186</td>
<td>210</td>
<td>234</td>
<td>279</td>
</tr>
<tr>
<td>Completions</td>
<td>12</td>
<td>9</td>
<td>12</td>
<td>12</td>
<td>9</td>
<td>18</td>
<td>27</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>Electrical Power Line and Cable Workers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>1092</td>
<td>1296</td>
<td>1488</td>
<td>1647</td>
<td>1767</td>
<td>1962</td>
<td>2301</td>
<td>2691</td>
<td>3081</td>
</tr>
<tr>
<td>Completions</td>
<td>93</td>
<td>81</td>
<td>108</td>
<td>123</td>
<td>156</td>
<td>174</td>
<td>171</td>
<td>210</td>
<td>279</td>
</tr>
<tr>
<td>Stationary Engineers and Auxiliary Equipment Operators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>327</td>
<td>357</td>
<td>402</td>
<td>429</td>
<td>396</td>
<td>288</td>
<td>291</td>
<td>285</td>
<td>1032</td>
</tr>
<tr>
<td>Completions</td>
<td>18</td>
<td>9</td>
<td>9</td>
<td>3</td>
<td>15</td>
<td>12</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>39216</td>
<td>43563</td>
<td>47034</td>
<td>50526</td>
<td>53658</td>
<td>57930</td>
<td>63963</td>
<td>69225</td>
<td>69129</td>
</tr>
<tr>
<td>Registrations</td>
<td>3486</td>
<td>3936</td>
<td>3732</td>
<td>3672</td>
<td>4461</td>
<td>4536</td>
<td>4887</td>
<td>5472</td>
<td>5670</td>
</tr>
<tr>
<td>Completions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Statistics Canada, Registered Apprenticeship Information System
There has been growing evidence of a lag in the rate of completions in apprenticeship. These lags have been the object of much study and government incentives. Exhibit 2.23 isolates the situation for the four key electricity sector trades: millwrights, stationary engineers, electrical power line workers and electrical power system electricians. In three of the four cases growth in registrations has exceeded completions, repeating the situation that is reported for many other trades. Power Line Workers are an important exception to the rule here. This is the largest trade in terms of employment in the utilities and has been the focus of considerable attention as employers experience shortages. Labour requirements related to the repair and refurbishment of distribution systems are the driving force. The apprenticeship system is growing to meet these needs.

Delays in completions do not necessarily indicate a failure to add needed new skills to the system, but they will have an important impact on the availability of a certified workforce for the traditional trades. New technology, changing market conditions and career preferences have altered the path that apprentices take. For more on this topic see “Delays Not Withdrawals: A New Perspective on the Path Through Apprenticeship” Bill Empey, Canadian Journal of Apprenticeship, Vol 3, Fall 2010.
follow from registration to certification. There is a growing trend to specializations that meet the needs of employers, but do not include all the features of a traditional apprenticeship. These specializations are one reason for lower completion rates as apprentices chose to end or delay their progress once they have a secure work in the specialization.

This trend is directly relevant to the electricity and renewable energy providers. Specializations are a critical feature both for the trades workforce in the utilities and their contractors, and for the renewable energy providers as they refine the processes of installing and operating solar, wind and geothermal systems. This suggests that lower completions and the associated limited availability of certified journeypersons may reflect their plans as they hire and train electrician apprentices in their needed specializations. Many jobs in the workforce employ highly skilled and specialized electricians whose trade is not recognized or certified in their jurisdiction’s apprenticeship system.

These conditions reflect a process of change that is altering the skills, specializations and certification for electrical trades. These changes are yet another aspect of the transition from the legacy to the Next Generation of electrical infrastructure.

**Supply side survey and interview results**

As part of the 2011 LMI update the Electricity Sector Council initiated a survey of post secondary programs. College and university leaders were asked to describe programs and report on enrolments and graduations. They were also asked to comment on challenges, gaps, and relations with the utility industry, and their plans to increase activity.

Respondents from 47 institutions reported over 130 programs with over 8,000 students related to electrical power systems. The sample is divided into university, college and technical institute. Respondents were asked to list and comment on the programs that were related to the needs of the electrical utility industry.

Respondents assessed the growth in their electricity related programs relative to other programs in their institution. Exhibit 2.24 reports expected increases in all categories and particular strength in the college technician and technologist programs as well as apprenticeship.
Results in Exhibit 2.24 suggest that registrations are growing more rapidly in the college programs for engineering technicians and technologists as well as in the trades and apprenticeship area. These findings are consistent with the trends for registrations captured above in the national data. Expanding registrations in these programs is an important first step in meeting future labour requirements. However, there are barriers to building up these programs and adding to the skilled workforce.

These trends have shifted a bit since the ESC completed a similar survey in 2007. A smaller percentage of the colleges reported faster than average growth in programs while many fewer universities report slower than average growth. Overall expectations of growth have balanced out. Colleges still anticipated relatively stronger gains and enrolments in all the programs that link to the electricity sector occupations should grow slightly faster.

Respondents were asked to identify the major challenges that they face in expending programs and Exhibit 2.25 reports the findings.

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14 See “Powering Up the Future” the 2008 LMI Study from the ESC, Page 74.
Technology and demographics create the big challenges. Technology issues lead the list and this is a reflection of the impact of renewable energy systems and the challenge of new smart grid and other changes. Survey respondents in the colleges mentioned new programs targeting solar and wind training. Plans to move the industry to the next generation infrastructure will likely add to these costs. Challenges posed by insufficient numbers of students are related to the recent history of limited hiring and the small cohort between the age of 15 and 24.

There has been a modest shift in the ranking of challenges since the 2007 survey with technology issues rising and the insufficiency of students declining.

The theme of attracting applicants was extended as the survey asked respondents about initiatives at their institution targeting new diversity groups. Two thirds of the responding institutions have programs often targeting women, aboriginals and foreign students. These programs may be connected to a wide range of existing initiatives offered by unions, occupational groups, industries and government.

Focusing more closely on the needs of the electrical industry, respondents were asked about the most effective initiatives to increase the supply of graduates. Findings, reported in Exhibit 2.26, describe the need for more effective communication and shared experiences among industry, schools and the workforce. These priorities are unchanged from 2007.
Finally, respondents described a better relationship linking the institutions with the electricity industry compared to other industries.
Exhibit 2.27
Post Secondary Training for Electricity Sector Occupations, Relationships between the industry and the institutions

In summary, this section describes an expansion of all three post secondary programs that are adding to the pool of new graduates seeking work in the electricity sector occupations. But these trends do not extend to all areas and there are many challenges to the continuing improvement of the system. In particular, there is evidence that the path from post secondary programs to the workforce is filled with barriers that will limit the available workforce with credentials, needed skills and experience. Electricity sector employers need more specialized and experienced recruits. Transition from Legacy to Next Generation requires continuing changes at each level of the post secondary system. Many changes are underway and more will be needed.

Findings indicate that electricity sector employers could refine the qualifications of the post secondary grads by expanding and deepening their relationships with the institutions. In particular, new initiatives need to focus on providing new technologies and equipment.

2.b.iii  Immigration
The second important external source for the workforce is immigration. Electricity sector employers have a far lower proportion of immigrants in their workforce than other industries and most of these arrived before 1991. This pattern is linked to the investment cycles that built the legacy infrastructure in the 70s and 80s. In particular, the job losses and employment lags from 1993 to 2006 left electricity sector employers out of a major immigration cycle.
Engineers dominate the electricity sector occupations arriving from abroad. Exhibit 2.28 reports the distribution of permanent immigrants and temporary foreign workers in the electricity sector occupations, arriving and seeking work in all industries in 2009. These foreign workers are classified according to their intended occupations. Permanent immigrants, seeking work as engineers, often had difficulty establishing their credentials and finding engineering jobs. Temporary foreign workers, in contrast, arrive with a job and are authorized to work for two years. In recent years the Federal provision for Temporary Foreign Workers (TFWs) has been associated with Provincial Nominee Programs that have offered permanent residence to many TFWs after their two year term has expired. Recruiting workers through this path has become an important human resources strategy for many technical occupations and trades.

Exhibit 2.28
Immigration* by Intended Occupation, Canada, 2009, Electricity Sector Occupations

*Permanent and Temporary Foreign Workers
Source: Citizenship & Immigration Canada, RDM as of Dec 2010

A cycle of immigration from the mid 1990s to the mid 2000s dominated labour markets for engineers and engineering technicians and technologists. At the cyclical peak, in 2000 and 2001, the wave of immigration exceeded labour requirements and this prompted several years of adjustment as international engineering graduates (IEGs) struggled to find jobs, sometimes outside engineering. The wave of immigration also had an impact on job prospects for Canadians and on registrations in post secondary programs.

This cycle was notably more severe for electrical and electronics engineers and engineering technicians and technologists where the cycle raised immigration from 1,670 in 1990 to 7,290 at the peak in 2001. At the peak electrical engineers and technicians and technologists made up one third of the total immigration of electricity sector occupations to Canada. This surge may have discouraged young Canadians and
contributed to the drop in post secondary program enrolment in electrical engineering during the last decade, see Exhibit 2.29.

Exhibit 2.29

Permanent Immigrants and Temporary Foreign Workers in Electricity Sector Occupations
Canada, 1990 to 2010

Source: Citizenship and Immigration Canada

The immigration component of the labour supply for electricity sector occupations relates almost exclusively to engineering-related groups in the past. This pattern is likely to change as the industry recruits to build the next generation of infrastructure and replace retiring workers. National demographic patterns will limit the entry of young Canadians. Competition to attract new entrants is intensifying and shortages of skilled and experienced workers are driving employers across all industries to recruit immigrants.

Evidence presented in this section suggests that the electric utility industry is arriving late to this new labour market reality as their labour requirements remained low for many years. The industry will join others in the search for skilled and experienced workers from other countries as this pattern changes. Other industries may have a lead in the development of human resource practices that take advantage of immigration policy.

Industry and corporate human resource strategies targeting immigrations will be needed in the future.

2.c Occupations

This section drills down to the next level, reviewing conditions in the electricity sector workforce in the light of the trends and cycles described above. The principle source for this, more detailed, analysis is the 2011 ESC Employer Survey.
The 2011 ESC Employer Survey addressed over twenty detailed questions to over eight hundred Human Resource Managers in electric utilities, providers of renewable energy, and the retailers, contractors and consultants who work with these firms. The sample captures a cross section of the very large firms that employ much of the workforce including generation, transmission, distribution and renewable energy providers and contractors and consultants.

The final sample used for this report covers 89 employers with over 75,000 employees or 75% of the industry workforce. More details on the survey methodology and results are available in Appendix A.

Survey questions focused on details for the 19 electricity sector occupations described in Exhibit 2.2. Respondents were asked to provide extensive information on each occupation and in some cases details were not available. Results presented below sometimes draw on small employer samples for specific measures in each occupation. However, these estimates will refer to a large workforce and this enhances their reliability.

In this section the survey results document the current situation and consider implications for human resource management. In Section 3, the results are used to customize labour market assessments for each occupation from 2011 to 2016.

2.c.i The Current Situation

Employer survey results are presented here for 17 electricity sector occupations and other support staff. Findings are reported for retirement, workforce dynamics and recruiting. These areas reflect the impacts of long term trends, short term dynamics and competition with other industries.

Retirement

A wave of retirements from the electricity and renewable energy industry is one component of the Legacy to Next Generation transition. Perhaps the biggest human resources challenge is replacing the workforce retiring now and in the coming years. Employers are firmly caught in the grip of the Baby Boomer experience.

Baby Boomers were born between 1947 and 1965. In 2011 the oldest boomers are in their early 60s and the youngest in their mid 40’s. Large numbers of the boomers were recruited by electricity sector employers in the 70’s and 80’s and began retiring in 2006. This wave of retirements forms one part of the Legacy to Next Generation transition.

Past employment cycles and policies create distinct age profiles that are described in Exhibits 2.30, 2.31 and 2.32. Two age groups stand out from general population patterns: first, the youngest group under 25 and second, the 45 to 54 “young boomer” group. The limited number in the youngest age group is related to

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These seventeen occupations are included in the original nineteen noted in Exhibit 2.2 with power station and systems operators broken into two separate occupations. Four occupations (electrician, industrial electricians, stationary engineers and auxiliary equipment operators and financial auditors and accountants) are excluded from the survey analysis because of limited responses. The category “other skilled trades” was added to capture conditions for the three excluded trades.
the fifteen year employment gap from 1991 to 2006 as jobs were lost and new hiring stopped. Few young people joined the workforce at that time.

The 45 to 54 group, young boomers, reflect hiring in the 70s and 80s. This large group, 38% of the workforce in the sample, is an obvious focus for HR retirement strategy. Much depends on the timing of retirements as the next cohort (old boomers aged 55 to 64, 15% of the sample) move into their retirement years leaving the young boomers in the 45 to 54 group to fill in their jobs. Managing the transition for these two, large groups of boomers is a top priority. Corporate plans to retain and build their skills and transfer knowledge from the oldest boomers help to manage the situation. These challenges have a ripple effect that links to younger groups.

Exhibit 2.30
Age Distribution, Electricity Sector Occupations

<table>
<thead>
<tr>
<th>% of Sample By Age</th>
<th>n</th>
<th>&lt;25</th>
<th>25 to 34</th>
<th>35 to 44</th>
<th>45 to 54</th>
<th>55 to 64</th>
<th>&gt;65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Managers</td>
<td>43</td>
<td>0%</td>
<td>4%</td>
<td>22%</td>
<td>49%</td>
<td>24%</td>
<td>1%</td>
</tr>
<tr>
<td>Utility Managers</td>
<td>38</td>
<td>0%</td>
<td>4%</td>
<td>19%</td>
<td>58%</td>
<td>19%</td>
<td>0%</td>
</tr>
<tr>
<td>Construction Managers</td>
<td>27</td>
<td>0%</td>
<td>4%</td>
<td>18%</td>
<td>48%</td>
<td>29%</td>
<td>1%</td>
</tr>
<tr>
<td>Supervisors of Electricians and Electrical Power Line Workers</td>
<td>50</td>
<td>1%</td>
<td>7%</td>
<td>19%</td>
<td>56%</td>
<td>17%</td>
<td>1%</td>
</tr>
<tr>
<td>Civil Engineers</td>
<td>23</td>
<td>1%</td>
<td>29%</td>
<td>23%</td>
<td>31%</td>
<td>14%</td>
<td>1%</td>
</tr>
<tr>
<td>Mechanical Engineers</td>
<td>19</td>
<td>2%</td>
<td>47%</td>
<td>18%</td>
<td>23%</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>Electrical and Electronic Engineers</td>
<td>37</td>
<td>4%</td>
<td>29%</td>
<td>24%</td>
<td>27%</td>
<td>14%</td>
<td>1%</td>
</tr>
<tr>
<td>Information Systems Analysts and Consultants</td>
<td>33</td>
<td>1%</td>
<td>20%</td>
<td>31%</td>
<td>36%</td>
<td>11%</td>
<td>0%</td>
</tr>
<tr>
<td>Civil Engineering Technicians and Technologists</td>
<td>18</td>
<td>2%</td>
<td>20%</td>
<td>23%</td>
<td>38%</td>
<td>16%</td>
<td>1%</td>
</tr>
<tr>
<td>Mechanical Engineering Technicians and Technologists</td>
<td>16</td>
<td>2%</td>
<td>20%</td>
<td>25%</td>
<td>34%</td>
<td>18%</td>
<td>1%</td>
</tr>
<tr>
<td>Electrical and Electronic Engineering Technicians and Technologists</td>
<td>36</td>
<td>4%</td>
<td>22%</td>
<td>22%</td>
<td>38%</td>
<td>13%</td>
<td>1%</td>
</tr>
<tr>
<td>Electrical Power Line and Cable Workers</td>
<td>50</td>
<td>9%</td>
<td>29%</td>
<td>22%</td>
<td>28%</td>
<td>12%</td>
<td>1%</td>
</tr>
<tr>
<td>Power Systems Electricians</td>
<td>35</td>
<td>3%</td>
<td>20%</td>
<td>24%</td>
<td>37%</td>
<td>15%</td>
<td>1%</td>
</tr>
<tr>
<td>Power System Operators</td>
<td>29</td>
<td>7%</td>
<td>23%</td>
<td>20%</td>
<td>37%</td>
<td>13%</td>
<td>0%</td>
</tr>
<tr>
<td>Power Station Operators</td>
<td>20</td>
<td>4%</td>
<td>23%</td>
<td>26%</td>
<td>36%</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>Millwrights and Industrial Mechanics</td>
<td>21</td>
<td>3%</td>
<td>20%</td>
<td>22%</td>
<td>38%</td>
<td>16%</td>
<td>1%</td>
</tr>
<tr>
<td>All Other Trades</td>
<td>29</td>
<td>4%</td>
<td>16%</td>
<td>18%</td>
<td>43%</td>
<td>19%</td>
<td>1%</td>
</tr>
<tr>
<td>Total ESC Occupations</td>
<td>38</td>
<td>4%</td>
<td>21%</td>
<td>22%</td>
<td>37%</td>
<td>15%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011

Generation X, in the 35 to 44 group, step into the spotlight as they are called on to fill middle management jobs. But Gen-Xers are a relatively small group in comparison to the young boomer group and relative to the distribution of the general workforce. For example, engineers in this group have the crucial five plus years of experience that is so hard to find in most recruiting. Electricity sector employers will likely face relatively severe challenges filling these ranks with outsiders. HR policies that have focused on hiring Generation X as new entrants and supporting apprenticeship, coop programs and engineers-in-training will be rewarded as retirement impacts ripple through the organization.
These problems are, of course, most acute for utility managers and supervisors. But many other occupations, including millwrights and some engineering disciplines are weighted to young boomers and away from Generation X. The exception is the IT occupations where the age profile is younger, reflecting a pattern of more recent hiring.

The challenges related to the age profile have grown more acute in the three years since the last survey. While the proportion of the over 55 group remains the same the young boomers have grown relatively larger and the Gen-Xers smaller.

The report adopts a five year horizon with projections of retirements, market conditions and other HR matters included for the period from 2011 to 2016. Section 3 includes the age profiles and the related HR implications into the assessments and projected labour market conditions.

Exhibit 2.31 provides survey results that highlight the choices and opportunities for the age groups. Survey respondents reported the number of retirements, their average age and their qualifications for pensions. Two findings are critical. First, the average age at retirement across all the occupations groups was consistently 58 years. Second, a high proportion of those who qualify for a full pension take retirement. These numbers have increased as the workforce has aged, since the findings of the 2008 report.

Retirements will run well above the average for other industries creating a distinct human resources challenge.

The major distinction for the electricity sector employers and their workforce is the relatively low average age at retirement, 58, while the average is 61 for the overall labour force. This three year gap separating electricity sector employees and the rest of the economy is very large and will add cumulatively to the retirement losses. Pension provisions will offer full benefits to the large workforce with over 30 years of work experience. All but the youngest boomers will reach age 58 and likely qualify for full pension benefits by 2016. The ESC LMI model, introduced in Section 3, calculates the impacts.

Exhibit 2.31 shows some interesting variations among occupations. For example, electrical engineers and engineering technicians and technologists remain at work longer while managers, supervisors and trades take advantage of pension eligibility.
Exhibit 2.31
Retirement Patterns, Electricity Sector Occupations

<table>
<thead>
<tr>
<th>Occupation</th>
<th># in Sample</th>
<th>Average Age at Retirement</th>
<th># of Retirements - 2010</th>
<th># of Staff Eligible for Pensions</th>
<th>% of Staff Who Retired on Full Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Managers</td>
<td>1033</td>
<td>57.4</td>
<td>50</td>
<td>154</td>
<td>77.3%</td>
</tr>
<tr>
<td>Utilities Managers</td>
<td>2268</td>
<td>58.2</td>
<td>135</td>
<td>408</td>
<td>71.7%</td>
</tr>
<tr>
<td>Construction Managers</td>
<td>298</td>
<td>57.1</td>
<td>13</td>
<td>40</td>
<td>64.2%</td>
</tr>
<tr>
<td>Supervisors of Electricians and Electrical Power Line Workers</td>
<td>1791</td>
<td>57.7</td>
<td>103</td>
<td>326</td>
<td>68.0%</td>
</tr>
<tr>
<td>Civil and Other Engineers</td>
<td>1205</td>
<td>59.4</td>
<td>40</td>
<td>138</td>
<td>79.5%</td>
</tr>
<tr>
<td>Mechanical Engineers</td>
<td>1540</td>
<td>59.3</td>
<td>8</td>
<td>94</td>
<td>75.5%</td>
</tr>
<tr>
<td>Electrical and Electronic Engineers</td>
<td>4019</td>
<td>59.6</td>
<td>97</td>
<td>483</td>
<td>59.3%</td>
</tr>
<tr>
<td>IT Occupations</td>
<td>2227</td>
<td>58.3</td>
<td>70</td>
<td>147</td>
<td>75.4%</td>
</tr>
<tr>
<td>Civil and Other Engineering Technologists and Technicians</td>
<td>1019</td>
<td>58</td>
<td>37</td>
<td>176</td>
<td>79.0%</td>
</tr>
<tr>
<td>Mechanical Engineering Technologists and Technicians</td>
<td>709</td>
<td>55.4</td>
<td>22</td>
<td>120</td>
<td>73.5%</td>
</tr>
<tr>
<td>Electrical and Electronics Engineering Technologists and Technicians</td>
<td>4253</td>
<td>57.3</td>
<td>134</td>
<td>560</td>
<td>59.7%</td>
</tr>
<tr>
<td>Electrical Power Line and Cable Workers</td>
<td>6460</td>
<td>58.2</td>
<td>104</td>
<td>422</td>
<td>58.0%</td>
</tr>
<tr>
<td>Power System Electricians</td>
<td>4010</td>
<td>57.3</td>
<td>132</td>
<td>467</td>
<td>75.5%</td>
</tr>
<tr>
<td>Power System Operators</td>
<td>1610</td>
<td>57.9</td>
<td>63</td>
<td>188</td>
<td>64.0%</td>
</tr>
<tr>
<td>Power Station Operators</td>
<td>2945</td>
<td>58.1</td>
<td>85</td>
<td>299</td>
<td>61.5%</td>
</tr>
<tr>
<td>Millwrights or Industrial Mechanics</td>
<td>2484</td>
<td>58.6</td>
<td>87</td>
<td>215</td>
<td>69.6%</td>
</tr>
<tr>
<td>All Other Trades</td>
<td>6132</td>
<td>60.4</td>
<td>274</td>
<td>777</td>
<td>76.3%</td>
</tr>
<tr>
<td>Total Electricity Sector Occupations*</td>
<td>44003</td>
<td>58.5</td>
<td>1454</td>
<td>5014</td>
<td>68.7%</td>
</tr>
</tbody>
</table>

*Calculated using a weighted average of responses

Source: 2011 ESC Employer Survey

The 2011 update reveals large increases in these measures since the 2007 survey. For example, the proportion of the survey sample workforce eligible for full pension has increased from 8.5% to over 11%.
Survey results shown in Exhibit 2.32 track the proportion of the 2010 workforce retiring as one measure of these impacts. This proportion in 2011 – about 4% – is above estimates for the overall economy which run just below 3% given the general age profile and average age at retirement. The gap in 2011 widens in the future. Respondents report that expected retirements in 2016, within the survey workforce, more than doubles. Comparable calculations for the overall economy workforce rise only moderately from around 3% to approaching 4%.

Survey results include estimates of the expected retirements as a share of the workforce from 2011 to 2016. The equivalent measures, in the 2007 survey, reported that in 2006, 2.4% of the workforce retired and respondents expected that to rise to 6.2% in 2012. This seems to have overstated the problem. The new survey reports that 3.9% of the workforce retired in 2011 – below their 2007 estimate\textsuperscript{16}.

Comparing the 2007 and 2011 survey, then, shows that the proportion of the workforce retiring rose over 60% from 2.4% to 3.9%. The observed rise was below the increase expected by the respondents. Labour market assessments in Section 3 take advantage of these findings, including significant gains in retirements – by correcting for the possibility that respondents are overstating the problem in the current survey.

In short, the retirement dynamics of the electricity sector workforce are notably skewed towards a high and rising number of retirements. Managers and supervisors have both the highest age and retirement profiles. Findings for each occupation are reported at the end of this section and the LMI model and forecast developed in Section 3 provide projections of retirements.

\textsuperscript{16} Similarities in the sample make it likely that these measures are accurate.
Exhibit 2.32
Retirement Projections, Electricity Sector Occupations

<table>
<thead>
<tr>
<th>Occupational Group</th>
<th>n</th>
<th>% of Current Workforce Retiring in 2011</th>
<th>% of Current Workforce Retiring in 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Managers</td>
<td>20</td>
<td>4.9%</td>
<td>8.3%</td>
</tr>
<tr>
<td>Utilities Managers</td>
<td>27</td>
<td>6.3%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Construction Managers</td>
<td>18</td>
<td>7.3%</td>
<td>12.9%</td>
</tr>
<tr>
<td>Supervisors of Electricians and Electrical Power Line Workers</td>
<td>28</td>
<td>7.0%</td>
<td>19.8%</td>
</tr>
<tr>
<td>Civil and Other Engineers</td>
<td>14</td>
<td>3.3%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Mechanical Engineers</td>
<td>13</td>
<td>0.6%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Electrical and Electronic Engineers</td>
<td>20</td>
<td>2.7%</td>
<td>5.8%</td>
</tr>
<tr>
<td>IT Occupations</td>
<td>20</td>
<td>3.4%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Civil and Other Engineering Technologists and Technicians</td>
<td>12</td>
<td>4.1%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Mechanical Engineering Technologists and Technicians</td>
<td>13</td>
<td>3.8%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Electrical and Electronics Engineering Technologists and Technicians</td>
<td>23</td>
<td>3.4%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Electrical Power Line and Cable Workers</td>
<td>33</td>
<td>1.7%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Power System Electricians</td>
<td>21</td>
<td>3.8%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Power System Operators</td>
<td>24</td>
<td>6.4%</td>
<td>25.4%</td>
</tr>
<tr>
<td>Power Station Operators</td>
<td>14</td>
<td>3.2%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Millwrights or Industrial Mechanics</td>
<td>17</td>
<td>3.8%</td>
<td>6.4%</td>
</tr>
<tr>
<td>All Other Trades</td>
<td>18</td>
<td>5.7%</td>
<td>18.8%</td>
</tr>
<tr>
<td>Total Electricity Sector Occupations</td>
<td>335</td>
<td>3.9%</td>
<td>10.0%</td>
</tr>
</tbody>
</table>

Source: 2011 ESC Employer Survey

Workforce Dynamics
Survey respondents were asked to provide details on the turnover of the workforce, covering voluntary separation, unfilled jobs (vacancies) and hiring. Findings are compared to the 2008 LMI Study report and used to guide the labour market assessments in Section 3. There are cyclical, institutional and structural factors driving workforce dynamics in each occupation.

Exhibit 2.33 reports workforce dynamics by major occupational groups. Managers / supervisors have lower voluntary separation rates and fewer unfilled positions reflecting the more stable relationship of this group to employers. Engineers and engineering technicians and technologists have a higher rate of turnover in general, perhaps reflecting competition with other industries for this group of occupations.

Findings for the trades are determined by the role of unions. Union members in the trades are dispatched to work, from hiring halls, on a long or short term basis. Higher separation rates are simply a reflection of this process. At the same time the low proportion of unfilled positions reflects access to the union ranks as the workforce turns over.
Findings for information technology and communications and related workers emerge as a highlight with a very high proportion of unfilled positions. This is related to rapid growth in these occupations and this, in turn, is driven by the role this group plays in the adoption of new technology. There is also an element of competition with other industries here that is covered in more detail later.

These measures, in the 2011 survey, are notably higher than in the 2007 survey. Separation rates were 1.3% in the earlier survey and have risen to 2.7%. Even larger gains are apparent for vacancy rates, up from 3.2% to 5.7%. Hires have risen as well. Rates are up for managers / supervisors and for engineers / engineering technicians and technologists.

These findings are further evidence of a very tight labour market. Rates reported in 2007 were already well above long term values and this captured the very tight market conditions at that time. Current readings are even higher. These findings are consistent with the continuing ramping up of industry employment during the first stage of the transition to next generation infrastructure.

The tightest markets are for information and communication technology occupations and this is consistent with the findings in 2007 and with the important role that these specialists are playing in the adoption of new technology.
Exhibit 2.33
Current Conditions, Changes in the Workforce, Electricity Sector Occupations, Major Groups

<table>
<thead>
<tr>
<th>Occupation</th>
<th># in Sample</th>
<th>Separation Rate (%)</th>
<th>Unfilled Positions (%)</th>
<th>New Hires (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Managers</td>
<td>1033</td>
<td>1.0%</td>
<td>1.7%</td>
<td>4.2%</td>
</tr>
<tr>
<td></td>
<td>n=48</td>
<td>n=30</td>
<td>n=28</td>
<td>n=28</td>
</tr>
<tr>
<td>Utilities Managers</td>
<td>2268</td>
<td>1.1%</td>
<td>3.4%</td>
<td>3.7%</td>
</tr>
<tr>
<td></td>
<td>n=58</td>
<td>n=34</td>
<td>n=30</td>
<td>n=33</td>
</tr>
<tr>
<td>Construction Managers</td>
<td>298</td>
<td>3.1%</td>
<td>5.4%</td>
<td>9.4%</td>
</tr>
<tr>
<td></td>
<td>n=38</td>
<td>n=26</td>
<td>n=22</td>
<td>n=28</td>
</tr>
<tr>
<td>Supervisors of Electricians and Electrical Power Line Workers</td>
<td>1791</td>
<td>1.0%</td>
<td>6.0%</td>
<td>7.4%</td>
</tr>
<tr>
<td></td>
<td>n=64</td>
<td>n=33</td>
<td>n=34</td>
<td>n=34</td>
</tr>
<tr>
<td>Civil and Other Engineers</td>
<td>1205</td>
<td>1.4%</td>
<td>16.3%</td>
<td>17.3%</td>
</tr>
<tr>
<td></td>
<td>n=33</td>
<td>n=23</td>
<td>n=21</td>
<td>n=25</td>
</tr>
<tr>
<td>Mechanical Engineers</td>
<td>1540</td>
<td>2.5%</td>
<td>0.5%</td>
<td>2.0%</td>
</tr>
<tr>
<td></td>
<td>n=33</td>
<td>n=26</td>
<td>n=21</td>
<td>n=21</td>
</tr>
<tr>
<td>Electrical and Electronic Engineers</td>
<td>4019</td>
<td>1.7%</td>
<td>5.0%</td>
<td>10.9%</td>
</tr>
<tr>
<td></td>
<td>n=46</td>
<td>n=33</td>
<td>n=33</td>
<td>n=35</td>
</tr>
<tr>
<td>IT Occupations</td>
<td>2227</td>
<td>1.1%</td>
<td>20.6%</td>
<td>19.6%</td>
</tr>
<tr>
<td></td>
<td>n=45</td>
<td>n=31</td>
<td>n=32</td>
<td>n=33</td>
</tr>
<tr>
<td>Civil and Other Engineering Technologists and Technicians</td>
<td>1019</td>
<td>0.4%</td>
<td>10.2%</td>
<td>9.8%</td>
</tr>
<tr>
<td></td>
<td>n=29</td>
<td>n=21</td>
<td>n=20</td>
<td>n=21</td>
</tr>
<tr>
<td>Mechanical Engineering Technologists and Technicians</td>
<td>709</td>
<td>2.7%</td>
<td>1.4%</td>
<td>2.0%</td>
</tr>
<tr>
<td></td>
<td>n=28</td>
<td>n=21</td>
<td>n=19</td>
<td>n=21</td>
</tr>
<tr>
<td>Electrical and Electronics Engineering Technologists and Technicians</td>
<td>4253</td>
<td>0.5%</td>
<td>11.1%</td>
<td>13.4%</td>
</tr>
<tr>
<td></td>
<td>n=44</td>
<td>n=34</td>
<td>n=30</td>
<td>n=36</td>
</tr>
<tr>
<td>Electrical Power Line and Cable Workers</td>
<td>6460</td>
<td>6.8%</td>
<td>3.2%</td>
<td>7.1%</td>
</tr>
<tr>
<td></td>
<td>n=59</td>
<td>n=43</td>
<td>n=39</td>
<td>n=44</td>
</tr>
<tr>
<td>Power System Electricians</td>
<td>4010</td>
<td>3.3%</td>
<td>3.5%</td>
<td>6.5%</td>
</tr>
<tr>
<td></td>
<td>n=43</td>
<td>n=32</td>
<td>n=27</td>
<td>n=29</td>
</tr>
<tr>
<td>Power System Operators</td>
<td>1610</td>
<td>2.3%</td>
<td>3.0%</td>
<td>3.5%</td>
</tr>
<tr>
<td></td>
<td>n=37</td>
<td>n=22</td>
<td>n=24</td>
<td>n=24</td>
</tr>
<tr>
<td>Power Station Operators</td>
<td>2945</td>
<td>0.8%</td>
<td>4.3%</td>
<td>6.2%</td>
</tr>
<tr>
<td></td>
<td>n=30</td>
<td>n=22</td>
<td>n=22</td>
<td>n=21</td>
</tr>
<tr>
<td>Millwrights or Industrial Mechanics</td>
<td>2484</td>
<td>5.6%</td>
<td>1.2%</td>
<td>2.3%</td>
</tr>
<tr>
<td></td>
<td>n=32</td>
<td>n=23</td>
<td>n=23</td>
<td>n=23</td>
</tr>
<tr>
<td>All Other Trades</td>
<td>6132</td>
<td>2.6%</td>
<td>4.4%</td>
<td>8.5%</td>
</tr>
<tr>
<td></td>
<td>n=40</td>
<td>n=30</td>
<td>n=27</td>
<td>n=27</td>
</tr>
<tr>
<td>Total Electricity Sector Occupations*</td>
<td>44003</td>
<td>2.7%</td>
<td>5.7%</td>
<td>8.2%</td>
</tr>
<tr>
<td></td>
<td>n=707</td>
<td>n=484</td>
<td>n=452</td>
<td>n=483</td>
</tr>
</tbody>
</table>

* Calculated using a weighted average of responses.

Source: 2011 ESC Employer Survey
Results for the trades show some tighter markets but gains since the last survey are less than for the other occupations and, in fact, some markets seem weaker. These findings can be attributed to the role of unions and conditions in other labour markets. Economic conditions in manufacturing and in some construction markets, for example, are weaker than in 2007 and trades with portable skills would be available to fill jobs in the electricity and renewable energy industry. Much depends on the degree of specialization required and the capacity of training systems to adjust. In general, the big labour markets for electricians and millwrights, outside electricity, were recovering from recession, but not as tight as in 2007 at the time of the new survey.

Exhibit 2.34 asks the important question: where are the needed workers found? Findings are very similar to the results of the 2007 survey.

Managers and supervisors are mostly found internally and from other electricity employers. This pattern focuses attention on the large contingent of younger boomers who are already in the ranks and the HR challenge of managing their transition to more senior management as the older boomers retire.

The high proportion of engineers, technicians, technologists and trades hired from the post secondary (or from other industry employers) focuses attention on the issues and challenges that were described in 2.b.ii above. Human Resource practices highlighted here include the relative willingness of electricity sector employers to take on apprentices, co-op students, engineers-in-training and other junior positions. These HR practices would be rewarded as the technical skills of new entrants are specialized to industry needs. Alternatively, poaching from other employers may be dictated by the relatively limited ranks of young, skilled workers. Electricity sector employers hiring from post secondary programs will have a big stake in the certification process for all the technology occupations. These processes are changing as part of the transition from legacy to next generation technologies.

Again the most distinctive findings are for the IT occupations where most hiring is from outside the industry. This implies, among other things, that needed skills are not readily available from internal staff or post secondary grads. This pattern is important as the evidence indicates that IT occupations are a key to the introduction of new technologies.
## Exhibit 2.34
### Current Conditions, Recruiting Sources, Electricity Sector Occupations

<table>
<thead>
<tr>
<th>Occupation</th>
<th>(n)</th>
<th>New Hires (#)</th>
<th>Internal</th>
<th>Recent Post-Secondary Graduates</th>
<th>Recent Immigrants</th>
<th>Electricity Employers</th>
<th>Other Employers</th>
<th>Workers with No Previous Experience</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Managers</td>
<td>28</td>
<td>43</td>
<td>53.6%</td>
<td>4.3%</td>
<td>4.3%</td>
<td>87.1%</td>
<td>4.3%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Utilities Managers</td>
<td>33</td>
<td>83</td>
<td>46.8%</td>
<td>4.7%</td>
<td>0.0%</td>
<td>56.8%</td>
<td>38.5%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Construction Managers</td>
<td>28</td>
<td>28</td>
<td>62.8%</td>
<td>29.8%</td>
<td>0.0%</td>
<td>55.4%</td>
<td>15.1%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Supervisors of Electricians and Electrical Power Line Workers</td>
<td>34</td>
<td>133</td>
<td>76.3%</td>
<td>0.0%</td>
<td>12.2%</td>
<td>87.8%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Civil and Other Engineers</td>
<td>25</td>
<td>208</td>
<td>13.1%</td>
<td>36.8%</td>
<td>11.0%</td>
<td>10.8%</td>
<td>19.4%</td>
<td>14.6%</td>
<td>7.2%</td>
</tr>
<tr>
<td>Mechanical Engineers</td>
<td>21</td>
<td>31</td>
<td>0.0%</td>
<td>44.3%</td>
<td>1.7%</td>
<td>45.7%</td>
<td>8.3%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Electrical and Electronic Engineers</td>
<td>35</td>
<td>437</td>
<td>19.3%</td>
<td>45.6%</td>
<td>10.0%</td>
<td>24.8%</td>
<td>19.7%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>IT Occupations</td>
<td>20</td>
<td>437</td>
<td>13.8%</td>
<td>11.3%</td>
<td>0.0%</td>
<td>4.2%</td>
<td>84.6%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Civil and Other Engineering Technologists and Technicians</td>
<td>22</td>
<td>100</td>
<td>43.5%</td>
<td>25.7%</td>
<td>0.5%</td>
<td>2.1%</td>
<td>20.5%</td>
<td>52.4%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Mechanical Engineering Technologists and Technicians</td>
<td>21</td>
<td>14</td>
<td>20.5%</td>
<td>64.5%</td>
<td>0.6%</td>
<td>2.6%</td>
<td>32.2%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Electrical and Electronics Engineering Technologists and Technicians</td>
<td>36</td>
<td>570</td>
<td>28.6%</td>
<td>52.9%</td>
<td>0.1%</td>
<td>33.2%</td>
<td>4.9%</td>
<td>8.8%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Electrical Power Line and Cable Workers</td>
<td>44</td>
<td>456</td>
<td>16.5%</td>
<td>43.6%</td>
<td>5.0%</td>
<td>38.7%</td>
<td>4.3%</td>
<td>8.5%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Power System Electricians</td>
<td>29</td>
<td>261</td>
<td>20.9%</td>
<td>25.7%</td>
<td>0.4%</td>
<td>43.0%</td>
<td>16.3%</td>
<td>14.7%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Power System Operators</td>
<td>24</td>
<td>57</td>
<td>34.4%</td>
<td>33.4%</td>
<td>0.8%</td>
<td>40.9%</td>
<td>13.9%</td>
<td>11.1%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Power Station Operators</td>
<td>21</td>
<td>184</td>
<td>24.4%</td>
<td>31.3%</td>
<td>1.1%</td>
<td>15.9%</td>
<td>27.1%</td>
<td>24.6%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Millwrights or Industrial Mechanics</td>
<td>23</td>
<td>57</td>
<td>21.0%</td>
<td>2.8%</td>
<td>0.6%</td>
<td>1.3%</td>
<td>85.3%</td>
<td>9.9%</td>
<td>0.0%</td>
</tr>
<tr>
<td>All Other Trades</td>
<td>27</td>
<td>524</td>
<td>14.8%</td>
<td>6.9%</td>
<td>1.1%</td>
<td>40.7%</td>
<td>49.4%</td>
<td>2.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total Electricity Sector Occupations</td>
<td>471</td>
<td>3623</td>
<td>23.4%</td>
<td>29.5%</td>
<td>3.3%</td>
<td>31.1%</td>
<td>28.1%</td>
<td>7.7%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011

Finally, the employer survey asked about the degree of difficulty hiring. Over 40% of responding employers report moderate difficulty and almost 20% report extreme difficulty. Conditions are most severe for filling manager positions and this likely extends to finding experienced or specialized recruits in all occupations.
Most of the measures gathered from the 2011 ESC Employer Survey are consistent with very tight labour markets and almost unprecedented challenges recruiting. Some relief in this situation may be found recruiting outside the industry. The next section considers these conditions with reference to labour market information gathered for the electricity sector occupations and the next generation occupations by other sources.

2.c.ii Competition with Other Employers
Findings to this point in the report have focused on the circumstances in the electricity and renewable energy industry. This section of the report turns to conditions in broader labour markets and in other industries employing the electricity sector occupations. Most of the workforce in the electricity sector-type occupations in Canada is employed outside the electricity and renewable energy industry. The exception here is the specialized trades dedicated to the industry: power system electricians, power line technicians, power station and system operators and stationary engineers. For the other occupations, to the extent that skills are portable into and out of these jobs, conditions in other markets will play a major role in recruiting conditions.

Exhibit 2.34 reports that a significant percentage of hiring was from outside the industry. Understandably recruiters are looking in other industries and markets for IT workers and trades not specialized to the industry. Much depends on the employers’ needs for specialties and work experience in electricity and
renewable energy and the available workforce. Labour market conditions in other industries are also important for “next generation” occupations working for contractors and consulting firms also outside the industry.

This section introduces three LMI sources that describe these broader labour markets. Labour market information, similar to this report, is available from the Construction Sector Council, the Information and Communication Technology Council, and Engineers Canada. Reports from these councils add important details to the trends noted in this section.

**Engineers and Engineering Technicians and Technologists**

The Engineering and Technology Labour Market Study, completed by Engineers Canada in 2008, offers a base for tracking labour market trends for engineers across all industries. This study was a major review of engineering and engineering technician and technologists human resources and skills development. The study included reports on:

- Employer issues and projections of labour requirements
- Available workforce, demographics, career paths and postsecondary education programs
- Attitudes and policies towards licensure, certification, continuing competence and work task boundaries
- Diversity in the workforce
- Globalization and engineering consulting

Findings have been consolidated in an Engineering Labour Market Tracking System that monitors conditions across all these areas. Engineers Canada is preparing regular updates of this system. Some of the key findings from this work have been summarized above and a more general account, covering the national workforce is presented here and in Section 3.

The tracking system draws together trends in employment growth and labour requirements, including retirement, and these are compared with supply side estimates of the available workforce from post secondary education programs, immigration and demographic patterns. The labour market gaps that separate demand and supply are mapped out for each discipline and region.

Statistical trends, described above, on the supply side point to a wave of immigration over the last decade and a general flat or modest upward trend in post secondary graduations. Labour requirements have been dominated by estimates of retirements while new jobs related to output growth have been limited. While there are important exceptions in resource markets, the evidence suggests that engineering labour markets had moved from a condition of over-supply through much of the 2000s to more balanced conditions by 2008. The recession in 2008 and 2009 created temporary market weakness but recovery was underway in most engineering labour markets in 2010. In 2011 engineering labour markets generally show a balance of labour requirements with the available workforce.

Discussion with human resources managers to validate these findings added another important dimension. The analysis of labour market statistics misses a key distinction between the market for new entrants and for experienced and specialized engineers. Recruiters attach a high degree of importance to specialized
skills and work experience in hiring. Indeed, experience is so important that the measurement of supply and demand needs to be broken into experience categories.

Seen from this perspective many markets are characterized by a surplus of recent graduates and a shortage of specialized engineers with over five years experience. The shortage of experienced engineers is associated with both the arrival of engineers as Temporary Foreign Workers and the off-shoring of Canadian work.

New graduates are not a substitute for experienced engineers and increasing enrolment in post secondary programs will not meet employer needs in this situation. Rather, undergraduate programs are becoming a starting point. As graduates move into specific industries they evolve into aerospace, systems, transportation, structural, industrial and other specialized engineers. In some cases information on academic programs and credentials offer some measures of the supply. More often measures of the workforce for broad disciplines like mechanical, electrical, civil and chemical engineers conceal crucial groups of specialized and experienced engineers.

The growth of the engineering consulting sector, where 43% of engineers work, reflects this specialization and promotes the mobility of the workforce. Off-shoring and the general growth in international consulting is another response to these market conditions.

Results in Exhibit 2.35 indicate that many electricity sector employers have adopted a Human Resources strategy that takes advantage of these labour market conditions. Respondents report recruiting 35% to 45% of their engineers from post secondary programs. Labour markets conditions reported here suggest that they should have access to many strong candidates. Other respondents, recruiting from within the industry or from other industries, would likely face the much more difficult market for experienced engineers.

HR plans that emphasize the employment and subsequent in-house development of junior engineers may also explain the relatively low proportion of survey respondents who report extreme difficulty recruiting engineers.

Construction
The Construction Sector Council (CSC), produces an annual “Construction Looking Forward” review of labour markets for 33 occupations in Canadian provinces and regions. This analysis starts with estimates of labour requirements in residential, industrial, institutional, commercial and engineering construction. Provincial construction Labour Market Information committees review the history and eight year projections, adding their input on major projects, market conditions, training programs and other factors.

The system has been adopted by many industry groups and used for analysis of specific situations including the investment plans for the next generation of electricity and renewable infrastructure. Stakeholders have refined and updated lists of major projects that include major generation, transmission and distribution systems and large scale solar and wind installations. Comparable analysis of competing infrastructure,

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37 According to 2006 Census figures, the share of electrical, mechanical and civil engineers working in Professional, Scientific and Technical Services (NAICS 541) is 43%.
industrial and resource projects are also available and serve as a basis for identifying competition for needed skills. Annual reviews of these projects allows some assessment of schedules and the ramping up or laying off of large numbers of skilled trades. The result is a national mapping of the project cycles that will draw skilled workers to and from major projects. Shortages and recruiting opportunities are revealed, creating an opportunity for industry planning.

This capability has recently been extended to maintenance work on major resource and industrial projects.

Analysis of the labour requirements by trade and occupation reveals the key groups required across all the big engineering and industrial jobs – including electrical and renewable energy. A short list of key trades has emerged over the years and attention in the “Construction Looking Forward” analysis focuses on their availability.

The CSC system reports labour requirements for the key trades and occupations in electrical utility work. This group was identified in Exhibit 2.36 as the next generation occupations who are involved in building infrastructure.

### Exhibit 2.36
Next Generation Occupations Involved in Building Infrastructure

<table>
<thead>
<tr>
<th>Boilermakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpenters</td>
</tr>
<tr>
<td>Crane operators</td>
</tr>
<tr>
<td>Electricians (including industrial and power system)</td>
</tr>
<tr>
<td>Heavy-duty equipment mechanics</td>
</tr>
<tr>
<td>Heavy equipment operators (except crane)</td>
</tr>
<tr>
<td>Ironworkers and structural metal fabricators &amp; fitters</td>
</tr>
<tr>
<td>Sheet metal workers</td>
</tr>
<tr>
<td>Steamfitters, pipelayers and sprinkler system installers</td>
</tr>
<tr>
<td>Trades helpers and labourers</td>
</tr>
<tr>
<td>Truck drivers</td>
</tr>
<tr>
<td>Welders and related machine operators</td>
</tr>
</tbody>
</table>

Source: Construction Sector Council (CSC)

CSC analysis of the trades most in demand for the major non-residential projects includes all of the “next generation” electricity sector occupations as well as construction managers. Labour market conditions for all of these occupations have been notably tight across the last decade. Industry stakeholders and government policy makers have invested in many initiatives to attract, train and certify more workers in these areas. Apprenticeship registrations have often more than doubled. Special immigration provisions, including the Temporary Foreign Worker Program have addressed shortages here.

The broader labour market perspective offered by the CSC system suggest that electricity utility projects building the next generation will collide, in some markets, with other major resource and infrastructure projects in competition for these occupations.
Findings in the ESC surveys and interviews suggest that some industry HR departments have a greater stake in these developments than others. In some cases most of the design and construction work is contracted out, leaving in-house HR departments to manage engineering and project managers. Other electricity sector employers have in-house construction workforce or add this capability for big projects. In either case the many organizations planning and executing major construction projects face a clear HR risk related to project schedules and labour costs in the near future.

Evidence included in the current “Construction Looking Forward” reports indicate tightening labour markets for some of the next generation occupations in 2010 and 2011. Much depends on construction cycles and the timing of major projects.

Impact from the recession in 2008 and 2009 were cushioned by government infrastructure stimulus. In some provinces this spending combined with other factors to sustain construction employment through the recession. In other provinces delays and cancellations in private projects displaced workers and raised unemployment for these key trades. By 2010 and 2011 recovery was well underway and markets are tightening. This is particularly true in Saskatchewan and Newfoundland and Labrador where major projects – including electrical utility work – are underway.

Initiatives targeting the supply side combined with the temporary impact of the recession leave more balanced markets for the next generation occupations in other provinces.

Section 3 reports on future trends.

**Information and Communication Technology (ICT)**

A new LMI report from the Information and Communication Technology Council (ICTC), updates earlier findings and describes the broader labour market for electricity sector recruiters. The ICTC LMI system identifies ten occupations ranging from database analysts and administrators to computer engineers. *Information Systems Analysis and Consulting* is by far the largest occupation. This occupation was selected by employers as the key for ICT needs in their industry.

The electricity sector needs ICT specialists that will design and implement the next generation systems. Skills include core technical IT systems as well as knowledge of the new electricity systems. The labour market for candidates to fill these jobs will be very different for entry level / recent graduates and experienced or specialized candidates.

The ICTC report describes a growing gap between the needs of employers and the qualifications of recent graduates and internationally educated professionals (IEPs):

“Over the course of the last decade employers became increasingly dissatisfied with ICT professionals who had suitable technical skills but who lacked soft skills or relevant business experience. As a result a new capabilities profile emerged that combines technical skills with communication, team work and context skills. Employers want new employees to be ready to work on practical problems in their industry and to cooperate with experienced team members.”
This capabilities profile included technical skills, soft skills, i.e. team working ability, communications skills, and context skills, i.e. an understanding of the business needs and processes to which ICT is applied. By the end of the last decade (if not earlier) this broader capabilities profile had become the new norm for employers seeking to fill ICT jobs. As more employers adopted the broader capabilities profile for ICT jobs their difficulty in recruiting candidates who met these expanded requirements increased. At the same time meeting the requirements of the broader capabilities profile also posed increasing problems for recent graduates and IEPs, as well as for laid off ICT professionals seeking employment.

Occupations that require only ICT skills are growing slowly while occupations that require a combination of ICT skills and other domain skills are growing rapidly.

This finding with regard to the labour market for ICT occupations and labour markets explains why Information Analysts and Consultants are among the largest and most sought after. Further, the characterization of the markets almost certainly applies to electricity sector employers who face ICT challenges as they integrate next generation infrastructure built on complex information systems that will integrate the operation of the generation, transmission and distribution systems for both the legacy and renewable energy systems.

IT professionals best suited to the needs of the electricity sector employers will certainly require all the non-technical skills included in the ICTC analysis. Recruiters already share in the challenges described above and will join the labour market competition anticipated for these jobs in the coming five years.

One measure of the position of recruiters in these IT labour markets is apparent in Exhibit 2.34 where survey respondents reported that they found just 11% of their external hires from post secondary programs while 85% are hired from outside the industry. These proportions are on the upper and lower boundaries across the other occupations and this suggests that their hiring needs may coincide with other recruiters outside the electricity and renewable energy industry.

Section 3 describes labour markets for the engineers, construction trades and IT workforce the next five years.

2.c.iii Implications for HR Management

Findings in Section 2 cover past trends in labour markets and human resources for the electricity and renewable energy industry. These trends are divided into two broad periods and they describe the transition from the Legacy to Next Generation of infrastructure. This transition began in 2006, as the Next Generation started, and has gained momentum during 2010 and 2011. HR impacts and implications are apparent in four areas:

- Retirement
- Technology
- Certification
- Competition with other Industries
Retirement
The industry faces a high and rising number of retirements. In fact, this trend is likely among the highest for any Canadian industry. Very high retirement losses are driven by the history of major investment and hiring during the 70s and 80s as the legacy infrastructure was built. This workforce has been stable and employed by large employers with established pension and benefit plans. These plans and the associated age profile of the workforce create strong incentives for a large number of employees to retire. By 2006, baby boomers hired in the 70s and 80s began accumulating over 30 years experience and a steadily rising numbers are becoming eligible for full pensions.

The rising number of retiring boomers creates a ripple effect as replacements are hired to fill in the ranks. Most replacements are hired internally. The immediate HR implication is that plans are needed to transfer the knowledge and experience of the retiring workers to the ranks of the younger boomers aged 45 to 54. Anticipating the pace of retirements and identifying and preparing replacements is the first and possibly largest HR impact.

This process is well underway and programs and systems are available. The workforce legacy leaves a relatively large cohort of young boomers (age 45 to 54) who have worked in the industry and are available to replace the retiring workers. But their promotions reveal a second round of change with unique challenges.

Age profiles for the industry reveal that there is a much smaller cohort of Generation X workers, age 35 to 44, who must now fill in for the younger boomers. The skills required and the challenges for this group will be determined entirely by the next generation of infrastructure. This is the emerging and newest challenge.

Technology
The next generation of infrastructure will bring with it new market conditions and new technologies. These include integrating and operating the new, untested and large scale renewable energy systems. Managing the growing complexity of multiple and widely distributed generation and consumption sites requires new IT systems and infrastructure that connects users and producers. While a new group of IT specialists are the leading edge of these changes, most occupations in the current workforce mix will see their work environment change and will need to learn more about the IT systems that will drive it.

New, post secondary training and related certification programs are emerging for these next generation occupations. These graduates will take on a growing role in the workforce. This group does not always fit into the traditional categories of professional, technical and trade employees. Further, the new skilled Workforce will be distributed across a larger number of smaller and more specialized employers. Many will work with contractors and consultants – perhaps not in Canada. Planning the next generation of training and certification programs to meet the needs of the workforce and the next generation infrastructure is the second challenge.

Certification and Licensure
Traditions in the electricity sector workforce have valued the certification and licensing of trades and occupations. Employers have been active in professional organizations and on advisory committees for the
skilled trades. Survey results report continuing support through the role of apprentices, engineers in training and coop programs.

The popularity of these practices is a practical matter for HR management. Formal qualifications are a critical tool in assessing candidates. Once started, these practices become a part of the culture and build long term commitments to mentoring and pride in technical expertise.

But traditional certification and licensure is changing as new competitive conditions and technologies undermine the business case. Pressures are increasing for apprentices, interns and other new entrants to abandon or delay their path to a formal qualification. New certifications like the North American Board of Certified Energy Practitioners (NABCEP) system in the United States represent the leading edge of the change. The NABCEP program and many others are introducing a series of new occupations like small wind installer, PV installer and solar thermal installer.

These occupations have potential links to traditional trades and training programs that are offered in Canada. There are many examples of training programs and certification offered by the traditional partners of the electricity sector employers. A new certification program for construction electricians installing Solar Photovoltaic Systems has been launched by CSA Standards, the National Electrical Trade Council (NETCO) and the International Brotherhood of Electrical Workers (IBEW). Similarly, universities and colleges in all provinces are introducing courses and programs for engineers and engineering technicians and technologists in new energy technologies. Tracking labour markets and mapping HR plans for these new occupations is an emerging priority.

Employers have a major investment in these institutions. While change is essential, there are many options available and many decisions have not yet been made.

In particular, the electricity industry as a whole has an important voice in changes to the skilled trades, engineering and technicians / technologists certifications.

*Competition with other industries*

Analysis in this report points to very tight labour markets where employers have difficulty filling openings and candidates have difficulty qualifying for jobs.

The electricity and renewable energy industry is not alone facing these challenges. Most other Canadian industries have very similar conditions and will be competing with electricity sector employers to attract needed resources. The most immediate competition is for the skilled and experienced technical workforce. At one level HR policy is about devising recruiting strategies that find the needed hires as soon as possible and at the lowest cost. Results in Exhibit 2.34 suggest that recruiters often reach out to other industries. At the same time survey respondents report that they must compete with other local employers to retain skilled technical staff.

Electricity sector employers compete with other industries in other ways. Many industries and occupations have launched broader strategies to meet their labour requirements. These programs cover a wide range of supply side options in labour markets. Initiatives target new entrants from high school and post
secondary programs. Access to resources that add new curriculum, attract the best students and develop new certifications are one key. Immigration strategies are also working in other industries for technical occupations and focus on both permanent immigrants and tracking Temporary Foreign Workers into Provincial Nominee Programs.

Advantages in this competition depend on many factors including investment cycles, government policies, regulations, incentives and technologies. HR policy for electricity sector employers may be linked to regulatory requirements that impact competitive strength. While traditional electricity sector employers may have an advantage through their established relationships with post secondary programs, professional licensing and trades certification, these advantages may be seen as high cost strategies by regulators.

Competition with other employers and industries is the third major challenge. Any competitive advantage or weakness in the current environment is temporary. Circumstances will change rapidly with economic cycles, political changes and technological advances. Conditions for Next Generation labour markets will be far less certain than during the Legacy period.
3. Assessing Future Labour Markets and Human Resources Management

This section of the report provides a national overview of labour market conditions for the nineteen electricity sector occupations and describes the key demand and supply side measures across a forecast horizon from 2011 to 2016. Market assessments are summarized with a ranking system. Similar measures and labour market assessments are described for the broader markets where electrical and next generation occupations work in other industries.

3.a Labour Market Assessments

The overview begins with a summary of the national economic and demographic themes that drive the labour market assessments over a forecast horizon from 2011 to 2016. The outlook for each of the nineteen occupations at the regional level can be found in the Regional Reports in the Appendices.

Labour market assessments estimate the changing balance of labour requirements and the available workforce in each year. A smaller gap between supply and demand signals difficulties recruiting and improved opportunities for job seekers with the needed qualifications. Descriptions of the most important factors impacting the market are offered here with a complete accounting available in the appendix on methodology. Findings in this section of the report are taken from a new ESC LMI model that links historical trends for forecasts and combines labour market measures in a ranking of relative market conditions. These labour market assessments are directly linked to the employer survey, the survey of postsecondary programs and the equivalent findings in the 2008 report.

3.a.i Labour Requirements

Measures of labour requirements are divided into expansion demand and replacement demand. The former refers to the change in employment as activity grows or contracts each year in response to economic conditions. The latter refers to recruiting needed to replace the permanent loss of members of the workforce to retirement or death.

Expansion Demand: Approaching the Peak

Industry employment estimates for each occupation, in each region, are projected forward to 2016 using a weighted average of the annual rate of change in output (measured by Gross Domestic Product (GDP)) and investment in electricity and renewable energy industry.\(^{18}\)

Driven mostly by investment, industry employment in 2010 and 2011 is rising in the early stages of the transition from the Legacy to the Next Generation infrastructure. By our accounting the transition to the Next Generation began in 2006, was delayed in 2009, and has resumed vigorously in 2010 and 2011.

Figure 3.1 shows an index (2006=100) of past and forecast growth in utilities sector investment, GDP and employment. Significant investments in renewable generation and major refurbishments of existing nuclear and hydro generation facilities have contributed to a 63 percent increase in utilities investment between 2006 and 2011. Investment is expected to rise an additional 13 percent over the next five years maintaining pressure in the majority of labour markets.

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\(^{18}\) Projections are based on the January 2011 Provincial Forecast prepared by the Center for Spatial Economics.
The path of employment growth across the 2011 to 2016 period depends on the timing of large investment projects. Projections used here draw on various industry and government lists and announcements of projects and estimates of new utility investment. The timing of the projects is critical to the employment path and this is very hard to predict. However, as the Conference Board report in Section 2 noted, the full transition to the next generation will involve $293 billion in investment spread over the period from 2010 to 2030. This scenario is just covering the early phase. The current rise in investment will gradually slow down, reaching a high plateau of activity from 2012 to 2016.

Significant growth in investment in the earliest stage, from 2010 to 2012, will raise labour requirements at the fastest pace, placing the most severe burden on labour markets. As these requirements rise to a plateau in 2013 and beyond the pace of new job creation will ease and the expansion component of labour requirements will settle at a more manageable pace. At this stage in the transition employment will have reached record high levels and is expected to grow slowly higher as the next generation investment continues past 2016.

Exhibit 3.1
Projections for Expansion Demand -- Canada

Employment is expected to rise at an annual average rate of 2 percent, a cumulative increase of 10 percent over the 2011–2016 scenario. Growth is concentrated in the near term with the continuing ramping up of the first stage of the transition to next generation infrastructure. The rate of employment growth reflects rising levels of productivity associated with new infrastructure and a modest rise in electricity output (measured by utilities GDP). Notable higher than average growth is expected for IT related occupations reflecting the growing role that these specialists are playing in the adoption of new technology. Employment growth by occupations is summarized in Exhibit 3.2.
Note that expansion demand related to the trend growth in electricity generation and distribution is quite limited. This is consistent with the slow growth in electricity demand across the last decade that was described in Exhibit 2.9 as well as current energy forecasts. For example, the National Energy Board forecasts for growth in electricity generation from 2010 to 2016 average just over 1.0% each year with total growth at 7.8% in a low price case and 6.9% in a high price case.\(^\text{19}\)

Most of the growth in overall employment is related to the role of the electricity employer workforce in the investment projects. Much of the investment activity reported in the scenario would be assigned to contractors and consultants and their role and the associated labour market impacts would be captured in the conditions outside construction. Survey responses suggest that there is a wide variation on the pattern of in-house and contracted out work. Projections used here assume that most of the employment attributed to the investment activity falls outside the industry. To the extent that more activity is kept in house, the expansion demand reported here may be understated.

\(^{19}\) See National Energy Board 2009 Reference Case Scenario, Canadian Energy Demand and Supply to 2020, an energy market assessment, July 2009.
Replacement Demand

The second demand side component is replacement demand, calculated as the sum of deaths and retirements. The former is estimated for each occupation across all industries using the C4SE analysis. Estimates of retirements are based on the findings of the ESC Employer Survey, in Exhibit 2.31, reporting the proportion of the workers in each occupation expected to retire between 2010 and 2016.

The analysis anticipates that the proportion of workers retiring from the labour force will grow from 3.9% in 2011 to over 7% by 2016. Exhibit 3.3 illustrates the expected rise in the ratio of retirements to the electricity sector labour force from 2009 to 2016. Limited expansion demand is added to a significant increase in the proportion of workers retiring and these forces together will contribute to tighter labour market, especially for occupations with older age demographics. Replacement demand will represent 73% of labour requirements over the next five years.
Exhibit 3.3
Retirement projections for Electricity Sector Labour Force

Figure 3.4 illustrates the total annual change in labour requirements by expansion, retirements and deaths. Total labour requirements continue to rise from 2013 to 2016 even as the increase related to expansion slows down.

Source: Centre for Spatial Economics, Prism Economics and Analysis, Census 2006
Exhibit 3.4
Total Recruitment Requirements: Electricity Sector Occupations 2012-2016

Exhibit 3.5 provides a summary of total labour requirements between 2011 and 2016. Despite modest expansion related growth, total employment requirements for electricity sector occupations over the next five years represent close to half (44%) the current electricity workforce.

Of the estimated 23,460 workers in the electricity sector occupations required between 2011 and 2016, 77 percent are attributed to exits related to deaths and retirements and about a fifth to a quarter (23%) to meet the expected expansion requirements.

Exhibit 3.5
Total Labour Requirements 2012 – 2016

<table>
<thead>
<tr>
<th>Demand Type</th>
<th>Total Requirement 2012 - 2016</th>
<th>Percent of Current Labour Force</th>
<th>Share of Total Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expansion Demand</td>
<td>5,408</td>
<td>10%</td>
<td>23%</td>
</tr>
<tr>
<td>Retirements</td>
<td>17,139</td>
<td>32%</td>
<td>73%</td>
</tr>
<tr>
<td>Deaths</td>
<td>913</td>
<td>2%</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>23,460</strong></td>
<td><strong>44%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: Centre for Spatial Economics, Prism Economics and Analysis, Census 2006.
Requirement calculations cover the 5 year period; 2012 to 2016

These labour requirements are very high by historical standards and are front end loaded as gains fall heavily in 2011 and 2012.
3.b Supply Side Measures

The ability of industry to meet these labour requirements will depend on the availability of new entrants and more senior, experienced candidates. Recruits will be drawn from a variety of sources including new entrants with no experience, post secondary program graduates and candidates from other industries. Employers have been relying on these sources as well as recruiting within the industry and from other markets. Much depends on their ability to compete with other industries and the capacity of the local workforce and training programs.

One measure of labour supply is drawn from the industry’s capacity to attract new entrants from the population. This group is estimated as a proportion of population age 15 to 30 entering the workforce for the first time and finding work in the electricity and renewable energy industry. This group represents approximately 2% of this workforce annually. Exhibit 3.6 distributes this new entry group among the electricity sector occupational groups. New entrants hired into the trades represent about 60 percent of all new entrants into the electricity sector workforce, followed by Engineers and Engineering Technicians and Technologists, and Financial and IT related occupations. No new entrants start in managerial and supervisory occupations.

Given their current distribution of sources reported in Exhibit 2.34, employers will hire many fewer inexperienced workers than the available new entrants. Most new entrants will start as helpers in the trades or as installers or sales personnel in the renewable energy sector and may be destined for apprenticeship or the new renewable energy training programs. This group of new entrants will be among the easiest to recruit. Candidates will need to have strong essential skills and some secondary school science and mathematics, but the employers seeking this group will be an attractive target for candidates.

Employers are more likely to turn to graduates from post secondary programs and other sources for the remaining occupations.
New entrants represent a small proportion of the total labour requirements. The remaining recruits will have to come from other industries. Figure 3.7 illustrates the difference between total labour requirements and the share of available young workers entering the electricity sector workforce. The recruitment gap widens from 2012 to 2016 as retirements grow.
Survey results suggest that the industry will fill the recruitment gap set out in Exhibit 3.7 with graduates from post secondary programs and candidates from outside the industry. Note that the survey respondents individually, have recruited almost one third of their new hires from other electricity employers. At the industry level reported here this intra industry movement does not add to labour supply. Hiring plans that reach beyond new entrants, recent graduates and immigrants can only draw candidates from other industries. Thus the electricity and renewable energy industry, taken together, is far more dependent on hiring from other industries. Findings in Exhibit 2.34 might imply that half of all hiring, for all electricity employers together, is expected to come from other industries.

Supply side analysis projects the expected number of graduates from engineering programs by tracking past trends in enrollments, graduations and entry into the workforce. Much of this analysis was described in section 2.b.ii above. The number of engineering graduates projected to enter the workforce from 2011 to 2016 is tied to the pattern of enrollments four years earlier.

An equivalent calculation for apprenticeship programs starts with national data on registrations and completions available up to 2008. The projections assume that the completions reported in 2008 will continue until 2016.

These supply side calculations, for engineers, are summarized in Exhibit 3.8 which shows the capacity of the post secondary system for engineers to meet expected labour requirements if the recent pattern of enrollment and completion is extended to 2016.

Trends for mechanical and civil engineering are upward and this will bring more new engineers to the workforce during the forecast period. Trends for electrical engineers are flat or downward. This trend will bring fewer graduates to the labour market across the 2011 to 2016 period.

**Exhibit 3.8**

*Enrolments in Post Secondary Programs, Engineering Occupations*

Source: Engineers Canada
Supply side analysis includes a projection of the contribution of immigration from 2011 to 2016. Exhibit 3.10 reports the recent numbers for permanent immigrants and temporary foreign workers arriving in Canada in the electricity sector occupations. Not all of these immigrants will actually enter the labour markets. Temporary foreign workers are by definition entering the workforce but are expected to leave after two years. Not all will leave as provision is made to retaining some under Provincial Nominee and other programs. Projections from 2011 take account of this pattern. Permanent immigrants identify their intended occupation as they enter but research shows that some are not properly qualified and are not able to enter the workforce. Labour force entrants, in the ESC LMI model, are corrected for this effect as well.

### Exhibit 3.10

**Supply Side Projections Workforce Additions, Immigration**

<table>
<thead>
<tr>
<th>Occupations</th>
<th>2006</th>
<th>2010</th>
<th>2011-2016</th>
<th>Annual Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engineers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent</td>
<td>4405</td>
<td>1420</td>
<td>8520</td>
<td>1420</td>
</tr>
<tr>
<td>Temporary Foreign Workers</td>
<td>2725</td>
<td>2390</td>
<td>14340</td>
<td>2390</td>
</tr>
<tr>
<td>Total Entering the Workforce</td>
<td>5107</td>
<td>2402</td>
<td>14412</td>
<td>2402</td>
</tr>
<tr>
<td><strong>Trades</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent</td>
<td>275</td>
<td>215</td>
<td>1290</td>
<td>215</td>
</tr>
<tr>
<td>Temporary Foreign Workers</td>
<td>550</td>
<td>430</td>
<td>2580</td>
<td>430</td>
</tr>
<tr>
<td>Total Entering the Workforce</td>
<td>509</td>
<td>389</td>
<td>2331</td>
<td>389</td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011, Citizenship and Immigration Canada
It is difficult to project the overall change in the number of arriving immigrants so the analysis simply assumes that arrivals recorded in 2010 continue in each year from 2011 to 2016. Thus the numbers in Exhibit 3.9 reflect the capacity of immigration at recent rates to meet industry requirements.

Exhibit 3.10 indicates that the only really large pool of new immigrant labour available to electricity sector employers will be the engineers. At least historically the other occupations are not a large part of the arriving new immigrants. Labour market conditions noted here suggest that recruiting may emphasize immigration more in the future.

Recruitment from other industries emerges as the most important source. But most of these other industries are also facing recruitment challenges. Projections of labour market conditions in outside labour markets are available from the LMI sources described in the last section and are presented below.

The accounting of supply side measures presented in this section suggests that there will be very limited growth in the available workforce and that this supply of labour will be concentrated in new entrants with no experience and graduates from post secondary programs.

**Rankings**

A new computer based LMI model has been created for the electricity sector occupations that draws the estimates presented in the report together and consolidates them into a market ranking. For each occupation in each region the model calculates labour market conditions for all industries and for the electricity and renewable energy providers. For all industries the model tracks:

- Employment
- Labour Force
- Unemployment
- Retirements
- Deaths
- New entrants
- Net in-mobility (recruiting from outside the market)
- Enrolments and graduations (engineering only)
- Apprenticeship registration and completions (trades only)
- Permanent immigration and temporary foreign workers

For the electricity and renewable energy providers the model includes:

- Employment
- Labour Force
- Unemployment
- Deaths
- Retirements
- New entrants
- Net in-mobility (recruiting from other outside the market)
Overall market rankings are based on an analysis for the demand and supply measures discussed in the last section. Each occupation is assessed independently using a weighted average of individual rankings for excess supply (unemployment), recruiting from outside employers as a percent of the labour force and the annual change in employment. Each market is assessed across a ranking from 1 to 5. Seen from the recruiter’s point of view these rankings are interpreted in Exhibit 3.11.

### Exhibit 3.11
**Labour Market Rankings Defined**

<table>
<thead>
<tr>
<th>Rankings &amp; Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Significant excess of supply over demand</td>
<td>No difficulty in recruiting qualified staff with 0-5 years or 5-10 years of Canadian experience at established compensation norms within the local labour market.</td>
</tr>
<tr>
<td><strong>2</strong> Excess of supply over demand</td>
<td>No difficulty in recruiting qualified staff with 0-5 years or with 5-10 years of Canadian experience at established compensation norms within the local or regional labour market. The geographic range of recruiting and the range of acceptable qualifications is broader than in 1.</td>
</tr>
<tr>
<td><strong>3</strong> Moderate supply pressures</td>
<td>Difficulty in recruiting qualified staff with more than 5 years of Canadian experience, with industry or technology-specific skills, and with appropriate non-technical skills. The time required to fill these positions is typically longer than historic norms. Vacancies sometimes need to be re-posted. Employers actively solicit applications from outside the local and regional labour market and reimburse applicants for travel expenses related to interviews, etc. Recruiting engineering staff with 0-5 years of Canadian experience poses fewer challenges.</td>
</tr>
<tr>
<td><strong>4</strong> Significant supply pressures</td>
<td>Difficulty across the board in recruiting qualified staff in the local and regional labour market. It is normal practice to actively solicit applications from outside the local and regional labour market and to reimburse applicants for travel expenses related to interviews. Employers are generally obliged to improve offered terms of compensation and to assist with re-location costs. Recruitment difficulties lead many employers to increase their use of third-party recruiters and to increase their use of contracting trades work, outsourcing of engineering and technology work to consultancies or staff the assignment with workers from another region. There is a significant increase in the risk of project delays and compensation-driven cost escalations.</td>
</tr>
<tr>
<td><strong>5</strong> Supply constraints</td>
<td>Systemic difficulty in recruiting qualified staff. International recruiting is common among large employers. There is widespread perception that the contracting and consulting sector is working at full capacity and that there is little, if any, remaining scope to outsource construction, engineering and ICT work to qualified suppliers with a known track record.</td>
</tr>
</tbody>
</table>
It is important to note the distinction, in each ranking, between conditions for new entry workers and experienced or specialized workers. Also note that these rankings are based on conditions in each market alone – before any allowance is made for recruiting outside the market.

This means that a ranking of, say, 2 in a market describes a general excess of the available workforce over labour requirements. This condition may be associated with a decline in labour requirements in one year. This might be caused by the end of a project and the layoff of workers or conditions that temporarily delay retirements. Lower labour requirements would add to unemployment and this would signal a lower ranking. In this situation the “recruiting from outside markets” component would be negative – signalling the potential for the workforce to leave the market in search of work elsewhere.

At the national level portrayed here, higher rankings signal the need for employers all across Canada to recruit in other industries. Where conditions in these other labour markets are also tight, the consequence will be a general increase in immigration – the only remaining source. This was a regular outcome for the national labour markets for some of the electricity sector occupations from 2000 to 2008. Immigration became an important source.

Demographic conditions make it likely that immigration will again be a key labour market strategy in tight labour markets. Earlier analysis of electricity sector employers (see Exhibits 2.35 and 2.36) suggests that this group has not yet turned to immigration on the scale of other industries.

Exhibit 3.12 presents the national rankings for the electricity and renewable energy providers by occupation. Labour market conditions point to very tight markets – perhaps the most difficult recruiting conditions since the new cycle of growth and the transition to the next generation began.

For example, the very high rankings in 2010 and 2011 are largely driven by the investment cycle and the major projects that are starting up. New capacity, repairs and refurbishments are particularly strong in some provinces and these regional variations on the national theme will be set out in the Regional Reports.

As the investment cycle flattens out in 2012 and beyond, the occupations that are most closely associated with investment (e.g., construction managers, engineers and engineering technicians and technologists) slip down one rank. Growth in labour requirements related to expansion demands ease off and markets will be slightly easier.

Finally at the end of the projection, in 2016, there is a tendency for rankings to rise. This is most often due to rising retirements. Steady additions to the number of retirements dominate the markets and create recruiting challenges.

How electricity sector employers react to these conditions will often be tied to conditions in other markets. The market assessments for individual occupations revisit the LMI reports noted above to consider their assessment of the broader markets and the potential for recruiters to find needed workers there.
Exhibit 3.12
National Labour Market Rankings for the Electricity Sector Occupations

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering managers</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Construction managers</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Utilities managers</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Financial auditors and accountants</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Civil engineers</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mechanical engineers</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Electrical and electronics engineers</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Information systems analysts and consultants</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Civil engineering technologists and technicians</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Mechanical engineering technologists and technicians</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electrical and electronics engineering technologists and</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Contractors and supervisors, electrical trades and telecommunications</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electricians (except industrial and power system)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Industrial electricians</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Power system electricians</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electrical power line and cable workers</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Stationary engineers and auxiliary equipment operators</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Power systems and power station operators</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Construction millwrights and industrial mechanics (except textile)</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011

Rankings by occupation
Each ranking in Exhibit 3.12 covers a range of factors that are often quite unique to each occupation. This section highlights these, drawing on the trends and survey findings reported in Section 2.

Managers and Supervisors
The tighter rankings for Engineering, Utilities and Construction Managers, and to some extent supervisors, reflect the older age profile and greater experience requirements for these trades. Not only are the workers in these occupations much older than average, but the knowledge and experience requirements associated with senior positions make recruitment much more challenging.

Retiring managers are generally replaced internally and, as this process intensifies, there is a ripple effect back through the organization. Employers with well established career plans, succession planning, knowledge transfer and flexible pension arrangements will be better placed to cope as these pressures unfold. Organizations and recruiters looking into other markets will face growing frustrations.

Retirements drive the high labour market rankings for all these occupations. But the rankings for engineering and construction managers and for the electrical trade contractors and supervisors are also tied to the investment cycle. This translates into high rankings in 2010 and 2011 and then, there is a bit
more room to manoeuvre around 2013 as the project demands level out, easing conditions for the supervisors.

*Engineering and Engineering Technicians and Technologists*

Labour market conditions for engineers and engineering technologist occupations remain tight through the peak in the investment cycle and transition to the next generation infrastructure. Older than average retirement ages, lower than average retirement rates and a rising number of new graduates from engineering programs help restore balanced conditions as investment recedes from peak levels after 2013.

Rankings combine the conditions for both new graduates and older and more experienced engineers. Recruiting the former group will face a wide range of choices as rising enrolments from 2008 to 2010 combine with a limited number of jobs for junior positions to create a loose market. Recruiting more experienced and specialized engineers will be much more difficult. Many engineers are likely to move into the management jobs described above, leaving large gaps in the 35 to 54 age group.

The labour supply for these occupations is also traditionally linked to immigration and Canada became more adept at managing this labour supply during the last boom. Engineers were among the most populous wave of arrivals early in the last decade and these numbers may rise again as demand for experienced engineers rises. The Temporary Foreign Worker program may be a particularly well suited vehicle to fill this market.

Many of the arriving engineers will need specialized skills and experience that can meet the challenge of replacing retired managers and adapting systems to new technologies. It is not clear that candidates with these attributes can be found outside the industry – but it is certain that the industry will have to look there.

The Engineers Canada Labour Market Conditions Report prepares rankings using the same process that has been adopted in the new ESC system. Rankings that apply across all industries are set out in Exhibit 3.13.

### Exhibit 3.13

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<th>National Labour Market Rankings, for Engineering</th>
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<td><strong>Labour Market Rankings</strong></td>
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<td>Mechanical engineers</td>
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<td>Electrical and electronics</td>
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Source: Engineers Canada

In the initial years of the scenario – 2010 and 2011 – national rankings across all industries are lower than those found for electricity. This is an encouraging signal that electricity sector recruiters will find more
candidates in the broader workforce pool. The Engineers Canada report points to some highlights for the broader labour markets:

- Recovery in manufacturing and other industries is steady but not strong enough to restore past employment peaks
- Enrolments in post secondary programs have been rising and will add a new wave of graduates across the scenario
- Retirements and the age profile of each workforce drive labour requirements higher later in the period
- Market conditions will vary depending on the experience level of the engineer. Rankings of 3 signal difficulty recruiting qualified engineers with more than five years of Canadian experience

Labour requirements for engineers will be stronger and availability more limited in the electricity industry compared to other industries. Recruiting in other industries may offer some advantages to electricity sector employers but two obstacles remain:

- Experienced and specialized engineers in other industries will also be in short supply
- Skills and experience among engineering candidates from other industries may not fit the criteria needed to fill management or senior jobs vacated by retirement

Detailed information available for engineers has dominated these market assessments. More limited evidence for engineering technicians and technologists suggests slightly tighter market conditions. Expansion demand, see Exhibit 3.2, will be largely the same. The age profiles for the technicians and technologists are older, see Exhibit 2.30, and replacement demand is higher. Survey results for vacancy rates, hiring and other measures are higher and this raises the rankings for 2010 and 2011. On the supply side, there is more limited access to immigration although this may be balanced by the colleges reporting above average gains in enrolments and graduations for these programs.

**The skilled trades**
The skilled trades covered in this report are divided into two groups for market assessments.

The first group includes the four trades that are specialized to work in the electricity and renewable energy industry. These include power system electrician, electrical power line and cable workers, stationary engineers and auxiliary equipment operators and power systems and power station operators. Conditions for these trades are dominated by the requirements and training initiatives of the industry.

Labour markets are now and will continue to be very tight. For this group expansion demand is strongest for the power line and cable workers where investments to refurbish and upgrade the distribution networks are a priority. The age profile is slightly younger than the rest of the occupations but this is more than balanced by a younger than average retirement age. Overall labour requirements rise strongly across the scenario. Electricity sector employers, in close collaboration with provincial apprenticeship and colleges, have traditionally managed much of the training that renews this workforce. Above average growth in recent enrolment suggests that needed investments are being made to keep pace. Pressures to
contain costs from provincial governments and regulators may limit the spending needed to increase training and certification programs and keep pace with labour requirements.

The second group of trades include the electricians and millwrights from the electricity sector occupations and all of the next generation construction trades listed in Exhibit 2.3. Labour markets for these trades are dominated by the construction and maintenance activity across all industries.

As noted in section 2.c.i, major investments in next generation infrastructure will have a disproportionately large impact on electricity trade occupations. The national summary for 2011 *Construction Looking Forward* report describes the impact of major projects on specific regional labour markets. This analysis has been adapted here to report labour market rankings for the electrical and next generation trades.

In particular, the *Construction Looking Forward* analysis identified major electricity generation, transmission and distribution projects in Alberta, Saskatchewan, Ontario (the Greater Toronto Area) and Newfoundland and Labrador. The impacts of these projects on labour markets are highlighted as the market rankings change across the regions and the years.

Exhibit 3.14 captures the shifting labour markets that will dominate conditions for these trades, driving demand and moving these skilled workers among markets.
### Labour Market Rankings for Electrical Next Generation Occupations, All industries, Selected Markets

**Exhibit 3.14**

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Source: ESC Employer Survey 2011

Funded in part by the Government of Canada’s Sector Council Program

www.brightfutures.ca
Rankings used in *Construction Looking Forward* are constructed in the same manner as in the ESC model. Tight markets (rankings of 4 or 5) in Exhibit 3.14 are associated with the start-up and peak demands of major industrial, resource and utility projects. Electricity projects, including renewable energy systems, are the most common of these major projects. As projects end, markets shift to easier conditions.

These major project cycles are the focus of analysis in the *Construction Looking Forward* reports. Big projects in small regions (e.g. Saskatchewan in 2011 and Newfoundland in 2012) often push ranks to the highest levels and this signals that the local workforce cannot meet requirements. Recruiting from outside markets is needed and attention shifts to where the needed workers might be found. As rankings rise, mobility among provinces and across industries becomes crucial. In some cases mobility will allow employers to access the Canadian labour markets to meet demands. Often the overall magnitude of the expected projects combine with Canadian demographics (retirements and limited new entrants), and the national workforce is often not big enough. Immigration is the remedy.

Virtually all of the electricity and next generation trades are stretched to the limit in at least one market across the *Construction Looking Forward* scenario.

**Information and Communication Technology**

IT related occupations will remain in high demand through the transition to Next Generation as new technologies require a greater role for IT expertise than Legacy systems. Higher than average employment growth and competition from other industries will maintain tight labour market conditions in most regions over the scenario.

Exhibit 3.15 reports rankings from the Information and Communications Technology Council (ICTC) report for Information Systems Analysts and Consultants. As described for the other occupations, these rankings combine many measures creating an “average” that spans many specific situations. IT occupations are particularly varied and their labour markets are filled with unique conditions that are not covered by broad national measures. The overall message though, is that employer needs will be very hard to fill.

**Exhibit 3.15**

National Labour Market Rankings, Information Systems Analysts and Consultants

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<td>Information Systems Analysts and Consultants</td>
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Source: Information and Communications Technology Council
The ICTC report described above assesses future labour markets as follows:

“Between 2011 and 2016, Canadian employers will need to hire approximately 106,000 workers......In light of the specialized skills and the mix of technical skills and business understanding that is sought by the majority of employers, these hiring requirements will pose serious and pervasive challenges.

“In most regions, and for most Information and Communications Technology (ICT) occupations, employers will encounter systemic shortages when recruiting for ICT jobs that require five or more years of experience. The severity of these shortages will increase when employers are looking for leading edge skills or particular combinations of domain experience and ICT expertise. Conversely, most employers will encounter little or no difficulty in recruiting for jobs that require less than five years of experience or for which recent graduates would be qualified.

“Acute and pervasive skills shortages will affect four occupations in particular:

- Computer and Information Systems Managers
- Telecommunications Carrier Managers
- Information Systems Analysts and Consultants
- Broadcast Technicians

“For Information Systems Analysts and Consultants, the primary driver of shortages is increasing demand counterpoised with the limited capacity to train ICT professionals with the mix of business skills that are required in the occupation. In the other three occupations where shortages will be acute, demographic factors are the main explanation.

“Conversely, over much of the forecast period, and in many regions, supply will exceed demand for three occupations:

- Computer Programmers and Interactive Media Developers
- Computer Network Technicians
- User Support Technicians”

These general observations for labour markets across all industries certainly apply to the situation for electricity sector employers. Rankings for Information Systems Analysts and Consultants in the electricity and renewable energy industry as shown in Exhibit 3.12 imply that markets will be even tighter in the coming years than the ICTC report implies in Exhibit 3.15. This is because the electricity and renewable energy industry is in the critical stages of the transition to next generation infrastructure. Implementing these new smart grid systems requires ICT skills to develop the new and specialized computer systems to manage the complex information that joins customer demands and distributed generation systems.

Rankings for both the electricity and renewable energy industry and related markets all point to recruiting challenges. These challenges are most often concentrated on the need to find experienced and specialized workers while the prospects for finding qualified new entrants and junior candidates are generally better.
Section 3 of the report shifted attention to the future. Labour market assessments for the electricity and for the next generation occupations were reviewed for local and broader labour markets. In general these assessments point to tight markets where recruiting will be difficult.

4. Implications, Recommendations and Conclusions for HR Management

Electricity sector employers will need to recruit over 45,000 new workers between 2011 and 2016, up to 50% of the current workforce. This massive inflow will be needed to replace retiring workers and needs to be available for building and operating the next generation of infrastructure, which includes renewable energy, refurbished generation, and transmission and distribution systems. Of these new employees, 23,000 will be in the electricity sector occupations covered in this report.

Based on past behaviour, employers expect to take as many as 30% of these recruits from the ranks of other industry employers. But moving the existing workforce among firms will not meet the labour requirements found here. For the industry as a whole, at least 50% of the new hires must be found in other Canadian industries or among new Canadians.

Employers in the electricity and renewable energy industry together face an unprecedented recruiting challenge. Individually they will not be able to succeed following their past HR strategies. United action is needed.

Most of the current workforce was trained and recruited at least twenty years ago. Few young people have been added since the early 1990s. In the meantime labour markets have changed. To fit the new Canadian workforce reality, the electricity sector workforce will soon need to include a far higher proportion of women, Aboriginals, new Canadians and diversity groups.

The pace of change in the mix of the workforce will accelerate as demographics change and investment projects multiply. Current industry initiatives targeting youth, diversity groups and the immigrant population will grow larger and perhaps more targeted.

Traditional partners in the building of the electricity sector workforce, including post secondary programs, contractors and consultancies, are adapting to help meet the challenge. But their capacity to support employers in the task ahead is restricted. Government funding will be limited. Other industries are competing for the same support. And the electricity and renewable energy industry has expensive, complex and specialized training and education needs. It is not certain that the expansion of these supporting groups will meet the growing needs of the electricity sector employers.

The age profile of the Legacy workforce and attractive pension benefits will move a very large proportion of the workforce to retirement. While there is a large cohort of 45 to 54 year old workers preparing to take their place, there are much fewer in the 35 to 44 age group. Retirements will create a ripple effect that will soon focus attention on hiring many new workers with five or more years of experience. But many other Canadian industries face the same demographics and this group is far more difficult to recruit than new entrants and junior candidates.
If sustained or increased, the traditional industry preference for hiring recent graduates and supporting coop, internship and apprenticeship programs will help fill in these gaps.

Projections from 2011 to 2016 focus attention on attracting immigrants and workers from other industries. These opportunities will open in some labour markets. But more often electricity sector employers will meet other, competing employers who seek skilled, experienced and specialized workers. They will be seeking help to find immigrants and investments in post secondary programs. Their HR challenges have much in common with electricity sector employers. For example, their focus is on the engineers, technicians and technologists, IT specialists and skilled trades with five or more years of experience.

Electricity sector employers share common labour requirements that are distinct from those of competing industries. Acting together on initiatives that target these needs will maximize the impact of limited resources.

**The industry has unique HR advantages and distinct strategies to apply.**

These employers are among the largest and best known employers in many provinces. They are often the employer of choice and can attract new workers through their career opportunities, internal training initiatives, strong benefit packages and history of employment security. Renewable energy providers have the important advantage of promising fast growth, green jobs and work with rapidly changing technologies.

Managing the retirement losses will shift attention to existing efforts that transfer knowledge from the oldest group who are leaving to a relatively large cohort of senior workers who are poised to fill in the skills gap. Strong industry traditions of supporting licensing and certifications have built a path for new graduates and apprentices. These programs fill in the crucial gaps in middle management, and can provide specialized and experienced technical skills.

Building new technical skills into the arriving workforce for the next generation of infrastructure will require a combination of new and expanded post secondary programs, along with internal training and certification. Much has already been accomplished in this area. New courses and certifications are appearing and the industry’s relatively strong connection with post secondary programs will help. The biggest challenge will be internal and regulatory barriers related to rising costs. Technology costs were identified by the colleges and universities as the primary barrier. Evidence of the unique and potentially limiting impacts of skill shortages presented in this report may help make a case for new investments.

Findings also highlight how labour requirements – especially for the next generation of occupations and trades involved in construction will be accessed by contractors and consultancies. Outsourcing shifts the HR challenges to unions and other employers, and allows flexibility and workforce mobility so available skills are used most efficiently.

These groups face their own challenges related to demographics, skills and tight labour markets.

To meet the challenges set out in the 2011 LMI Study, human resource managers will need to add, expand, target and refine many programs:
• Strategies and programs targeting permanent immigrants; including initiatives that integrate new arrivals into the community
• Systematically targeting temporary foreign workers in key occupations and moving the best candidates into Provincial Nominee Programs
• Working with Provincial governments, colleges and universities to add new programs and certifications for technicians, technologists and specialized trades for work with new technologies
• Developing a strategy for attracting more women, Aboriginals and diversity groups that take advantage of existing programs offered by individual employers and other groups
• Expand knowledge transfer programs that are preparing candidates for the replacement of skilled retirees
• Working with unions to build the skilled workforce and add specialized and advanced qualifications and certifications
• Working with unions on adding diversity to the workforce and integrating permanent immigrants and temporary foreign workers
• Working with electricity sector employers who are participating in initiatives aimed at improving the transition from post secondary training to the Workforce; this would include targeting higher rates of apprenticeship completions, enhanced internship programs for engineers and carefully targeted coop programs for IT grads

The 2011 LMI Study confirms the findings of the two earlier LMI studies and adds a new degree of urgency to the initiatives that have grown from this research. Changes are accelerating and competitive forces are growing stronger. Further, the 2011 findings suggest new initiatives.

A focus on the requirements of the next generation investments including:

• Tracking construction trades and markets for contractors
• Tracking emerging labour markets for specialized installers, maintenance and related work in solar, wind turbine and geothermal systems

Assessing the competition in other markets including:

• Industries and regions where labour requirements will be rising
• Training and certification programs that compete for resources
• Collaboration with other employer groups with common objectives

*For many key occupations the available workforce will not meet the unprecedented labour requirements described in this report. Investment in human resources needs to grow in line with the major new infrastructure projects. Infrastructure projects are expected to total $293 billion from 2010 to 2030, raising annual spending by 50% over the past decades. Given the need to replace over 40% of the workforce, comparable HR investments are to be expected. Canada cannot renew its electricity system and shift to renewable sources on the planned scale without comparable additions to the skills of the workforce.*
Reliable and low emission electricity networks are essential to a modern economy. Building these networks depends on renewing Canada’s current workforce.
Acknowledgements

A project such as this requires the help and participation of numerous individuals and organizations. For that reason, we would like to express our sincere gratitude and appreciation to the following individuals who participated on the 2011 LMI Steering Committee.

2011 LABOUR MARKET INFORMATION STUDY STEERING COMMITTEE

Damon Rondeau – Chair, Steering Committee
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Manager, Careers and Team Effectiveness
New Brunswick Power

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Canada

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Electricity Sector Council

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Project Coordinator
Electricity Sector Council

Research Consultant
PRISM Economics and Analysis:
Bill Empey
John O’Grady

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ATCO Power
Hydro One Inc.

Battle River Rural Electrification Association
Hydro Ottawa

BC Hydro
Nalcor Energy

City of New Westminster Electricity Utility
Ontario Power Generation

Énergie NB Power
St. Thomas Energy Services

ENMAX Corporation
Toronto Hydro Corporation

FortisBC
Yukon Energy
Appendix A – 1 Ontario

Introduction
This appendix provides selected findings from the 2011 Labour Market Information Study for Ontario. Key exhibits in the national text are reproduced here using Ontario data. Notes and highlights have been added comparing these Ontario results to the trends and conclusions reported for Canada. This Appendix summarizes the key findings in each of three areas:

• Transition from Legacy to Next Generation
• The Workforce Profile and Trends
• Assessing Future Labour Markets and Human Resources Management

Transition from Legacy to Next Generation
In Ontario the transition from Legacy to Next Generation Infrastructure is characterized by several changes.

Exhibit A1.1

<table>
<thead>
<tr>
<th>Legacy</th>
<th>Next Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twenty plus years of limited growth</td>
<td>Twenty years of rising investment</td>
</tr>
<tr>
<td>High concentration of capacity and workforce</td>
<td>Distributed generation of renewable capacity</td>
</tr>
<tr>
<td>Established support systems in post secondary programs, regulations</td>
<td>Deregulation, change to specialized, flexible training and certification</td>
</tr>
<tr>
<td>Stable, large scale operations</td>
<td>Large number of smaller new entrants</td>
</tr>
<tr>
<td>Long asset lives</td>
<td>Rapid replacement, high maintenance</td>
</tr>
<tr>
<td>Large employers, and a specialized, qualified, experienced workforce</td>
<td>Exit of experienced workforce; shortage of entrants with midlevel experience</td>
</tr>
<tr>
<td>Dominant, preferred employers in local labour markets</td>
<td>Intensifying competition in labour markets, post secondary programs</td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011
Ontario findings focus on key occupations and:

- Past trends in investment and hiring that determine the Legacy infrastructure and workforce
- The current state of labour markets and workforce
- The investments, demographics and output trends that drive employment from 2011 to 2016

The investments and related labour market impacts are distributed across the Provinces based on the current generating capacity. Ontario is Canada’s largest market for electricity and has the largest electricity generating capacity.

**Exhibit A1.2**

**Provincial Distribution of Electricity Generating Capacity**

**Percent Distribution, MWs**

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

The investments in the next generation facilities that will change Ontario’s system will be roughly proportional to its current share in the national capacity.

**Exhibit A1.3**

**Provincial Distribution of New Investment in Electricity Generating Capacity**

**Percent Distribution of New Investment, MWs**

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011
Ontario’s current generating systems are concentrated in nuclear and conventional gas/coal facilities.

**Exhibit A1.4**

**Existing Electrical Capacity by Type, Ontario, MWs**

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

Investment plans for the Ontario system are skewed towards new wind generation and refurbishment of the nuclear and conventional gas/coal systems.

**Exhibit A1.5**

**Investment in New Electrical Generating Capacity, Ontario, MWs**

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011
The investment plans for Ontario are concentrated on the generation systems but also include changes to the transmission and distribution systems.

Exhibit A1.6
Investment in Ontario Electricity Infrastructure 2010 to 2030, by Type

<table>
<thead>
<tr>
<th>Sector</th>
<th>2010 $ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation</td>
<td>59.9</td>
</tr>
<tr>
<td>Transmission</td>
<td>5.5</td>
</tr>
<tr>
<td>Distribution</td>
<td>20.6</td>
</tr>
<tr>
<td>Total</td>
<td>85.9</td>
</tr>
</tbody>
</table>

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

Workforce Profiles and Trends

This section reviews Ontario data for the workforce, occupation profiles and related trends.

Workforce Profile

The 2006 Statistics Canada Census reported that there were 34,840 people working in the Electricity and Renewable Energy industry in Ontario, 17,825 of these were in the core electricity sector occupations. By 2010 employment had grown by 8.6% to 37,435.

The age profile of the industry workforce has the distinctive peak for the younger boomers age 45 to 54 and the associated, smaller proportion of the Gen X workforce age 35 to 44. This profile is a consequence of the loss of employment and limited hiring during the 1990s.

Exhibit A1.7
Age Distribution of the Workforce
Electricity and Renewable Energy Providers, All Industries,
Ontario, 2006

Source: Statistics Canada, 2006 Census
The Ontario workforce also has the characteristic higher education profile with a higher than average concentration of skilled trades and apprentices, technicians and technologists from the colleges and engineers from the universities. Most of the workforce is older workers who graduated from post secondary programs over twenty years ago.

**Exhibit A 1.8**

**Higher Education Achievement**

**Electricity and Renewable Energy Providers, All Industries**

**Ontario, 2006**

![Chart](chart.png)

Source: Statistics Canada, 2006 Census

The Ontario workforce is concentrated in the natural and applied sciences (engineering), trades and technical occupations.
Exhibit A1.9
Distribution of the Workforce by Occupation
Electricity and Renewable Energy Providers, All Industry
Ontario, 2006

*Includes: Stationary engineers, power station operators and electrical trades and telecommunications occupations
Source: Statistics Canada, 2006 Census

Women are a smaller proportion of the workforce than men. This is typical of the gender composition of the key occupations.
Like the national workforce, the Ontario electricity sector workforce also has notably fewer immigrants than other industries. This is another consequence of the history of hiring Canadians in the 70’s and 80’s and employment losses and limited additions during the 1990s when immigration was rising.
Post Secondary Education and Immigration

There are two principal sources of labour supply: graduates from post secondary training programs and immigration. This section reviews recent trends for the electricity sector occupations.

Ontario shares national trends in post secondary education and training that impact the supply of new workers in the key applied sciences and technical occupations.

Engineering programs in Ontario feature gains for civil but weaker trends in enrolments and degrees awarded for electrical engineers.

Exhibit A1.11
Undergraduate Degrees Awarded in Engineering Programs
Ontario

Exhibit L
Tab 6.8
Schedule 17 SEC-110
Attachment 2

Trends for apprenticeship programs, set out in Exhibit A1.12, show strong gains across the last decade for several skilled trades working in the electricity and renewable energy industry. Ontario apprenticeship programs have expanded during the past decade, adding new registrations but completions – and the emerging number of journeypersons – have increased more slowly.
### Exhibit A1.12
#### Apprenticeship Programs in Ontario

<table>
<thead>
<tr>
<th>Engineering Programs</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Millwright and Industrial Mechanic (Millwright)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>4053</td>
<td>4362</td>
<td>4491</td>
<td>5136</td>
<td>5259</td>
<td>5508</td>
<td>5985</td>
<td>5649</td>
<td>6093</td>
</tr>
<tr>
<td>Completions</td>
<td>348</td>
<td>450</td>
<td>270</td>
<td>444</td>
<td>513</td>
<td>393</td>
<td>402</td>
<td>522</td>
<td>525</td>
</tr>
<tr>
<td>Electrician, Except Industrial and Power System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>6429</td>
<td>7050</td>
<td>7497</td>
<td>8160</td>
<td>9183</td>
<td>9807</td>
<td>10434</td>
<td>10980</td>
<td>11739</td>
</tr>
<tr>
<td>Completions</td>
<td>630</td>
<td>771</td>
<td>612</td>
<td>378</td>
<td>927</td>
<td>882</td>
<td>1005</td>
<td>1062</td>
<td>1074</td>
</tr>
<tr>
<td>Industrial Electrician</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>2010</td>
<td>2115</td>
<td>2208</td>
<td>2214</td>
<td>2088</td>
<td>2226</td>
<td>2493</td>
<td>2451</td>
<td>2700</td>
</tr>
<tr>
<td>Completions</td>
<td>108</td>
<td>162</td>
<td>219</td>
<td>276</td>
<td>168</td>
<td>126</td>
<td>120</td>
<td>168</td>
<td>135</td>
</tr>
<tr>
<td>Power Systems Electrician</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Completions</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Electrical Power Line and Cable Workers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>405</td>
<td>462</td>
<td>504</td>
<td>579</td>
<td>657</td>
<td>795</td>
<td>975</td>
<td>1173</td>
<td>1323</td>
</tr>
<tr>
<td>Completions</td>
<td>18</td>
<td>15</td>
<td>18</td>
<td>30</td>
<td>18</td>
<td>9</td>
<td>21</td>
<td>51</td>
<td>81</td>
</tr>
<tr>
<td>Stationary Engineers and Auxiliary Equipment Operators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Completions</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>12897</td>
<td>13969</td>
<td>14700</td>
<td>16089</td>
<td>17187</td>
<td>18336</td>
<td>19887</td>
<td>20253</td>
<td>21855</td>
</tr>
<tr>
<td>Completions</td>
<td>1104</td>
<td>1398</td>
<td>1119</td>
<td>1128</td>
<td>1626</td>
<td>1410</td>
<td>1548</td>
<td>1803</td>
<td>1815</td>
</tr>
</tbody>
</table>

Source: Statistics Canada, Registered Apprenticeship Information System
Finally, immigration trends are set out for permanent immigrants and temporary foreign workers arriving in Ontario with jobs or intending to work in the electricity sector occupations. The largest group represented here are engineers. Immigration has been on a downward trend since 2005.

Exhibit A1.13

Immigrants Arriving in Ontario
Electricity Sector Occupations, 1990 to 2010

Supply side survey – Ontario findings

23 Ontario post secondary institutions, offering 72 electricity related programs, responded to the ESC survey. Responses were close to national totals and reported:

- Enrolments in electricity related programs were rising at the same rate as, or faster than other programs
- Expected increases in enrolments from 2011 to 2016 are lower in Ontario than other provinces
- The main barrier to expanding electricity related programs is the cost related to new technologies
- Relative strength in enrolment growth for electricity related technicians and technologists in colleges
- Electricity sector employers have as good or better relations with the programs than other industries
Occupations

46 Ontario employers (out of a total national response of 89) responded to the ESC survey. Key findings for Ontario include:

- Retirements
  - Age profiles for the Ontario survey respondents are very similar to the Census profiles.
  - The average age at retirement for the Ontario workforce, 58, is close to the national average.
  - A high and rising proportion of the workforce are expected to retire:
    - 3.9% of the respondents’ workforce retired in 2011 and this is expected to rise to close to 10% by 2016.
    - Projected retirements for 2012, in the 2008 survey, were well above the new survey results for 2011.
  - Findings imply that record high levels of retirements are expected from 2011 to 2016.

- Workforce dynamics
  - Hiring rates and other measures of labour market dynamics show very tight markets.
  - More than half of responding firms report some or extreme difficulty hiring.
  - Respondents routinely report hiring 30% or more recruits from other electricity sector employers.

Assessing Future Labour Markets and Human Resources Management

A new labour market model projects market conditions from 2011 to 2016 to determine employment expansion demands. Expansion demands are related to expected investments and the growth in electricity demand. Replacement demands are driven by demographic trends and the employer survey estimates of expected retirements.

Labour Market Assessments

Projections for next generation investments in Ontario grow steadily across the forecast period from 2011 to 2016. Construction of the expected major nuclear facility is delayed until after 2016.
Exhibit A1.14
Projections of Output, Investment and Employment
Ontario, 2011 to 2016

Drivers of Utilities Employment Growth - Ontario

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

This pattern of investment and electricity demand is used to calculate employment growth by occupation.
### Exhibit A1.15

**Employment Growth by Occupation**

**Electricity Sector Occupations in Ontario**

<table>
<thead>
<tr>
<th>Occupations</th>
<th>2006</th>
<th>2010</th>
<th>2016</th>
<th>% Growth 2011 - 2016</th>
<th>Avg. annual growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering managers</td>
<td>345</td>
<td>361</td>
<td>430</td>
<td>19.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Construction managers</td>
<td>20</td>
<td>21</td>
<td>25</td>
<td>19.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Utilities managers</td>
<td>1,767</td>
<td>1,814</td>
<td>2,112</td>
<td>16.4%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Financial auditors and accountants</td>
<td>349</td>
<td>336</td>
<td>365</td>
<td>8.8%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Civil engineers</td>
<td>178</td>
<td>187</td>
<td>222</td>
<td>19.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Mechanical engineers</td>
<td>1,486</td>
<td>1,556</td>
<td>1,853</td>
<td>19.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Electrical and electronics engineers</td>
<td>1,483</td>
<td>1,554</td>
<td>1,850</td>
<td>19.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Information systems analysts and consultants</td>
<td>433</td>
<td>445</td>
<td>556</td>
<td>25.1%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Civil engineering technologists and technicians</td>
<td>42</td>
<td>43</td>
<td>50</td>
<td>16.4%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Mechanical engineering technologists and technicians</td>
<td>665</td>
<td>682</td>
<td>795</td>
<td>16.4%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Electrical and electronics engineering technologists and technicians</td>
<td>1,399</td>
<td>1,436</td>
<td>1,672</td>
<td>16.4%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Contractors and supervisors, electrical trades and telecommunications occupations</td>
<td>496</td>
<td>519</td>
<td>618</td>
<td>19.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Electricians (except industrial and power system)</td>
<td>98</td>
<td>102</td>
<td>122</td>
<td>19.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Industrial electricians</td>
<td>132</td>
<td>138</td>
<td>165</td>
<td>19.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Power system electricians</td>
<td>1,341</td>
<td>1,405</td>
<td>1,673</td>
<td>19.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Electrical power line and cable workers</td>
<td>2,905</td>
<td>3,044</td>
<td>3,624</td>
<td>19.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Stationary engineers and auxiliary equipment operators</td>
<td>460</td>
<td>463</td>
<td>527</td>
<td>13.9%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Power systems and power station operators</td>
<td>3,233</td>
<td>3,318</td>
<td>3,864</td>
<td>16.4%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Construction millwrights and industrial mechanics (except textile)</td>
<td>1,034</td>
<td>1,083</td>
<td>1,290</td>
<td>19.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td><em>Electrical Occupations</em></td>
<td>17,865</td>
<td>18,508</td>
<td>21,813</td>
<td>17.9%</td>
<td>3.6%</td>
</tr>
<tr>
<td><em>Other Occupations</em></td>
<td>16,975</td>
<td>17,995</td>
<td>21,646</td>
<td>20.3%</td>
<td>4.1%</td>
</tr>
<tr>
<td><em>Total</em></td>
<td>34,840</td>
<td>36,503</td>
<td>43,460</td>
<td>19.1%</td>
<td>3.8%</td>
</tr>
</tbody>
</table>

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

---

**Expansion demand**

Exhibit A1.16 tracks labour requirements for retirements and death (replacement demands) relative to the projected labour force in Ontario.
Exhibit A1.16
Retirement Projections for Electricity Sector Occupations

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

Exhibit A1.17 adds together replacement and expansion demands for the electricity workforce in Ontario.

Exhibit A1.17
Total Employment Requirements, Electricity Sector Occupations
Ontario, 2011 to 2016

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006
Finally Exhibit A1.18 tracks the potential labour supply from new entrants and net hiring from outside the industry. There are not enough potential new entrants to meet the projected requirements and this implies tight labour markets across the projected period from 2011 to 2016.

**Exhibit A1.18**

**New Entrants and Labour Requirements**

![Graph showing annual gap between new entrants and total demand requirements from 2011 to 2016.](graph.png)

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

**Rankings**

Labour Market rankings for each occupation are based on market measures of the supply–demand gap, the change in employment and the age profiles and retirements.

**Labour Market Rankings Defined**

<table>
<thead>
<tr>
<th>Rankings &amp; Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Significant excess of supply over demand</td>
</tr>
<tr>
<td>No difficulty in recruiting qualified staff with 0-5 years or 5-10 years of Canadian experience at established compensation norms within the local labour market.</td>
</tr>
<tr>
<td><strong>2</strong> Excess of supply over demand</td>
</tr>
<tr>
<td>No difficulty in recruiting qualified staff with 0-5 years or with 5-10 years of Canadian experience at established compensation norms within the local or regional labour market. The geographic range of recruiting and the range of acceptable qualifications is broader than in 1.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Significant supply pressures</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Difficulty across the board in recruiting qualified staff in the local and regional labour market. It is normal practice to actively solicit applications from outside the local and regional labour market and to reimburse applicants for travel expenses related to interviews. Employers are generally obliged to improve offered terms of compensation and to assist with re-location costs. Recruitment difficulties lead many employers to increase their use of third-party recruiters and to increase their use of contracting trades work, outsourcing of engineering and technology work to consultancies or staff the assignment with workers from another region. There is a significant increase in the risk of project delays and compensation-driven cost escalations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Supply constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Systemic difficulty in recruiting qualified staff. International recruiting is common among large employers. There is widespread perception that the contracting and consulting sector is working at full capacity and that there is little, if any, remaining scope to outsource construction, engineering and ICT work to qualified suppliers with a known track record.</td>
</tr>
</tbody>
</table>

Ontario labour markets for the electricity sector occupations are very tight in 2011 and 2012 as the investments in next generation projects increase. Electricity output regains pre-recession peaks in 2012 and investments continue to grow at a slower pace. Gains in post secondary completions add to the workforce of certified labour after 2013 and some rankings ease off. Where age profiles are high and retirements are rising, rankings are high later in the projection period.
Exhibit A1.19  
Ontario Labour Market Rankings

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Engineering managers</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<td>4</td>
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<tr>
<td>Construction managers</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Utilities managers</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Financial auditors and accountants</td>
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<td>3</td>
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<td>3</td>
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<tr>
<td>Civil engineers</td>
<td>4</td>
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<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Mechanical engineers</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Electrical and electronics engineers</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Information systems analysts and consultants</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Civil engineering technologists and technicians</td>
<td>4</td>
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<td>4</td>
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<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Mechanical engineering technologists and technicians</td>
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<tr>
<td>Electrical and electronics engineering technologists and technicians</td>
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<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Contractors and supervisors, electrical trades and telecommunications occupations</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<td>4</td>
<td>4</td>
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<tr>
<td>Electricians (except industrial and power system)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Industrial electricians</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<td>4</td>
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<tr>
<td>Power system electricians</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electrical power line and cable workers</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Stationary engineers and auxiliary equipment operators</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Power systems and power station operators</td>
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<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Construction millwrights and industrial mechanics (except textile)</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011

Comments on Rankings for Ontario:

- Labour requirements and hiring related to retirements will be concentrated in experienced and specialized workers – not new entries or recent grads
  - Rankings of 3 for some occupations may reflect the supply of junior applicants
  - Competition with other industries for some occupations will be intense
- Ontario has a large and growing immigrant population that will include some older and specialized workers
- Important government decisions with regard to adding renewable energy capacity and new nuclear facilities will be key determinants of coming labour requirements
- In Ontario both expansion and replacement demand continues to grow across the 2011 to 2016 projection period so that rankings rise later in the period as labour force growth slows.
Appendix A – 2 Quebec

Introduction

This appendix provides selected findings from the 2011 Labour Market Information Study for Quebec.

Key exhibits in the national text are reproduced here using Quebec data. Notes and highlights have been added comparing these Quebec results to the trends and conclusions reported for Canada. This Appendix summarizes the key findings in each of three areas:

- Transition from Legacy to Next Generation
- The Workforce Profile and Trends
- Assessing Future Labour Markets and Human Resources Management

Transition from Legacy to Next Generation

In Quebec the transition from Legacy to Next Generation Infrastructure is characterized by several changes.

<table>
<thead>
<tr>
<th>Legacy</th>
<th>Next Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twenty plus years of limited growth</td>
<td>Twenty years of rising investment</td>
</tr>
<tr>
<td>High concentration of capacity and workforce</td>
<td>Distributed generation of renewable capacity</td>
</tr>
<tr>
<td>Established support systems in post secondary programs, regulations</td>
<td>Deregulation, change to specialized, flexible training and certification</td>
</tr>
<tr>
<td>Stable, large scale operations</td>
<td>Large number of smaller new entrants</td>
</tr>
<tr>
<td>Long asset lives</td>
<td>Rapid replacement, high maintenance</td>
</tr>
<tr>
<td>Large employers, and a specialized, qualified, experienced workforce</td>
<td>Exit of experienced workforce; shortage of entrants with midlevel experience</td>
</tr>
<tr>
<td>Dominant, preferred employers in local labour markets</td>
<td>Intensifying competition in labour markets, post secondary programs</td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011
Quebec findings focus on key occupations and:

- Past trends in investment and hiring that determine the Legacy infrastructure and workforce
- The current state of labour markets and workforce
- The investments, demographics and output trends that drive employment from 2011 to 2016

The investments and related labour market impacts are distributed across the Provinces based on the current generating capacity. Quebec is Canada’s second largest market for electricity.

**Exhibit A2.2**
Provincial Distribution of Electricity Generating Capacity

<table>
<thead>
<tr>
<th>Percent Distribution of MWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quebec</td>
</tr>
<tr>
<td>Ontario</td>
</tr>
<tr>
<td>Atlantic</td>
</tr>
<tr>
<td>BC</td>
</tr>
<tr>
<td>Prairies</td>
</tr>
<tr>
<td>Alberta</td>
</tr>
</tbody>
</table>

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

The investments in the next generation facilities that will change Quebec’s system will be less than proportional to its current share in the national capacity.

**Exhibit A2.3**
Provincial Distribution of New Investment in Electricity Generating Capacity

<table>
<thead>
<tr>
<th>Percent Distribution of New Investment, MWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quebec</td>
</tr>
<tr>
<td>Ontario</td>
</tr>
<tr>
<td>Atlantic</td>
</tr>
<tr>
<td>BC</td>
</tr>
<tr>
<td>Prairies</td>
</tr>
<tr>
<td>Alberta</td>
</tr>
</tbody>
</table>

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

Quebec’s current generating systems are concentrated in large hydro facilities
Exhibit A2.4
Existing Electrical Capacity by Type, Quebec
MWs

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

Investment plans for the Quebec system are skewed towards new wind generation and large hydro systems.

Exhibit A2.5
Investment in New Electrical Generating Capacity, Quebec
MWs

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

The investment plans for Quebec are concentrated on the generation systems but also include relatively larger changes to the distribution systems.
Workforce Profiles and Trends

This section reviews Quebec data for the workforce and occupation profiles and related trends.

Workforce Profile

The 2006 Statistics Canada Census reported that there were 27,270 people working in the Electricity and Renewable Energy industry in Quebec, 11,822 of these were in the core electricity sector occupations. By 2010 employment had grown by 3.0% to 28,042.

The age profile of the industry workforce has an extreme example of the distinctive peak for the younger boomers age 45 to 54 and the associated, smaller proportion of the Gen X workforce age 35 to 44. This profile is a consequence of the loss of employment and limited hiring during the 1990s.

Exhibit A2.7
Age Distribution of the Workforce
Electricity and Renewable Energy Providers, All Industries
Quebec, 2006

The Quebec workforce also has the characteristic higher education profile with a higher than average concentration of skilled trades and apprentices, technicians and technologists from the colleges and
engineers from the universities. Most of the workforce is older workers who graduated from post-secondary programs over twenty years ago.

Exhibit A2.8
Higher Education Achievement
Electricity and Renewable Energy Providers, All Industries
Quebec, 2006

The Quebec workforce is more concentrated in the natural and applied sciences (engineering), trades and technical occupations than other provinces.
Exhibit A2.9
Distribution of the Workforce by Occupation
Electricity and Renewable Energy Providers, All Industry
Quebec, 2006

*Includes: Stationary engineers, power station operators and electrical trades and telecommunications occupations
Source: Statistics Canada, 2006 Census

Women are a smaller proportion of the workforce than men, but Quebec has a marginally higher proportion of women compared to other provinces. This is typical of the gender composition of the key occupations.
Like the national workforce, the Quebec electricity sector workforce also has notably fewer immigrants than other industries. This is another consequence of the history of hiring Canadians in the 70’s and 80’s and employment losses and limited additions during the 1990s when immigration was rising.

**Post Secondary Education and Immigration**

There are two principal sources of labour supply: graduates from post secondary training programs and immigration. This section reviews recent trends for the electricity sector occupations.

Quebec shares national trends in post secondary education and training that impact the supply of new workers in the key applied sciences and technical occupations.

Engineering programs in Quebec feature gains for civil but weaker trends in enrolments and degrees awarded for electrical engineers.
Trends for apprenticeship programs, set out in Exhibit A2.12, show strong gains across the last decade for several skilled trades working in the electricity and renewable energy industry. Quebec does not offer the specialized trades training in key electricity sector occupations.
Finally, immigration trends are set out for permanent immigrants and temporary foreign workers arriving in Quebec with jobs or intending to work in the electricity sector occupations. The largest group represented here are engineers. Immigration has been largely unchanged since 2005.

### Exhibit A2.13

**Immigrants Arriving in Quebec**

**Electricity Sector Occupations, 1990 to 2010**

![Graph showing immigration trends from 1990 to 2010 for permanent and temporary immigrants in the electricity sector occupations in Quebec.]

Source: Citizenship and Immigration Canada
Key findings for Quebec include:

- **Retirements**
  - Age profiles for the Quebec survey respondents are slightly older than the profile for other electricity sector employers across Canada.
  - The average age at retirement for the Quebec workforce, 57, is notably lower than the national average.
  - A high and rising proportion of the workforce is expected to retire.
    - Over 4% of the respondents’ workforce in Quebec retired in 2010 and this is well above the national experience for electricity sector employers.
    - Respondents in Quebec report significant increases in projected retirements for 2012.
  - Findings imply that record high levels of retirements are expected from 2011 to 2016 in Quebec.
    - Projected levels of retirement are above the average national experience with a notable, large peak in retirements of skilled trades in Quebec by 2016.

- **Workforce dynamics**
  - Hiring rates and other measures of labour market dynamics show very tight markets.
  - Quebec respondents report most measures of turnover, hiring and vacant positions well above levels reported for other electricity sector employers and
    - Respondents report no difficulty hiring, likely due to the dominant position of major employers in the provincial economy.
  - In terms of where Quebec respondents hire, the survey indicates
    - Very limited reliance on immigration.
    - Significant variation across occupations with
      - Over 75% of many positions filled internally.
      - Reliance on hiring from outside the industry for non-electrical engineers, engineering technicians and technologists, skilled trades and IT support.
      - Reliance on hiring from the industry to fill electrical engineering, technician and skilled trades positions.

---

**Assessing Future Labour Markets and Human Resources Management**

A new labour market model projects market conditions from 2011 to 2016 to determine employment expansion demands. Expansion demands are related to expected investments and the growth in electricity demand. Replacement demands are driven by demographic trends and the employer survey estimates of expected retirements.
Labour Market Assessments

Electrical utility investments in Quebec have been growing steadily for many years and begin the projection period at a very high level. Investment and output slowed temporarily during the recession in 2009 but resumes expansion across the forecast period from 2011 to 2016. A construction surge is expected in 2012 as new projects begin and activity will remain well above current levels later in the forecast period.

Exhibit A2.14
Projections of Output, Investment and Employment
Quebec 2011 to 2016

Drivers of Utilities Employment Growth - Quebec

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

This pattern of investment and electricity demand is used to calculate employment growth by occupation.
### Exhibit A2.15

**Employment Growth by Occupation**

**Electricity Sector Occupations in Quebec**

<table>
<thead>
<tr>
<th>Occupations</th>
<th>2006</th>
<th>2010</th>
<th>2016</th>
<th>% Growth 2011 - 2016</th>
<th>Avg. annual growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering managers</td>
<td>66</td>
<td>68</td>
<td>79</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Construction managers</td>
<td>73</td>
<td>75</td>
<td>87</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Utilities managers</td>
<td>377</td>
<td>389</td>
<td>447</td>
<td>15.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Financial auditors and accountants</td>
<td>343</td>
<td>357</td>
<td>394</td>
<td>10.4%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Civil engineers</td>
<td>240</td>
<td>247</td>
<td>287</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Mechanical engineers</td>
<td>293</td>
<td>302</td>
<td>351</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Electrical and electronics engineers</td>
<td>1,606</td>
<td>1,652</td>
<td>1,922</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Information systems analysts and consultants</td>
<td>853</td>
<td>880</td>
<td>1,080</td>
<td>22.7%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Civil engineering technologists and technicians</td>
<td>375</td>
<td>387</td>
<td>445</td>
<td>15.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Mechanical engineering technologists and technicians</td>
<td>148</td>
<td>152</td>
<td>175</td>
<td>15.0%</td>
<td>3.0%</td>
</tr>
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<td>Electrical and electronics engineering technologists and technicians</td>
<td>991</td>
<td>1,023</td>
<td>1,176</td>
<td>15.0%</td>
<td>3.0%</td>
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<td>Contractors and supervisors, electrical trades and telecommunications occupations</td>
<td>602</td>
<td>619</td>
<td>721</td>
<td>16.3%</td>
<td>3.3%</td>
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<tr>
<td>Electricians (except industrial and power system)</td>
<td>71</td>
<td>73</td>
<td>85</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Industrial electricians</td>
<td>107</td>
<td>110</td>
<td>128</td>
<td>16.3%</td>
<td>3.3%</td>
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<tr>
<td>Power system electricians</td>
<td>1,933</td>
<td>1,988</td>
<td>2,313</td>
<td>16.3%</td>
<td>3.3%</td>
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<tr>
<td>Electrical power line and cable workers</td>
<td>2,139</td>
<td>2,200</td>
<td>2,559</td>
<td>16.3%</td>
<td>3.3%</td>
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<tr>
<td>Stationary engineers and auxiliary equipment operators</td>
<td>138</td>
<td>143</td>
<td>162</td>
<td>13.5%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Power systems and power station operators</td>
<td>957</td>
<td>988</td>
<td>1,135</td>
<td>15.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Construction millwrights and industrial mechanics (except textile)</td>
<td>511</td>
<td>526</td>
<td>612</td>
<td>16.3%</td>
<td>3.3%</td>
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</table>

<table>
<thead>
<tr>
<th>Employment 2011 to 2016</th>
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<tbody>
<tr>
<td>Engineering Managers</td>
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<tr>
<td>Construction Managers</td>
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<tr>
<td>Utilities Managers</td>
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<tr>
<td>Financial Auditors and Accountants</td>
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<td>Power System Electricians</td>
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<td></td>
<td></td>
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<tr>
<td>Electrical Power Line and Cable Workers</td>
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<td>68</td>
<td>79</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Construction managers</td>
<td>73</td>
<td>75</td>
<td>87</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Utilities managers</td>
<td>377</td>
<td>389</td>
<td>447</td>
<td>15.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Financial auditors and accountants</td>
<td>343</td>
<td>357</td>
<td>394</td>
<td>10.4%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Civil engineers</td>
<td>240</td>
<td>247</td>
<td>287</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Mechanical engineers</td>
<td>293</td>
<td>302</td>
<td>351</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Electrical and electronics engineers</td>
<td>1,606</td>
<td>1,652</td>
<td>1,922</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Information systems analysts and consultants</td>
<td>853</td>
<td>880</td>
<td>1,080</td>
<td>22.7%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Civil engineering technologists and technicians</td>
<td>375</td>
<td>387</td>
<td>445</td>
<td>15.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Mechanical engineering technologists and technicians</td>
<td>148</td>
<td>152</td>
<td>175</td>
<td>15.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Electrical and electronics engineering technologists and technicians</td>
<td>991</td>
<td>1,023</td>
<td>1,176</td>
<td>15.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Contractors and supervisors, electrical trades and telecommunications occupations</td>
<td>602</td>
<td>619</td>
<td>721</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Electricians (except industrial and power system)</td>
<td>71</td>
<td>73</td>
<td>85</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Industrial electricians</td>
<td>107</td>
<td>110</td>
<td>128</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Power system electricians</td>
<td>1,933</td>
<td>1,988</td>
<td>2,313</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Electrical power line and cable workers</td>
<td>2,139</td>
<td>2,200</td>
<td>2,559</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Stationary engineers and auxiliary equipment operators</td>
<td>138</td>
<td>143</td>
<td>162</td>
<td>13.5%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Power systems and power station operators</td>
<td>957</td>
<td>988</td>
<td>1,135</td>
<td>15.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Construction millwrights and industrial mechanics (except textile)</td>
<td>511</td>
<td>526</td>
<td>612</td>
<td>16.3%</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

| Electrical Occupations                           | 11,822| 12,178| 14,157| 16.3%                 | 3.3%                    |
| Other Occupations                                | 15,448| 15,865| 18,065| 13.9%                 | 2.8%                    |
| Total                                            | 27,270| 28,042| 32,222| 14.9%                 | 3.0%                    |

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

**Expansion demand**

Exhibit A2.16 tracks labour requirements for retirements and death (replacement demands) relative to the projected labour force in Quebec. The proportion of the workforce expected to retire in each year from 2011 to 2016 has been set below levels implied by survey results. This reflects the findings from comparing the 2008 report to the 2011 update. Respondents correctly projected large increases in retirements but overestimated the extent of the increase. Retirement projections in the 2011 Update have been adjusted to reflect this experience.
Exhibit A2.16

Retirement Projections for Electricity Sector Occupations

Retirements as Share of Electricity Sector Labour Force 2009 - 2016

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

Exhibit A2.17 adds together replacement and expansion demands for the electricity sector workforce in Quebec.

Exhibit A2.17

Total Employment Requirements, Electricity Sector Occupations
Quebec, 2011 to 2016

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006
Finally, Exhibit A2.18 tracks the potential labour supply from new entrants and net hiring from outside the industry. There are not enough potential new entrants to meet the projected requirements and this implies tight labour markets across the projected period from 2011 to 2016.

Exhibit A2.18
New Entrants and Labour Requirements

![Annual Gap Between New Entrants and Total Demand Requirements](image_url)

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

**Rankings**

Labour Market rankings for each occupation are based on market measures of the supply–demand gap, the change in employment and the age profiles and retirements.

**Labour Market Rankings Defined**

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<thead>
<tr>
<th>Rankings &amp; Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
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<tr>
<td></td>
</tr>
<tr>
<td><strong>2</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Significant supply pressures</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Difficulty across the board in recruiting qualified staff in the local and regional labour market. It is normal practice to actively solicit applications from outside the local and regional labour market and to reimburse applicants for travel expenses related to interviews. Employers are generally obliged to improve offered terms of compensation and to assist with re-location costs. Recruitment difficulties lead many employers to increase their use of third-party recruiters and to increase their use of contracting trades work, outsourcing of engineering and technology work to consultancies or staff the assignment with workers from another region. There is a significant increase in the risk of project delays and compensation-driven cost escalations.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Supply constraints</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Systemic difficulty in recruiting qualified staff. International recruiting is common among large employers. There is widespread perception that the contracting and consulting sector is working at full capacity and that there is little, if any, remaining scope to outsource construction, engineering and ICT work to qualified suppliers with a known track record.</td>
<td></td>
</tr>
</tbody>
</table>

Quebec labour markets for the electricity sector occupations are very tight in 2011 and 2012 as the investments in next generation projects increase. Electricity output regains pre-recession peaks in 2012 and investments continue to grow at a slower pace. Gains in post secondary education and training programs and completions add to the workforce of certified labour after 2013 and some rankings ease off. Where age profiles are high and retirements are rising, rankings are high later in the projection period.
### Exhibit A2.19

#### Quebec Labour Market Rankings

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering managers</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Construction managers</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Utilities managers</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Financial auditors and accountants</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Civil engineers</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Mechanical engineers</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Electrical and electronics engineers</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Information systems analysts and consultants</td>
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<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Civil engineering technicians and engineers</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Mechanical engineering technologists and technicians</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electrical and electronics engineering technicians</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Contractors and supervisors, electrical trades and telecommunications occupations</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electricians (except industrial and power system)</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Industrial electricians</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Power system electricians</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electrical power line and cable workers</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Stationary engineers and auxiliary equipment operators</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Power systems and power station operators</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Construction millwrights and industrial mechanics (except textile)</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011

#### Comments on Rankings for Quebec:

- Both structural (i.e. age profiles, retirement patterns) and cyclical (i.e. projected investments and internal dynamics for vacancies and hiring) measures show Quebec markets are tighter than in other provinces.
- Labour requirements and hiring related to retirements will be concentrated in experienced and specialized workers – not new entries or recent grads.
  - Rankings of 3 for some occupations may reflect the supply of junior applicants.
  - Competition with other industries for some occupations will be intense.
- Quebec survey respondents target recruiting internally, in the electrical industry or other industries. This source will be more limited during the 2011 to 2016 period.
- Immigration is an important source in other provinces but Quebec has not relied as much on this source. This may have to change.
- The build up in employment in 2011 raises rankings as work on new projects begins.
- Projects included in the current investment surge include major hydro electric developments as well as wind farms and major additions to the distribution system.
- In Quebec both expansion and replacement demand continues to grow across the 2011 to 2016 projection period so that rankings rise later in the period as labour force growth slows.
- Serious labour market and HR challenges are projected for Quebec. The special status of Hydro Quebec as a very high profile employer will attract many recruits and limit training, hiring and other challenges.
Appendix A – 3 British Columbia

Introduction

This appendix provides selected findings from the 2011 Labour Market Information Study for British Columbia.

Key exhibits in the national text are reproduced here using British Columbia data. Notes and highlights have been added comparing these British Columbia results to the trends and conclusions reported for Canada. This Appendix summarizes the key findings in each of three areas:

- Transition from Legacy to Next Generation
- The Workforce Profile and Trends
- Assessing Future Labour Markets and Human Resources Management

Transition from Legacy to Next Generation

In British Columbia the transition from Legacy to Next Generation Infrastructure is characterized by several changes.

### Exhibit A3.1

**Legacy to Next Generation**

<table>
<thead>
<tr>
<th>Legacy</th>
<th>Next Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twenty plus years of limited growth</td>
<td>Twenty years of rising investment</td>
</tr>
<tr>
<td>High concentration of capacity and workforce</td>
<td>Distributed generation of renewable capacity</td>
</tr>
<tr>
<td>Established support systems in post secondary programs, regulations</td>
<td>Deregulation, change to specialized, flexible training and certification</td>
</tr>
<tr>
<td>Stable, large scale operations</td>
<td>Large number of smaller new entrants</td>
</tr>
<tr>
<td>Long asset lives</td>
<td>Rapid replacement, high maintenance</td>
</tr>
<tr>
<td>Large employers, and a specialized, qualified, experienced workforce</td>
<td>Exit of experienced workforce; shortage of entrants with midlevel experience</td>
</tr>
<tr>
<td>Dominant, preferred employers in local labour markets</td>
<td>Intensifying competition in labour markets, post secondary programs</td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011
British Columbia findings focus on key occupations and:

- Past trends in investment and hiring that determine the Legacy infrastructure and workforce
- The current state of labour markets and the workforce
- The investments, demographic and output trends that drive employment from 2011 to 2016

The investments and related labour market impacts are distributed across the Provinces based on the current generating capacity. British Columbia is Canada’s third largest market for electricity.

**Exhibit A3.2**

**Provincial Distribution of Electricity Generating Capacity**

<table>
<thead>
<tr>
<th>Percent Distribution of MWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Columbia (BC)</td>
</tr>
<tr>
<td>Alberta</td>
</tr>
<tr>
<td>Prairies</td>
</tr>
<tr>
<td>Ontario</td>
</tr>
<tr>
<td>Quebec</td>
</tr>
<tr>
<td>Atlantic</td>
</tr>
</tbody>
</table>

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

The investments in the next generation facilities that will change British Columbia’s system will be proportional to its current share in the national capacity.

**Exhibit A3.3**

**Provincial Distribution of New Investment in Electricity Generating Capacity**

<table>
<thead>
<tr>
<th>Percent Distribution of New Investment, MWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Columbia (BC)</td>
</tr>
<tr>
<td>Alberta</td>
</tr>
<tr>
<td>Prairies</td>
</tr>
<tr>
<td>Ontario</td>
</tr>
<tr>
<td>Quebec</td>
</tr>
<tr>
<td>Atlantic</td>
</tr>
</tbody>
</table>

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

British Columbia’s current generating systems are concentrated in large hydro facilities.
Investment plans for the British Columbia system are skewed towards new wind generation and large hydro systems.

The investment plans for British Columbia are concentrated on the generation systems.
Exhibit A3.6
Investment in British Columbia Electricity Infrastructure 2010 to 2030, by Type

<table>
<thead>
<tr>
<th>Sector</th>
<th>2010 $ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation</td>
<td>19.4</td>
</tr>
<tr>
<td>Transmission</td>
<td>4.3</td>
</tr>
<tr>
<td>Distribution</td>
<td>4.1</td>
</tr>
<tr>
<td>Total</td>
<td>27.8</td>
</tr>
</tbody>
</table>

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

Workforce Profiles and Trends
This section reviews British Columbia data for the workforce and occupation profiles and related trends.

Workforce Profile
The 2006 Statistics Canada Census reported that there were 6,285 people working in the Electricity and Renewable Energy industry in British Columbia, 3,053 of these were in the core electricity sector occupations. By 2010 total industry employment had grown by 21.0% to 7,756.

The age profile of the industry workforce is similar to the other provinces with the distinctive peak for the younger boomers age 45 to 54 and the associated, smaller proportion of the Gen X workforce age 35 to 44. The proportion of the workforce aged 55 to 64 is higher than other provinces and anticipates a higher level of retirements. This profile is a consequence of the loss of employment and limited hiring during the 1990s.

Exhibit A3.7
Age Distribution of the Workforce
Electricity and Renewable Energy Providers, All Industries
British Columbia, 2006

Source: Statistics Canada, 2006 Census

The British Columbia workforce has the same higher education profile with a higher than average concentration of skilled trades and apprentices, technicians and technologists from the colleges and
engineers from the universities. Most of the workforce is older workers who graduated from post secondary programs over twenty years ago.

Exhibit A3.8  
Higher Education Achievement  
Electricity and Renewable Energy Providers, All Industries  
British Columbia, 2006

The British Columbia workforce is more concentrated in the natural and applied sciences (engineering), trades and technical occupations than other provinces.
Women are a smaller proportion of the workforce than men, but British Columbia has a marginally higher proportion of women in the electricity industry compared to other provinces. This is typical of the gender composition of the key occupations.
Like the national workforce, the British Columbia electricity sector workforce also has notably fewer immigrants than other industries. This is another consequence of the history of hiring Canadians in the 70’s and 80’s and employment losses and limited additions during the 1990s when immigration was rising.

**Post Secondary Education and Immigration**
There are two principal sources of labour supply: graduates from post secondary training programs and immigration. This section reviews recent trends for the Electricity sector occupations.

British Columbia shares national trends in post secondary education and training that impact the supply of new workers in the key applied sciences and technical occupations.

Engineering programs in British Columbia feature gains for civil and mechanical but weaker trends in enrolments and degrees awarded for electrical engineers.
Trends for apprenticeship programs, set out in Exhibit A3.12, show strong gains across the last decade for several skilled trades working in the electricity and renewable energy industry. British Columbia apprenticeship programs have expanded during the past decade, adding new registrations but completions – and the emerging number of journeypersons – have increased more slowly.
Exhibit A3.12
Apprenticeship Programs in British Columbia

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Millwright and Industrial Mechanic (Millwright)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Registrations</td>
<td>804</td>
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<td>780</td>
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<td>870</td>
<td>1044</td>
<td>1302</td>
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<td>Completions</td>
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<td>126</td>
<td>138</td>
<td>123</td>
<td>126</td>
<td>141</td>
<td>186</td>
</tr>
<tr>
<td>Electrician, Except Industrial and Power System</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Registrations</td>
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<td>3273</td>
<td>4041</td>
<td>5040</td>
<td>6321</td>
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<td>8325</td>
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<td>Completions</td>
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<td>Industrial Electrician</td>
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<td></td>
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<td>Power Systems Electrician</td>
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<td>Electrical Power Line and Cable Workers</td>
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<tr>
<td>Registrations</td>
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<td>159</td>
<td>189</td>
<td>207</td>
<td>255</td>
<td>291</td>
</tr>
<tr>
<td>Completions</td>
<td>12</td>
<td>9</td>
<td>12</td>
<td>21</td>
<td>27</td>
<td>36</td>
<td>24</td>
<td>45</td>
<td>51</td>
</tr>
<tr>
<td>Stationary Engineers and Auxiliary Equipment Operators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Completions</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3555</td>
<td>3768</td>
<td>3945</td>
<td>4212</td>
<td>5070</td>
<td>6273</td>
<td>7830</td>
<td>9474</td>
<td>10170</td>
</tr>
<tr>
<td>Registrations</td>
<td>555</td>
<td>480</td>
<td>468</td>
<td>444</td>
<td>435</td>
<td>534</td>
<td>471</td>
<td>714</td>
<td>906</td>
</tr>
<tr>
<td>Completions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Statistics Canada, Registered Apprenticeship Information System

Finally, immigration trends are set out for permanent immigrants and temporary foreign workers arriving in British Columbia with jobs or intending to work in the Electricity sector occupations. The largest group represented here are engineers. Immigration has been on a downward trend since 2005.
Exhibit A3.13

Immigrants Arriving in British Columbia
Electricity Sector Occupations, 1990 to 2010

Source: Citizenship and Immigration Canada

Occupations
Key findings for British Columbia in the employer survey include:

- **Retirements**
  - Age profiles for the British Columbia survey respondents are slightly older than the profile for other Electricity sector employers across Canada
  - The average age at retirement for the British Columbia workforce is similar to the national average
  - Detailed data on retirement patterns is not available for British Columbia

- **Workforce dynamics**
  - Limited BC data on hiring rates and other measures of labour market dynamics show tight markets, similar to other provincial markets

Assessing Future Labour Markets and Human Resources Management
A new labour market model projects market conditions from 2011 to 2016 to determine employment expansion demands. Expansion demands are related to expected investments and the growth in electricity demand. Replacement demands are driven by demographic trends and the employer survey estimates of expected retirements.
**Labour Market Assessments**

Electrical utility investments in British Columbia are expected to expand more than in other provinces. Output slowed temporarily during the recession in 2009 but resumes expansion across the forecast period from 2011 to 2016. Construction activity is running at almost twice historical levels as new projects began in the past three years and activity will surge to even higher levels later in the forecast period.

**Exhibit A3.14**

Projections of Output, Investment and Employment

British Columbia 2011 to 2016

This pattern of investment and electricity demand is used to calculate employment growth by occupation.
Exhibit A3.15
Employment Growth by Occupation
Electricity Sector Occupations in British Columbia

<table>
<thead>
<tr>
<th>Occupations</th>
<th>2006</th>
<th>2010</th>
<th>2016</th>
<th>% Growth 2011 - 2016</th>
<th>Avg. annual growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering managers</td>
<td>56</td>
<td>69</td>
<td>77</td>
<td>11.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Construction managers</td>
<td>34</td>
<td>42</td>
<td>47</td>
<td>11.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Utilities managers</td>
<td>438</td>
<td>513</td>
<td>571</td>
<td>11.4%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Financial auditors and accountants</td>
<td>64</td>
<td>63</td>
<td>71</td>
<td>11.5%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Civil engineers</td>
<td>52</td>
<td>64</td>
<td>72</td>
<td>11.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Mechanical engineers</td>
<td>223</td>
<td>275</td>
<td>306</td>
<td>11.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Electrical and electronics engineers</td>
<td>384</td>
<td>474</td>
<td>528</td>
<td>11.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Information systems analysts and consultants</td>
<td>72</td>
<td>84</td>
<td>98</td>
<td>17.1%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Civil engineering technologists and technicians</td>
<td>23</td>
<td>27</td>
<td>30</td>
<td>11.4%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Mechanical engineering technologists and technicians</td>
<td>21</td>
<td>25</td>
<td>28</td>
<td>11.4%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Electrical and electronics engineering technologists and technicians</td>
<td>338</td>
<td>396</td>
<td>441</td>
<td>11.4%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Contractors and supervisors, electrical trades and telecom occupations</td>
<td>55</td>
<td>67</td>
<td>75</td>
<td>11.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Electricians (except industrial and power system)</td>
<td>19</td>
<td>24</td>
<td>26</td>
<td>11.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Industrial electricians</td>
<td>43</td>
<td>53</td>
<td>59</td>
<td>11.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Power system electricians</td>
<td>322</td>
<td>397</td>
<td>442</td>
<td>11.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Electrical power line and cable workers</td>
<td>587</td>
<td>724</td>
<td>806</td>
<td>11.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Stationary engineers and auxiliary equipment operators</td>
<td>11</td>
<td>12</td>
<td>14</td>
<td>11.5%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Power systems and power station operators</td>
<td>208</td>
<td>244</td>
<td>271</td>
<td>11.4%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Construction millwrights and industrial mechanics (except textile)</td>
<td>103</td>
<td>127</td>
<td>142</td>
<td>11.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td><strong>Electrical Occupations</strong></td>
<td>3,053</td>
<td>3,683</td>
<td>4,104</td>
<td>11.4%</td>
<td>2.3%</td>
</tr>
<tr>
<td><strong>Other Occupations</strong></td>
<td>3,232</td>
<td>4,074</td>
<td>4,526</td>
<td>11.1%</td>
<td>2.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>6,285</td>
<td>7,756</td>
<td>8,630</td>
<td>11.3%</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

Expansion demand

Exhibit A3.16 tracks labour requirements for retirements and death (replacement demands) relative to the projected labour force in British Columbia. The proportion of the workforce expected to retire in each year from 2011 to 2016 has been set below levels implied by survey results. This reflects the findings from comparing the 2008 report to the 2011 update. Respondents correctly projected large increases in retirements but overestimated the extent of the increase. Retirement projections in the 2011 Update have been adjusted to reflect this experience.
Exhibit A3.16
Retirement Projections for Electricity Sector Occupations

Retirements as Share of Electricity Sector Labour Force 2009 - 2016

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

Exhibit A3.17 adds together replacement and expansion demands for the Electricity sector workforce in British Columbia.
Finally Exhibit A3.18 tracks the potential labour supply from new entrants and net hiring from outside the industry. There are not enough potential new entrants to meet the projected requirements and this implies tight labour markets across the projected period from 2011 to 2016.

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006
### Labour Market Rankings Defined

<table>
<thead>
<tr>
<th>Rank</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Significant excess of supply over demand</strong></td>
<td>No difficulty in recruiting qualified staff with 0-5 years or 5-10 years of Canadian experience at established compensation norms within the local labour market.</td>
</tr>
<tr>
<td>2</td>
<td><strong>Excess of supply over demand</strong></td>
<td>No difficulty in recruiting qualified staff with 0-5 years or with 5-10 years of Canadian experience at established compensation norms within the local or regional labour market. The geographic range of recruiting and the range of acceptable qualifications is broader than in 1.</td>
</tr>
<tr>
<td>3</td>
<td><strong>Moderate supply pressures</strong></td>
<td>Difficulty in recruiting qualified staff with more than 5 years of Canadian experience, with industry or technology-specific skills, and with appropriate non-technical skills. The time required to fill these positions is typically longer than historic norms. Vacancies sometimes need to be re-posted. Employers actively solicit applications from outside the local and regional labour market and reimburse applicants for travel expenses related to interviews, etc. Recruiting engineering staff with 0-5 years of Canadian experience poses fewer challenges.</td>
</tr>
<tr>
<td>4</td>
<td><strong>Significant supply pressures</strong></td>
<td>Difficulty across the board in recruiting qualified staff in the local and regional labour market. It is normal practice to actively solicit applications from outside the local and regional labour market and to reimburse applicants for travel expenses related to interviews. Employers are generally obliged to improve offered terms of compensation and to assist with re-location costs. Recruitment difficulties lead many employers to increase their use of third-party recruiters and to increase their use of contracting trades work, outsourcing of engineering and technology work to consultancies or staff the assignment with workers from another region. There is a significant increase in the risk of project delays and compensation-driven cost escalations.</td>
</tr>
<tr>
<td>5</td>
<td><strong>Supply constraints</strong></td>
<td>Systemic difficulty in recruiting qualified staff. International recruiting is common among large employers. There is widespread perception that the contracting and consulting sector is working at full capacity and that there is little, if any, remaining scope to outsource construction, engineering and ICT work to qualified suppliers with a known track record.</td>
</tr>
</tbody>
</table>
British Columbia labour markets for the Electricity sector occupations are very tight from 2010 to 2014 as the investments in next generation projects increase. Major projects reach peak employment and begin to ramp down in 2015 and 2016. Electricity output regains pre-recession peaks in 2012 and investment activity holds at a high level until another surge as a major project begins in 2014.

Gains in post secondary education and training programs and completions add to the workforce of certified labour after 2013 but the added workers are not sufficient to meet demand. The provincial workforce is not large enough to accommodate the planned investment until activity passes the 2014 peak. Where age profiles are average and retirements are rising, rankings are high later in the projection period.

**Exhibit A3.19**

**British Columbia Labour Market Rankings**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering managers</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Construction managers</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Utilities managers</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Financial auditors and accountants</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Civil engineers</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mechanical engineers</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Electrical and electronics engineers</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Information systems analysts and consultants</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Civil engineering technologists and technicians</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mechanical engineering technologists and technicians</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Contractors and supervisors, electrical trades and telecommunications occupations</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Electricians (except industrial and power system)</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial electricians</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Power system electricians</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electrical power line and cable workers</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Stationary engineers and auxiliary equipment operators</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Power systems and power station operators</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Construction millwrights and industrial mechanics (except textile)</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Source:** ESC Employer Survey 2011

**Comments on Rankings for British Columbia:**

- The BC labour force for both the core electricity sector and next generation is not large enough to accommodate the new projects that began in 2010 and continue to hire workers until 2014.
- Structural (i.e. age profile) and cyclical (i.e. projected investments and internal dynamics for vacancies and hiring) measures anticipate that British Columbia markets are tighter than in other provinces.
- Labour requirements and hiring related to retirements will be concentrated in experienced and specialized workers – not new entries or recent grads, and
  - Rankings of 3 for some occupations may reflect the supply of junior applicants
  - Competition with other industries for some occupations will be intense
- Immigration will continue to be an important source of labour in British Columbia.
- Serious labour market and HR challenges are projected for British Columbia
  - The special status of British Columbia Hydro as a very high profile employer will attract many recruits and limit the training, hiring and other challenges.
Appendix A – 4 Alberta

Introduction

This appendix provides selected findings from the 2011 Labour Market Information Study for Alberta.

Key exhibits in the national text are reproduced here using Alberta data. Notes and highlights have been added comparing these Alberta results to the trends and conclusions reported for Canada. This Appendix summarizes the key findings in each of three areas:

- Transition from Legacy to Next Generation
- The Workforce Profile and Trends
- Assessing Future Labour Market and Human Resources Management

Transition from Legacy to Next Generation

In Alberta the transition from Legacy to Next Generation Infrastructure is characterized by several changes.

Exhibit A4.1
Legacy to Next Generation

<table>
<thead>
<tr>
<th>Legacy</th>
<th>Next Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twenty plus years of limited growth</td>
<td>Twenty years of rising investment</td>
</tr>
<tr>
<td>High concentration of capacity and workforce</td>
<td>Distributed generation of renewable capacity</td>
</tr>
<tr>
<td>Established support systems in post secondary programs, regulations</td>
<td>Deregulation, change to specialized, flexible training and certification</td>
</tr>
<tr>
<td>Stable, large scale operations</td>
<td>Large number of smaller new entrants</td>
</tr>
<tr>
<td>Long asset lives</td>
<td>Rapid replacement, high maintenance</td>
</tr>
<tr>
<td>Large employers, and a specialized, qualified, experienced workforce</td>
<td>Exit of experienced workforce; shortage of entrants with midlevel experience</td>
</tr>
<tr>
<td>Dominant, preferred employers in local labour markets</td>
<td>Intensifying competition in labour markets, post secondary programs</td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011
Alberta findings focus on key occupations and:

- Past trends in investment and hiring that determine the Legacy infrastructure and workforce,
- The current state of labour markets and the workforce, and
- The investments, demographics and output trends that drive employment from 2011 to 2016.

The investments and related labour market impacts are distributed across the Provinces based on the current generating capacity. Alberta has Canada’s fourth largest provincial electricity generating capacity.

**Exhibit A4.2**

**Provincial Distribution of Electricity Generating Capacity**

<table>
<thead>
<tr>
<th>Percent Distribution of MWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quebec</td>
</tr>
<tr>
<td>Ontario</td>
</tr>
<tr>
<td>Atlantic</td>
</tr>
<tr>
<td>BC</td>
</tr>
<tr>
<td>Prairies</td>
</tr>
<tr>
<td>Alberta</td>
</tr>
</tbody>
</table>

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

The investments in the next generation facilities that will change Alberta’s system will be more than proportional to its current share in the national capacity.

**Exhibit A4.3**

**Provincial Distribution of New Investment in Electricity Generating Capacity**

<table>
<thead>
<tr>
<th>Percent Distribution of New Investment, MWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quebec</td>
</tr>
<tr>
<td>Ontario</td>
</tr>
<tr>
<td>Atlantic</td>
</tr>
<tr>
<td>BC</td>
</tr>
<tr>
<td>Prairies</td>
</tr>
<tr>
<td>Alberta</td>
</tr>
</tbody>
</table>

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

Alberta’s current generating systems are concentrated in conventional coal and gas facilities.
Investment plans for the Alberta system are skewed towards new wind generation and conventional coal and gas systems.

The investment plans for Alberta are concentrated on the generation systems.
Workforce Profiles and Trends

This section reviews Alberta data for the workforce and occupation profiles and related trends.

Workforce Profile

The 2006 Statistics Canada Census reported that there were 9,380 people working in the Electricity and Renewable Energy industry in Alberta, 4,761 of these were in the core Electricity Sector Occupations. By 2010 total industry employment had grown by 26.0% to 12,860.

The age profile of the industry workforce is younger to the other provinces but retains the distinctive peak for the younger boomers age 45 to 54 and the associated, smaller proportion of the Gen X workforce age 35 to 44. The proportion of the workforce aged 55 to 64 is higher than other provinces and anticipates a higher level of retirements. This profile is a consequence of the loss of employment and limited hiring during the 1990s.
The Alberta workforce has the same higher education profile with a higher than average concentration of skilled trades and apprentices, technicians and technologists from the colleges and engineers from the universities. Most of the workforce is older workers who graduated from post secondary programs over twenty years ago.

Exhibit A4.8
Higher Education Achievement
Electricity and Renewable Energy Providers, All Industries
Alberta, 2006

Source: Statistics Canada, 2006 Census

The Alberta workforce is more concentrated in the natural and applied sciences (engineering), trades and technical occupations than other provinces.
Exhibit A4.9

Distribution of the Workforce by Occupation

Electricity and Renewable Energy Providers, All Industry

Alberta, 2006

*Includes: Stationary engineers, power station operators and electrical trades and telecommunications occupations

Source: Statistics Canada, 2006 Census

Women are a smaller proportion of the workforce than men, but Alberta has a marginally higher proportion of women in the electricity industry compared to other provinces. This is typical of the gender composition of the key occupations.
Like the national workforce, the Alberta electricity sector workforce also has notably fewer immigrants than other industries. This is another consequence of the history of hiring Canadians in the 70’s and 80’s and employment losses and limited additions during the 1990s when immigration was rising.

**Post Secondary Education and Immigration**

There are two principal sources of labour supply: graduates from post secondary training programs and immigration. This section reviews recent trends for the electricity sector occupations.

Alberta shares national trends in post secondary education and training that impact the supply of new workers in the key applied sciences and technical occupations.

Engineering programs in Alberta feature strong gains for civil and mechanical but weaker trends in enrolments and degrees awarded for electrical engineers.
Trends for apprenticeship programs, set out in Exhibit A4.12, show strong gains across the last decade for several skilled trades working in the electricity and renewable energy industry. Alberta has been a national leader in this area. Alberta apprenticeship programs have expanded during the past decade, adding new registrations at a faster pace than the national average. Completions in Alberta – and the emerging number of journeypersons – have increased in line with registrations.
Exhibit A4.12
Apprenticeship Programs in Alberta

<table>
<thead>
<tr>
<th>Engineering Programs</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Millwright and Industrial Mechanic (Millwright)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>1599</td>
<td>1710</td>
<td>1782</td>
<td>1770</td>
<td>1719</td>
<td>1947</td>
<td>2319</td>
<td>2556</td>
<td>2784</td>
</tr>
<tr>
<td>Completions</td>
<td>156</td>
<td>204</td>
<td>165</td>
<td>204</td>
<td>162</td>
<td>204</td>
<td>228</td>
<td>201</td>
<td>216</td>
</tr>
<tr>
<td>Electrician, Except Industrial and Power System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>5754</td>
<td>6975</td>
<td>7878</td>
<td>8154</td>
<td>8094</td>
<td>8910</td>
<td>10347</td>
<td>11892</td>
<td>13173</td>
</tr>
<tr>
<td>Completions</td>
<td>372</td>
<td>525</td>
<td>630</td>
<td>651</td>
<td>783</td>
<td>894</td>
<td>942</td>
<td>1053</td>
<td>1035</td>
</tr>
<tr>
<td>Industrial Electrician</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Completions</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Power Systems Electrician</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>84</td>
<td>99</td>
<td>123</td>
<td>144</td>
<td>147</td>
<td>186</td>
<td>210</td>
<td>234</td>
<td>279</td>
</tr>
<tr>
<td>Completions</td>
<td>12</td>
<td>9</td>
<td>12</td>
<td>12</td>
<td>9</td>
<td>18</td>
<td>27</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>Electrical Power Line and Cable Workers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>204</td>
<td>243</td>
<td>291</td>
<td>327</td>
<td>372</td>
<td>429</td>
<td>516</td>
<td>633</td>
<td>732</td>
</tr>
<tr>
<td>Completions</td>
<td>18</td>
<td>30</td>
<td>15</td>
<td>18</td>
<td>36</td>
<td>48</td>
<td>45</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>Stationary Engineers and Auxiliary Equipment Operators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Completions</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>7641</td>
<td>9027</td>
<td>10074</td>
<td>10395</td>
<td>10332</td>
<td>11472</td>
<td>13392</td>
<td>15315</td>
<td>16968</td>
</tr>
<tr>
<td>Registrations</td>
<td>558</td>
<td>768</td>
<td>822</td>
<td>885</td>
<td>990</td>
<td>1164</td>
<td>1242</td>
<td>1332</td>
<td>1332</td>
</tr>
</tbody>
</table>

Source: Statistics Canada, Registered Apprenticeship Information System

Finally, immigration trends are set out for permanent immigrants and temporary foreign workers arriving in Alberta with jobs or intending to work in the electricity sector occupations. The largest group represented here are engineers.

Exhibit A4.13
Immigrants Arriving in Alberta
Electricity Sector Occupations, 1990 to 2010

Source: Citizenship and Immigration Canada
**Supply side survey – Alberta findings**

4 Alberta post secondary institutions responded to the ESC survey. Responses reported:

- Enrolments in electricity related programs in Alberta are expected to rise faster than other programs and faster than increases reported in other provinces.

**Occupations**

15 Alberta employers (out of a total national response of 89) responded to the ESC survey.

Key findings for Alberta include:

- Retirements
  - Age profiles for the Alberta survey respondents are similar to the profile for other electricity sector employers across Canada
  - The average age at retirement for the Alberta workforce is similar to the national average
  - Detailed data on retirement patterns is not available for Alberta

- Workforce dynamics
  - Some Alberta respondents reported above average growth expectations for employment
  - Limited Alberta data on hiring rates and other measures of labour market dynamics show tight markets, similar to other provincial markets

**Assessing Future Labour Markets and Human Resources Management**

A new labour market model projects market conditions from 2011 to 2016 to determine employment expansion demands. Expansion demands are related to expected investments and the growth in electricity demand. Replacement demands are driven by demographic trends and the employer survey estimates of expected retirements.

**Labour Market Assessments**

Electrical utility investments in Alberta have been on a strong upward path over the past decade. Gains were briefly interrupted during the 2008-2009 recession but growth has resumed. New projects are both starting and reaching completion in the coming years. Strong gains in 2011 will create a temporary surge in employment and then activity settles back to a high but more sustainable level. Activity from 2012 to 2016, while down from the 2011 peak, remains well above the levels of the past decade.
This pattern of investment and electricity demand is used to calculate employment growth by occupation. Employment numbers for the electricity sector occupations in Exhibit A4.15 reflect a peak starting point and modest declines in 2012 and 2013 are a retreat to more sustainable levels.
Exhibit A4.15
Employment Growth by Occupation
Electricity Sector Occupations in Alberta

<table>
<thead>
<tr>
<th>Occupations</th>
<th>2006</th>
<th>2010</th>
<th>2016</th>
<th>% Growth 2011 - 2016</th>
<th>Avg. annual growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering managers</td>
<td>81</td>
<td>106</td>
<td>108</td>
<td>1.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Construction managers</td>
<td>14</td>
<td>18</td>
<td>18</td>
<td>1.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Utilities managers</td>
<td>485</td>
<td>601</td>
<td>630</td>
<td>4.9%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Financial auditors and accountants</td>
<td>306</td>
<td>311</td>
<td>356</td>
<td>14.5%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Civil engineers</td>
<td>27</td>
<td>35</td>
<td>36</td>
<td>1.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Mechanical engineers</td>
<td>238</td>
<td>314</td>
<td>320</td>
<td>1.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Electrical and electronics engineers</td>
<td>435</td>
<td>573</td>
<td>584</td>
<td>1.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Information systems analysts and consultants</td>
<td>283</td>
<td>308</td>
<td>330</td>
<td>7.2%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Civil engineering technologists and technicians</td>
<td>16</td>
<td>20</td>
<td>21</td>
<td>4.9%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Mechanical engineering technologists and technicians</td>
<td>59</td>
<td>73</td>
<td>77</td>
<td>4.9%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Electrical and electronics engineering technologists and technicians</td>
<td>334</td>
<td>413</td>
<td>434</td>
<td>4.9%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Contractors and supervisors, electrical trades and</td>
<td>77</td>
<td>102</td>
<td>103</td>
<td>1.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>telecommunications occupations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricians (except industrial and power system)</td>
<td>38</td>
<td>51</td>
<td>52</td>
<td>1.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Industrial electricians</td>
<td>31</td>
<td>41</td>
<td>42</td>
<td>1.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Power system electricians</td>
<td>288</td>
<td>380</td>
<td>387</td>
<td>1.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Electrical power line and cable workers</td>
<td>1,112</td>
<td>1,466</td>
<td>1,493</td>
<td>1.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Stationary engineers and auxiliary equipment operators</td>
<td>49</td>
<td>57</td>
<td>61</td>
<td>8.1%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Power systems and power station operators</td>
<td>609</td>
<td>755</td>
<td>792</td>
<td>4.9%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Construction millwrights and industrial mechanics (except textile)</td>
<td>284</td>
<td>374</td>
<td>381</td>
<td>1.8%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

Electrical Occupations
- 4,764
- 5,998
- 6,226
- 3.8%
- 0.8%

Other Occupations
- 4,616
- 6,372
- 6,176
- -3.1%
- -0.6%

Total
- 9,380
- 12,370
- 12,402
- 0.3%
- 0.1%

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

Expansion demand
Exhibit A4.16 tracks labour requirements for retirements and death (replacement demands) relative to the projected labour force in Alberta. The proportion of the workforce expected to retire in each year from 2011 to 2016 has been set below levels implied by survey results. This reflects the findings from comparing the 2008 report to the 2011 update.
Exhibit A4.16
Retirement Projections for Electricity Sector Occupations

Retirements as Share of Electricity Sector Labour Force 2009 - 2016

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

Exhibit A4.17 adds together replacement and expansion demands for the electricity sector workforce in Alberta.

Exhibit A4.17
Total Employment Requirements, Electricity Sector Occupations, Alberta, 2011 to 2016

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006
Finally Exhibit A4.18 tracks the potential labour supply from new entrants and net hiring from outside the industry. There are not enough potential new entrants to meet the projected requirements and this implies tight labour markets even in 2012 and 2013 as conditions ease off the peak activity in 2011. The implication here is that recruiting will shift to labour markets in other provinces or outside Canada.

Exhibit A4.18
New Entrants and Labour Requirements

![Bar chart showing the annual gap between new entrants and total demand requirements from 2011 to 2016.](chart)

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

**Rankings**

Labour market rankings for each occupation are based on market measures of the supply-demand gap, the change in employment and the age profiles and retirements.

**Labour Market Rankings Defined**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Significant excess of supply over demand</strong></td>
</tr>
<tr>
<td></td>
<td>No difficulty in recruiting qualified staff with 0-5 years or 5-10 years of</td>
</tr>
<tr>
<td></td>
<td>Canadian experience at established compensation norms within the local</td>
</tr>
<tr>
<td></td>
<td>labour market.</td>
</tr>
<tr>
<td>2</td>
<td><strong>Excess of supply over demand</strong></td>
</tr>
<tr>
<td></td>
<td>No difficulty in recruiting qualified staff with 0-5 years or with 5-10</td>
</tr>
<tr>
<td></td>
<td>years of Canadian experience at established compensation norms within the</td>
</tr>
<tr>
<td></td>
<td>local or regional labour market.</td>
</tr>
<tr>
<td></td>
<td>The geographic range of recruiting and the range of acceptable qualifications is broader than in 1.</td>
</tr>
<tr>
<td></td>
<td>Moderate supply pressures</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------</td>
</tr>
<tr>
<td>3</td>
<td>Difficulty in recruiting qualified staff with more than 5 years of Canadian experience, with industry or technology-specific skills, and with appropriate non-technical skills. The time required to fill these positions is typically longer than historic norms. Vacancies sometimes need to be re-posted. Employers actively solicit applications from outside the local and regional labour market and reimburse applicants for travel expenses related to interviews, etc. Recruiting engineering staff with 0-5 years of Canadian experience poses fewer challenges.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Significant supply pressures</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Difficulty across the board in recruiting qualified staff in the local and regional labour market. It is normal practice to actively solicit applications from outside the local and regional labour market and to reimburse applicants for travel expenses related to interviews. Employers are generally obliged to improve offered terms of compensation and to assist with re-location costs. Recruitment difficulties lead many employers to increase their use of third-party recruiters and to increase their use of contracting trades work, outsourcing of engineering and technology work to consultancies or staff the assignment with workers from another region. There is a significant increase in the risk of project delays and compensation-driven cost escalations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Supply constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Systemic difficulty in recruiting qualified staff. International recruiting is common among large employers. There is widespread perception that the contracting and consulting sector is working at full capacity and that there is little, if any, remaining scope to outsource construction, engineering and ICT work to qualified suppliers with a known track record.</td>
</tr>
</tbody>
</table>

Alberta labour markets for the electricity sector occupations are very tight from 2010 and 2011 as new electricity and renewable energy projects start up. Some major projects reach peak employment and begin to ramp down in 2012 and 2013. Conditions reach more stable levels from 2014 to 2016 and rankings are driven by replacement demands and the rising number of retirements. Rankings are generally higher for the older occupations.
Comments on rankings for Alberta

- The Alberta labour force for both the core electricity sector and next generation is not large enough to accommodate the new projects that began in 2010 and continue to hire workers in 2011.
- Structural (i.e. age profile) and cyclical (i.e. projected investments and internal dynamics for vacancies and hiring) measures anticipate that Alberta markets are tighter than in other provinces.
- Labour requirements and hiring related to retirements will be concentrated in experienced and specialized workers – not new entries or recent grads, and
  - Rankings of 3 for some occupations may reflect the supply of junior applicants
  - Competition with other industries for some occupations will be intense
- Post secondary programs – especially for the skilled trades – are growing strongly and will help to fill the ranks of entry level and junior workers.
- Immigration will continue to be an important source of labour in Alberta.
- Serious labour market and HR challenges are projected for Alberta.
Appendix A – 5 Manitoba and Saskatchewan

Introduction

This appendix provides selected findings from the 2011 Labour Market Information Study for Saskatchewan and Manitoba.

Key exhibits in the national text are reproduced here using Saskatchewan and Manitoba data. Notes and highlights have been added comparing these Saskatchewan and Manitoba results to the trends and conclusions reported for Canada. This Appendix summarizes the key findings in each of three areas:

- Transition from Legacy to Next Generation
- The Workforce Profile and Trends
- Assessing Future Labour Markets and Human Resources Management

Transition from Legacy to Next Generation

In Saskatchewan and Manitoba the transition from Legacy to Next Generation Infrastructure is characterized by several changes.

<table>
<thead>
<tr>
<th>Legacy</th>
<th>Next Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twenty plus years of limited growth</td>
<td>Twenty years of rising investment</td>
</tr>
<tr>
<td>High concentration of capacity and workforce</td>
<td>Distributed generation of renewable capacity</td>
</tr>
<tr>
<td>Established support systems in post secondary programs, regulations</td>
<td>Deregulation, change to specialized, flexible training and certification</td>
</tr>
<tr>
<td>Stable, large scale operations</td>
<td>Large number of smaller new entrants</td>
</tr>
<tr>
<td>Long asset lives</td>
<td>Rapid replacement, high maintenance</td>
</tr>
<tr>
<td>Large employers, and a specialized, qualified, experienced workforce</td>
<td>Exit of experienced workforce; shortage of entrants with midlevel experience</td>
</tr>
<tr>
<td>Dominant, preferred employers in local labour markets</td>
<td>Intensifying competition in labour markets, post secondary programs</td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011
Saskatchewan and Manitoba findings focus on key occupations and:

- Past trends in investment and hiring that determine the Legacy infrastructure and workforce,
- The current state of labour markets and workforce and
- The investments, demographic and output trends that drive employment from 2011 to 2016.

The investments and related labour market impacts are distributed across the Provinces based on the current generating capacity. Saskatchewan and Manitoba represent one of Canada’s smaller electricity markets, responsible for less than 10% of Canada’s electricity generating capacity.

Exhibit A5.2
Provincial Distribution of Electricity Generating Capacity
Percent Distribution of MWs

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

The investments in the next generation facilities that will change Saskatchewan and Manitoba’s system will be roughly proportional to its current share in the national capacity.

Exhibit A5.3
Provincial Distribution of New Investment in Electricity Generating Capacity
Percent Distribution of New Investment, MWs

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011
Saskatchewan and Manitoba's current combined generating systems are concentrated in large hydro and conventional gas/coal facilities; large hydro dominates in Manitoba while conventional gas/coal is more prominent in Saskatchewan.

**Exhibit A5.4**
Existing Electrical Capacity by Type, Saskatchewan and Manitoba
MWs

![Pie chart showing existing electrical capacity by type]

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

The investment plans for Saskatchewan and Manitoba are dominated by the expansion of large hydro and wind generation systems driven, in part, by rising demand in the US. Modest investments are also planned for the transmission and distribution systems.

**Exhibit A5.5**
Investment in New Electrical Generating Capacity, Saskatchewan and Manitoba
MWs

![Pie chart showing investment in new electrical generating capacity]

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011
Exhibit A5.6
Investment in Saskatchewan and Manitoba Electricity Infrastructure 2010 to 2030, by Type

<table>
<thead>
<tr>
<th>Sector</th>
<th>2010 $ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation</td>
<td>20.5</td>
</tr>
<tr>
<td>Transmission*</td>
<td>3.5</td>
</tr>
<tr>
<td>Distribution</td>
<td>3.1</td>
</tr>
<tr>
<td>Total</td>
<td>27.1</td>
</tr>
</tbody>
</table>

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

Workforce Profiles and Trends

This section reviews Saskatchewan and Manitoba data for the workforce and occupation profiles and related trends.

**Workforce Profile**

The 2006 Statistics Canada Census reported that there were 8,755 people working in the Electricity and Renewable Energy industry in Saskatchewan and Manitoba, 3,954 of these were in the core Electricity Sector Occupations. By 2010 employment had grown by 11% to 9,979.

The age profile of the industry workforce has the distinctive peak for the younger boomers age 45 to 54 and the associated, smaller proportion of the Gen X workforce age 35 to 44. This profile is a consequence of the loss of employment and limited hiring during the 1990s.

Exhibit A5.7
Age Distribution of the Workforce
Electricity and Renewable Energy Providers, All Industries
Saskatchewan and Manitoba, 2006

Source: Statistics Canada, 2006 Census
The Saskatchewan and Manitoba workforce also has the characteristic higher education profile with a higher than average concentration of skilled trades and apprentices, technicians and technologists from the colleges and engineers from the universities. Most of the workforce is older workers who graduated from post secondary programs over twenty years ago.

Exhibit A5.8
Higher Education Achievement
Electricity and Renewable Energy Providers, All Industries
Saskatchewan and Manitoba, 2006

![Bar chart showing education attainment]

Source: Statistics Canada, 2006 Census

The Saskatchewan and Manitoba workforce is concentrated in the natural and applied sciences (engineering), trades and technical occupations. The proportion of the workforce with an apprenticeship or trades certificate or diploma relative to college and university degrees or diplomas is higher than other regions of the country. This may be attributed to the relatively high number of in-house training and apprenticeship programs offered by major employers such as Manitoba Hydro.
Exhibit A5.9
Distribution of the Workforce by Occupation
Electricity and Renewable Energy Providers, All Industry
Saskatchewan and Manitoba, 2006

*Includes: Stationary engineers, power station operators and electrical trades and telecommunications occupations
Source: Statistics Canada, 2006 Census
Exhibit A5.10
Distribution of the Workforce by Gender
Electricity and Renewable Energy Providers, All Industries
Percentage of Women in the Workforce, Saskatchewan and Manitoba, 2006

*Includes: Stationary engineers, power station operators and electrical trades and telecommunications occupations
Source: Statistics Canada, 2006 Census

Women in the Prairie Provinces, as in the rest of Canada, are a smaller proportion of the workforce than men. This is typical of the gender composition of the key occupations.

Like the national workforce, the Saskatchewan and Manitoba electricity sector workforce also has notably fewer immigrants than other industries.

This is another consequence of the history of hiring Canadians in the 70’s and 80’s and employment losses and limited additions during the 1990s when immigration was rising.

Post Secondary Education and Immigration
There are two principal sources of labour supply: graduates from post secondary training programs and immigration. This section reviews recent trends for the electricity sector occupations.

Saskatchewan and Manitoba share national trends in post secondary education and training that impact the supply of new workers in the key applied sciences and technical occupations.
Engineering programs in Saskatchewan and Manitoba feature very strong gains for civil, but weaker trends in enrolments and degrees awarded for electrical engineers.

**Exhibit A5.11**
Undergraduate Degrees Awarded in Engineering Programs
Saskatchewan and Manitoba

Trends for apprenticeship programs, set out in Exhibit A5.12, show strong gains across the last decade for apprenticeship programs in the electricity and renewable energy industry. New registrations and completions have both risen significantly, with strongest growth concentrated in the Electrician and Electrical Power Line apprenticeship programs.
Finally, immigration trends are set out for permanent immigrants and temporary foreign workers arriving in Saskatchewan and Manitoba with jobs or intending to work in the electricity sector occupations. The largest group represented here are engineers. The Prairie Provinces have attracted a larger share of Canada’s immigrants over the last decade. This has resulted in a strong rise in immigration into Saskatchewan and Manitoba since 2005. It is important to note that the increase is entirely attributed to a rise in the number of temporary foreign workers.
Exhibit A5.13

Immigrants Arriving in Saskatchewan and Manitoba
Electricity Sector Occupations, 1990 to 2010

Supply side survey – Saskatchewan and Manitoba findings
3 large Saskatchewan and Manitoba post secondary institutions, offering 23 electricity sector related programs, responded to the ESC survey.
Responses were close to national totals and reported:

- Enrolments in electricity related programs were rising at faster rate than other programs
- Expected increases in enrolments from 2011 to 2016 are higher in Saskatchewan and Manitoba than other provinces
- Institutions reported having programs targeted at aboriginals, women and foreign trained engineers
- The main barrier to expanding electricity related programs is the cost related to new technologies
- Gaps were identified in renewable energy technology programs

Occupations
Key findings for Saskatchewan and Manitoba include:
- Retirements
  o Age profiles for the Saskatchewan and Manitoba survey respondents are very similar to the Census profiles
A high and rising proportion of the workforce are expected to retire
  • Projected retirements for 2012, in the 2008 survey, were well above the 2010 results
  • Findings imply that record high levels of retirements are expected from 2011 to 2016

Workforce dynamics
  • Hiring rates and other measures of labour market dynamics show very tight markets
  • Responding firms report moderate difficulty hiring for engineering occupations
  • Strong recruitment competition from construction and mining industries

Assessing Future Labour Markets and Human Resources Management
A new labour market model projects market conditions from 2011 to 2016 using expected investments and the growth in electricity demand to determine employment expansion demands. Replacement demands are driven by demographic trends and the employer survey estimates of expected retirements.

Labour Market Assessments
Projections for next generation investments in Saskatchewan and Manitoba grow significantly across the forecast period from 2011 to 2016, driven by large hydro and wind power investments. The pattern of investment and electricity demand as illustrated in Exhibit A5.14 is used to calculate employment growth by occupation.
### Exhibit A5.15

**Employment Growth by Occupation**

**Electricity Sector Occupations in Saskatchewan and Manitoba**

<table>
<thead>
<tr>
<th>Occupations</th>
<th>2006</th>
<th>2010</th>
<th>2016</th>
<th>% Growth 2011 - 2016</th>
<th>Avg. annual growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering managers</td>
<td>22</td>
<td>25</td>
<td>32</td>
<td>28.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Construction managers</td>
<td>9</td>
<td>11</td>
<td>14</td>
<td>28.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Utilities managers</td>
<td>197</td>
<td>217</td>
<td>270</td>
<td>24.0%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Financial auditors and accountants</td>
<td>152</td>
<td>150</td>
<td>167</td>
<td>11.7%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Civil engineers</td>
<td>67</td>
<td>76</td>
<td>98</td>
<td>28.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Mechanical engineers</td>
<td>159</td>
<td>182</td>
<td>233</td>
<td>28.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Electrical and electronics engineers</td>
<td>347</td>
<td>395</td>
<td>507</td>
<td>28.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Information systems analysts and consultants</td>
<td>116</td>
<td>128</td>
<td>173</td>
<td>35.1%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Civil engineering technologists and technicians</td>
<td>31</td>
<td>34</td>
<td>43</td>
<td>24.0%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Mechanical engineering technologists and technicians</td>
<td>44</td>
<td>48</td>
<td>60</td>
<td>24.0%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Electrical and electronics engineering technologists and technicians</td>
<td>453</td>
<td>499</td>
<td>619</td>
<td>24.0%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Contractors and supervisors, electrical trades and telecommunications occupations</td>
<td>111</td>
<td>126</td>
<td>162</td>
<td>28.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Electricians (except industrial and power system)</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>28.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Industrial electricians</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>28.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Power system electricians</td>
<td>348</td>
<td>397</td>
<td>509</td>
<td>28.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Electrical power line and cable workers</td>
<td>913</td>
<td>1,040</td>
<td>1,335</td>
<td>28.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Stationary engineers and auxiliary equipment operators</td>
<td>95</td>
<td>101</td>
<td>121</td>
<td>19.9%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Power systems and power station operators</td>
<td>718</td>
<td>790</td>
<td>981</td>
<td>24.0%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Construction millwrights and industrial mechanics (except textile)</td>
<td>166</td>
<td>189</td>
<td>242</td>
<td>28.3%</td>
<td>5.7%</td>
</tr>
</tbody>
</table>

|             | Employment 2011 to 2016 | |
|-------------|-------------------------|
| Electrical Occupations       | 3,954 | 4,414 | 5,571 | 26.2% | 5.2% |
| Other Occupations            | 4,801 | 5,564 | 7,231 | 30.0% | 6.0% |
| Total                      | 8,755 | 9,979 |12,803 | 28.3% | 5.7% |

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

**Expansion demand**

Exhibit A5.16 tracks labour requirements for retirements and death (replacement demands) relative to the projected labour force in Saskatchewan and Manitoba.
Exhibit A5.16

Retirement Projections for Electricity Sector Occupations

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

Exhibit A5.17 adds together the annual change in replacement and expansion demands for the electricity sector workforce in Saskatchewan and Manitoba.
Finally Exhibit A5.18 tracks the change in the potential labour supply from new entrants and net hiring from outside the industry. There are not enough potential new entrants to meet the projected requirements and this implies tight labour markets across the projected period from 2011 to 2016. 57% of labour requirements between 2011 and 2016 will need to be met through in-migration from outside the province or from outside the electricity industry.
Rankings

Labour Market rankings for each occupation are based on market measures of the supply–demand gap, the change in employment and the age profiles and retirements.

Labour Market Rankings Defined

<table>
<thead>
<tr>
<th>Rankings &amp; Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Significant excess of supply over demand</td>
<td>No difficulty in recruiting qualified staff with 0-5 years or 5-10 years of Canadian experience at established compensation norms within the local labour market.</td>
</tr>
<tr>
<td><strong>2</strong> Excess of supply over demand</td>
<td>No difficulty in recruiting qualified staff with 0-5 years or with 5-10 years of Canadian experience at established compensation norms within the local or regional labour market. The geographic range of recruiting and the range of acceptable qualifications is broader than in 1.</td>
</tr>
<tr>
<td><strong>3</strong> Moderate supply pressures</td>
<td>Difficulty in recruiting qualified staff with more than 5 years of Canadian experience, with industry or technology-specific skills, and with appropriate non-technical skills. The time required to fill these positions is typically longer than historic norms. Vacancies sometimes need to be re-posted. Employers actively solicit applications from outside the local and regional labour market and reimburse applicants for travel expenses related to interviews, etc. Recruiting engineering staff with 0-5 years of Canadian experience poses fewer challenges.</td>
</tr>
<tr>
<td><strong>4</strong> Significant supply pressures</td>
<td>Difficulty across the board in recruiting qualified staff in the local and regional labour market. It is normal practice to actively solicit applications from outside the local and regional labour market and to reimburse applicants for travel expenses related to interviews. Employers are generally obliged to improve offered terms of compensation and to assist with re-location costs. Recruitment difficulties lead many employers to increase their use of third-party recruiters and to increase their use of contracting trades work, outsourcing of engineering and technology work to consultancies or staff the assignment with workers from another region. There is a significant increase in the risk of project delays and compensation-driven cost escalations.</td>
</tr>
<tr>
<td><strong>5</strong> Supply constraints</td>
<td>Systemic difficulty in recruiting qualified staff. International recruiting is common among large employers. There is widespread perception that the contracting and consulting sector is working at full capacity and that there is little, if any, remaining scope to outsource construction, engineering and ICT work to qualified suppliers with a known track record.</td>
</tr>
</tbody>
</table>
Saskatchewan and Manitoba labour markets for the electricity sector occupations are very tight in 2011 and 2012 as the investments in next generation projects increase. Electricity output remains fairly steady over the forecast period. Conditions return to balance late in the scenario as the pace of investment in new generation infrastructure slows.

Exhibit A5.19

Saskatchewan and Manitoba Labour Market Rankings

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering managers</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Construction managers</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Utilities managers</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Financial auditors and accountants</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Civil engineers</td>
<td>4</td>
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<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mechanical engineers</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Electrical and electronics engineers</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Information systems analysts and consultants</td>
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<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Civil engineering technologists and technicians</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mechanical engineering technologists and technicians</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Electrical and electronics engineering technologists and technicians</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Contractors and supervisors, electrical trades and telecommunications occupations</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Electricians (except industrial and power system)</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Industrial electricians</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Power system electricians</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electrical power line and cable workers</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Stationary engineers and auxiliary equipment operators</td>
<td>4</td>
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<td>4</td>
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<tr>
<td>Power systems and power station operators</td>
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<td>4</td>
<td>4</td>
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<td>4</td>
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<tr>
<td>Construction millwrights and industrial mechanics (except textile)</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Comments on Rankings for Saskatchewan and Manitoba:

- Labour requirements and hiring related to retirements will be concentrated in experienced and specialized workers – not new entries or recent grads, and
  - Rankings of 3 for some occupations may reflect the supply of junior applicants
  - Competition with other industries for some occupations will be intense
- Saskatchewan and Manitoba have a large and growing immigrant population that will include some older and specialized workers
- In Saskatchewan and Manitoba expansion demand growth peaks between 2013 and 2014 while replacement demand continues to grow across the 2011 to 2016 projection period. Immigration along with continued recruitment and training efforts return markets to balanced conditions later in the period.
Appendix A – 6  Atlantic Canada

Introduction

This appendix provides selected findings from the 2011 Labour Market Information Study for Atlantic Canada.

Key exhibits in the national text are reproduced here using Atlantic Canada data. Notes and highlights have been added comparing these Atlantic Canada results to the trends and conclusions reported for Canada. This Appendix summarizes the key findings in each of three areas:

- Transition from Legacy to Next Generation
- The Workforce Profile and Trends
- Assessing Future Labour Markets and Human Resources Management

Transition from Legacy to Next Generation

In Atlantic Canada the transition from Legacy to Next Generation Infrastructure is characterized by several changes.

Exhibit A6.1

<table>
<thead>
<tr>
<th>Legacy</th>
<th>Next Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twenty plus years of limited growth</td>
<td>Twenty years of rising investment</td>
</tr>
<tr>
<td>High concentration of capacity and workforce</td>
<td>Distributed generation of renewable capacity</td>
</tr>
<tr>
<td>Established support systems in post secondary programs, regulations</td>
<td>Deregulation, change to specialized, flexible training and certification</td>
</tr>
<tr>
<td>Stable, large scale operations</td>
<td>Large number of smaller new entrants</td>
</tr>
<tr>
<td>Long asset lives</td>
<td>Rapid replacement, high maintenance</td>
</tr>
<tr>
<td>Large employers, and a specialized, qualified, experienced workforce</td>
<td>Exit of experienced workforce; shortage of entrants with midlevel experience</td>
</tr>
<tr>
<td>Dominant, preferred employers in local labour markets</td>
<td>Intensifying competition in labour markets, post secondary programs</td>
</tr>
</tbody>
</table>

Source: ESC Employer Survey 2011
Atlantic Canada findings focus on key occupations and:

- Past trends in investment and hiring that determine the Legacy infrastructure and workforce,
- The current state of labour markets and the workforce and
- The investments, demographics and output trends that drive employment from 2011 to 2016.

The investments and related labour market impacts are distributed across the Provinces based on the current generating capacity.

**Exhibit A6.2**

**Provincial Distribution of Electricity Generating Capacity**

**Percent Distribution of MWs**

Source: "Canada’s Electricity Infrastructure: Building a Case for Investment" Conference Board of Canada, April 2011

The investments in the next generation facilities that will change Atlantic Canada’s system will be more than proportional to its current share in the national capacity.

**Exhibit A6.3**

**Provincial Distribution of New Investment in Electricity Generating Capacity**

**Percent Distribution of New Investment, MWs**

Source: "Canada’s Electricity Infrastructure: Building a Case for Investment" Conference Board of Canada, April 2011
Atlantic Canada’s current generating systems are concentrated in conventional coal and gas and large hydro facilities. The former are in the Maritime Provinces and the latter in Newfoundland and Labrador.

Exhibit A6.4
Existing Electrical Capacity by Type, Atlantic Canada
MWs

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

Investment plans for the Atlantic Canada system are skewed towards new wind generation and large hydro systems.

Exhibit A6.5
Investment in New Electrical Generating Capacity, Atlantic Canada
MWs

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011
The available investment plans for Atlantic Canada are concentrated on the generation systems. Some details are not yet available for major transmission lines.

**Exhibit A6.6**

Investment in Atlantic Canada Electricity Infrastructure 2010 to 2030, by Type

<table>
<thead>
<tr>
<th>Sector</th>
<th>2010 $ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation</td>
<td>23.1</td>
</tr>
<tr>
<td>Transmission*</td>
<td>2.0</td>
</tr>
<tr>
<td>Distribution</td>
<td>2.1</td>
</tr>
<tr>
<td>Total</td>
<td>27.1</td>
</tr>
</tbody>
</table>

Source: “Canada’s Electricity Infrastructure: Building a Case for Investment” Conference Board of Canada, April 2011

*No transmission project costs published for PEI

**Workforce Profiles and Trends**

This section reviews Atlantic Canada data for the workforce and occupation profiles and related trends.

**Workforce Profile**

The 2006 Statistics Canada Census reported that there were 6,830 people working in the Electricity and Renewable Energy industry in Atlantic Canada, 3,523 of these were in the core Electricity Sector Occupations. By 2010 total industry employment had grown by 8.6% to 7,422.

The age profile of the industry workforce is very similar to the other provinces and includes the distinctive peak for the younger boomers age 45 to 54 and the associated, smaller proportion of the Gen X workforce age 35 to 44. The proportion of the workforce aged 55 to 64 is the same as other provinces and anticipates a high level of retirements. This profile is a consequence of the loss of employment and limited hiring during the 1990s.
The Atlantic Canada workforce has the same higher education profile with a higher than average concentration of skilled trades and apprentices, technicians and technologists from the colleges and engineers from the universities. Most of the workforce is older workers who graduated from post secondary programs over twenty years ago.

The Atlantic Canada workforce is heavily concentrated in the natural and applied sciences (engineering), trades and technical occupations than other provinces.
Women are a smaller proportion of the workforce than men, and Atlantic Canada has the same proportion of women in the electricity industry compared to other provinces. This is typical of the gender composition of the key occupations.
Like the national workforce, the Atlantic Canada electricity sector workforce also has notably fewer immigrants than other industries. This is another consequence of the history of hiring Canadians in the 70’s and 80’s and employment losses and limited additions during the 1990s when immigration was rising.

**Post Secondary Education and Immigration**

There are two principal sources of labour supply: graduates from post secondary training programs and immigration. This section reviews recent trends for the electricity sector occupations.

Atlantic Canada shares national trends in post secondary education and training that impact the supply of new workers in the key applied sciences and technical occupations.

Engineering programs in Atlantic Canada feature strong gains for mechanical but weaker trends in enrolments and degrees awarded for electrical engineers.
Trends for apprenticeship programs, set out in Exhibit A6.12, show gains across the last decade for the electricians and related skilled trades, but declining completions for millwrights and stationary engineers.
## Exhibit A6.12
### Apprenticeship Programs in Atlantic Canada

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction Millwright and Industrial Mechanic (Millwright)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>1038</td>
<td>1227</td>
<td>1254</td>
<td>1233</td>
<td>1182</td>
<td>978</td>
<td>993</td>
<td>888</td>
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<tr>
<td>Completions</td>
<td>132</td>
<td>108</td>
<td>114</td>
<td>111</td>
<td>105</td>
<td>93</td>
<td>75</td>
<td>66</td>
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<tr>
<td><strong>Electrician, Except Industrial and Power System</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td>Registrations</td>
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<td>2664</td>
<td>2820</td>
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<td>168</td>
<td>171</td>
<td>228</td>
<td>249</td>
<td>279</td>
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<tr>
<td><strong>Industrial Electrician</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Registrations</td>
<td>387</td>
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<td>450</td>
<td>471</td>
<td>444</td>
<td>435</td>
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<tr>
<td>Completions</td>
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<td>27</td>
<td>30</td>
<td>27</td>
<td>27</td>
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<tr>
<td><strong>Power Systems Electrician</strong></td>
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<td></td>
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<td>Completions</td>
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<td>0</td>
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<td></td>
</tr>
<tr>
<td><strong>Electrical Power Line and Cable Workers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Registrations</td>
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<td>282</td>
<td>225</td>
<td>222</td>
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<td>24</td>
<td>39</td>
<td>54</td>
<td>24</td>
<td>21</td>
<td>24</td>
</tr>
<tr>
<td><strong>Stationary Engineers and Auxiliary Equipment Operators</strong></td>
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<td></td>
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<td>288</td>
<td>291</td>
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<tr>
<td>Completions</td>
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<td>12</td>
<td>18</td>
<td>24</td>
<td>42</td>
<td>21</td>
<td>6</td>
<td>15</td>
<td>9</td>
</tr>
</tbody>
</table>

| Total                | 3783     | 4383     | 4692     | 4923     | 4968     | 4755     | 4770     | 5073     | 5307     |
| Completions          | 399      | 300      | 285      | 282      | 384      | 375      | 360      | 378      | 429      |

Source: Statistics Canada, Registered Apprenticeship Information System

Finally, immigration trends are set out for permanent immigrants and temporary foreign workers arriving in Atlantic Canada with jobs or intending to work in the electricity sector occupations. The largest group represented here are engineers and new arrivals for all the electricity sector occupations have hit a plateau since 2003.
**Supply side survey – Atlantic Canada findings**

4 Atlantic Canada post secondary institutions responded to the ESC survey. Responses reported:

- Enrolments in electricity related programs in Atlantic Canada are expected to rise faster than other programs and faster than increases reported in other provinces.

**Occupations**

6 Atlantic Canada employers (out of a total national response of 89) responded to the ESC survey. Key findings for Atlantic Canada include:

- **Retirements**
  - Age profiles for the Atlantic Canada survey respondents are slightly older than the profile for other electricity sector employers across Canada
  - The average age at retirement for the Atlantic Canada workforce is similar to or slightly older than the national average
  - Some respondents expect rapid growth in the number of retirements

- **Workforce dynamics**
  - Survey respondents indicated only limited or no growth in staff related to operations
Limited Atlantic Canada data on hiring rates and other measures of labour market dynamics show only moderately tight markets.

Assessing Future Labour Markets and Human Resources Management

A new labour market model projects market conditions from 2011 to 2016. Labour requirements related to expansion are driven by expected investments and the growth in electricity output. Replacement demands are driven by demographic trends and the employer survey estimates of expected retirements.

Labour Market Assessments

Electrical utility investments in Atlantic Canada have been on a strong upward path over the past decade. The investment profile for the 2011 to 2016 period is dominated by the development of major hydro facilities in Newfoundland and Labrador. There will be associated transmission work that is not yet included in the projections. New projects are starting now and employment continues to ramp up to 2013. There are also several wind projects planned and underway across the region. Construction and related activity will continue at record high levels until 2016.

In contrast the growth in operations and output will be more limited. Industry output will not regain the pre-recession levels until 2012 and then it resumes moderate growth as new capacity comes on stream. Labour requirements related to operating the new capacity are limited. Employment demands will be concentrated on the investment side.

Exhibit A6.14

Projections of Output, Investment and Employment

Atlantic Canada 2011 to 2016

This pattern of investment and electricity demand is used to calculate employment growth by occupation.
## Exhibit A6.15

### Employment Growth by Occupation

#### Electricity Sector Occupations in Atlantic Canada

<table>
<thead>
<tr>
<th>Occupations</th>
<th>2006</th>
<th>2010</th>
<th>2016</th>
<th>% Growth 2011 - 2016</th>
<th>Avg. annual growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering managers</td>
<td>36</td>
<td>38</td>
<td>53</td>
<td>40.2%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Construction managers</td>
<td>10</td>
<td>10</td>
<td>15</td>
<td>40.2%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Utilities managers</td>
<td>290</td>
<td>299</td>
<td>398</td>
<td>33.0%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Financial auditors and accountants</td>
<td>98</td>
<td>97</td>
<td>109</td>
<td>12.3%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Civil engineers</td>
<td>31</td>
<td>32</td>
<td>45</td>
<td>40.2%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Mechanical engineers</td>
<td>175</td>
<td>183</td>
<td>256</td>
<td>40.2%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Electrical and electronics engineers</td>
<td>299</td>
<td>313</td>
<td>439</td>
<td>40.2%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Information systems analysts and consultants</td>
<td>117</td>
<td>121</td>
<td>179</td>
<td>48.4%</td>
<td>9.7%</td>
</tr>
<tr>
<td>Civil engineering technologists and technicians</td>
<td>15</td>
<td>16</td>
<td>21</td>
<td>33.0%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Mechanical engineering technologists and technicians</td>
<td>54</td>
<td>56</td>
<td>74</td>
<td>33.0%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Electrical and electronics engineering technologists and technicians</td>
<td>289</td>
<td>299</td>
<td>398</td>
<td>33.0%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Contractors and supervisors, electrical trades and telecommunications occupations</td>
<td>35</td>
<td>37</td>
<td>51</td>
<td>40.2%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Electricians (except industrial and power system)</td>
<td>47</td>
<td>49</td>
<td>68</td>
<td>40.2%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Industrial electricians</td>
<td>30</td>
<td>32</td>
<td>45</td>
<td>40.2%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Power system electricians</td>
<td>224</td>
<td>234</td>
<td>328</td>
<td>40.2%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Electrical power line and cable workers</td>
<td>873</td>
<td>913</td>
<td>1,280</td>
<td>40.2%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Stationary engineers and auxiliary equipment operators</td>
<td>107</td>
<td>110</td>
<td>138</td>
<td>25.9%</td>
<td>5.2%</td>
</tr>
<tr>
<td>Power systems and power station operators</td>
<td>601</td>
<td>613</td>
<td>772</td>
<td>25.9%</td>
<td>5.2%</td>
</tr>
<tr>
<td>Construction millwrights and industrial mechanics (except textile)</td>
<td>192</td>
<td>201</td>
<td>281</td>
<td>40.2%</td>
<td>8.0%</td>
</tr>
</tbody>
</table>

### Employment 2011 to 2016

<table>
<thead>
<tr>
<th>Occupations</th>
<th>2006</th>
<th>2010</th>
<th>2016</th>
<th>% Growth 2011 - 2016</th>
<th>Avg. annual growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Occupations</td>
<td>3,523</td>
<td>3,651</td>
<td>4,950</td>
<td>35.6%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Other Occupations</td>
<td>3,307</td>
<td>3,491</td>
<td>5,063</td>
<td>45.0%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Total</td>
<td>6,830</td>
<td>7,142</td>
<td>10,013</td>
<td>40.2%</td>
<td>8.0%</td>
</tr>
</tbody>
</table>

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

Exhibit A6.16 tracks labour requirements for retirements and death (replacement demands) relative to the projected labour force in Atlantic Canada. The proportion of the workforce expected to retire in each year from 2011 to 2016 rises steadily but has been set below levels implied by survey results. This reflects the findings from comparing the 2008 report to the 2011 update.
Exhibit A6.16
Retirement Projections for Electricity Sector Occupations

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

Exhibit A6.17 adds together the annual change in replacement and expansion demands for the electricity sector workforce in Atlantic Canada. The distinct peaks and troughs in expansion demand reflect the investment cycle and announced project start and ending dates. The smoother rise in replacement demand reflects the steady aging of the workforce and growing numbers of employees reaching retirement age.

Exhibit A6.17
Total Employment Requirements, Electricity Sector Occupations
Atlantic Canada, 2011 to 2016

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006
Finally Exhibit A6.18 tracks the change in the potential labour supply from new entrants and net hiring from outside the industry. There are not enough new entrants to meet the projected change in requirements and this implies tight labour markets in 2012 and 2013 as conditions ease off the peak activity in 2010. The implication here is that recruiting will shift to labour markets in other provinces or outside Canada.

Exhibit A6.18
New Entrants and Labour Requirements

![Graph showing annual gap between new entrants and total demand requirements]

Source: Centre for Spatial Economics, ESC Employer Survey 2011, Census 2006

Rankings
Labour Market rankings for each occupation are based on market measures of the supply – demand gap, the change in employment and the age profiles and retirements.

Labour Market Rankings Defined

<table>
<thead>
<tr>
<th>Rankings &amp; Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Significant excess of supply over demand</td>
</tr>
<tr>
<td>No difficulty in recruiting qualified staff with 0-5 years or 5-10 years of Canadian experience at established compensation norms within the local labour market.</td>
</tr>
<tr>
<td>2. Excess of supply over demand</td>
</tr>
<tr>
<td>No difficulty in recruiting qualified staff with 0-5 years or with 5-10 years of Canadian experience at established compensation norms within the local or regional labour market. The geographic range of recruiting and the range of acceptable qualifications is broader than in 1.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>5</td>
</tr>
</tbody>
</table>

Atlantic Canada labour markets for the electricity sector occupations are very tight from 2011 and 2013 as new electricity and renewable energy projects start up. The overall level of employment remains well above past peaks and market will remain tight.

After 2014 rankings are driven higher by replacement demands and the rising number of retirements. Rankings are generally higher for the older occupations.
Comments on Rankings for Atlantic Canada:

- The Atlantic Canada labour force dedicated to the projected investment and construction activity is not large enough to accommodate the new projects that began in 2010 and continue to hire workers until 2013.
- Labour requirements related to output growth are much more limited and will not exceed the available workforce.
- Structural (i.e. age profile) and cyclical (i.e. projected investments and internal dynamics for vacancies and hiring) measures anticipate that Atlantic Canada markets are tighter than in other provinces.
  - Labour requirements and hiring related to retirements will be concentrated in experienced and specialized workers – not new entries or recent grads, and competition with other industries for some occupations will be intense.
- Post secondary programs for the electrical skilled trades are growing strongly and will help to fill the ranks of entry level and junior workers, but other post secondary programs are lagging and will not meet growing requirements.
- Immigration will continue to be an important source of labour in Atlantic Canada, but recent levels are low.
- Serious labour market and HR challenges are projected for Atlantic Canada.
Appendix B    List of Participants

We would like to acknowledge the generous time and support of the employers, educational institutions and other key stakeholders who participated in this study.

<table>
<thead>
<tr>
<th>Organizations</th>
<th>Central Alberta Rural Electrification Association</th>
<th>Horizon Utilities Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. R. Milne Electrical Ltd.</td>
<td>City of Medicine Hat, Electric Utility</td>
<td>Hubbell Canada LP</td>
</tr>
<tr>
<td>Ace Construction Ltd.</td>
<td>City of New Westminster</td>
<td>Hydro One Inc.</td>
</tr>
<tr>
<td>Advantage Electric Thunder Bay Ltd.</td>
<td>City of Penticton</td>
<td>Hydro Ottawa Holding Inc.</td>
</tr>
<tr>
<td>Alberta Electric System Operator</td>
<td>City of Red Deer</td>
<td>Hydro-Québec</td>
</tr>
<tr>
<td>All - Tech Services</td>
<td>City of Swift Current Light &amp; Power</td>
<td>KEMA Consulting Canada Limited</td>
</tr>
<tr>
<td>Allteck Line Contractors</td>
<td>Commercial Electric (Welland) Limited</td>
<td>Langley Utilities Contracting</td>
</tr>
<tr>
<td>Anmar Mechanical and Electrical Contractors Ltd.</td>
<td>Cubit Power Systems</td>
<td>Leader Resources Services Corp</td>
</tr>
<tr>
<td>Arrow Installations</td>
<td>Dryden Electrix Inc.</td>
<td>Manitoba Hydro</td>
</tr>
<tr>
<td>ATCO Electric</td>
<td>Electrigaz Inc.</td>
<td>Nalcor Energy</td>
</tr>
<tr>
<td>ATCO Power</td>
<td>Énergie Northland Power Québec S.E.C.</td>
<td>New Brunswick Power Corporation</td>
</tr>
<tr>
<td>Atikokan Hydro Inc.</td>
<td>Enersource</td>
<td>Newfoundland Power Inc.</td>
</tr>
<tr>
<td>Battle River Rural Electrification Association</td>
<td>ENMAX Corporation</td>
<td>Norfolk Power Distribution</td>
</tr>
<tr>
<td>BC Hydro</td>
<td>Électric Inc.</td>
<td>Nova Scotia Power Inc.</td>
</tr>
<tr>
<td>Brant County Power</td>
<td>EPCOR</td>
<td>Oakville HE Distribution Inc.</td>
</tr>
<tr>
<td>Broder Electric Ltd.</td>
<td>Festival Hydro Inc.</td>
<td>Ontario Power Generation Inc.</td>
</tr>
<tr>
<td>Brookfield Renewable Power</td>
<td>FortisAlberta</td>
<td>OZZ Electric Inc.</td>
</tr>
<tr>
<td>Bruce Power</td>
<td>FortisBC</td>
<td>Partner Technologies Inc.</td>
</tr>
<tr>
<td>Burlington Hydro Inc.</td>
<td>Guelph Hydro Electric Systems Inc.</td>
<td>Paul Reitzel Industrial</td>
</tr>
<tr>
<td>Cambridge &amp; N. Dumfries Hydro Inc.</td>
<td>Horizon Electric Inc.</td>
<td>Peterborough Utilities Group</td>
</tr>
<tr>
<td>Cartier Énergie Éolienne inc.</td>
<td>Horizon Power Installations</td>
<td>Powerline Utility Contractors Inc.</td>
</tr>
</tbody>
</table>
**Organizations, cont’d**

<table>
<thead>
<tr>
<th>Organization</th>
<th>Saint John Energy</th>
<th>Toronto Hydro Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerTel Utilities Contractors Ltd.</td>
<td>SaskPower</td>
<td>Valard Construction Ltd.</td>
</tr>
<tr>
<td>Primary Engineering &amp; Construction</td>
<td>Sioux Lookout Hydro</td>
<td>Valley Power Line Contracting Ltd.</td>
</tr>
<tr>
<td>PUC Services Inc.</td>
<td>South Alta Rural Electrification Association</td>
<td>Wasaga Distribution Inc.</td>
</tr>
<tr>
<td>Rideau St. Lawrence Distribution Inc.</td>
<td>Sunny Corner Enterprises</td>
<td>Westario Power Inc.</td>
</tr>
<tr>
<td>Roberts Onsite</td>
<td>Tetra Tech</td>
<td>Western Pacific Enterprises GP</td>
</tr>
<tr>
<td>Rocky Rural Electrification Association</td>
<td>Thunder Bay Hydro Electricity Distribution Inc.</td>
<td>Woodstock Hydro Services</td>
</tr>
<tr>
<td>S&amp;C Electric Canada Ltd.</td>
<td>Tillsonburg Hydro Inc.</td>
<td>Yukon Energy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ZE Power Engineering</td>
</tr>
</tbody>
</table>

**Educational Institutions**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Lakehead University</th>
<th>Nova Scotia Community College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algonquin College</td>
<td>Lambton College</td>
<td>Okanagan College</td>
</tr>
<tr>
<td>Cambrian College</td>
<td>Loyalist College of Applied Arts and Technology</td>
<td>PWU Training Inc</td>
</tr>
<tr>
<td>Cégep de Victoriaville</td>
<td>McMaster University</td>
<td>Red River College</td>
</tr>
<tr>
<td>Collège Boréal</td>
<td>Memorial University</td>
<td>Royal Military College of Canada</td>
</tr>
<tr>
<td>Collège communautaire du Nouveau-Brunswick Campus de Bathurst</td>
<td>New Brunswick Community College</td>
<td>Saskatchewan Institute of Applied Science and Technology (SIAST)</td>
</tr>
<tr>
<td>College of the North Atlantic</td>
<td>Niagara College</td>
<td>Sault College</td>
</tr>
<tr>
<td>Confederation College</td>
<td>North Island College</td>
<td>Seneca College</td>
</tr>
<tr>
<td>Dawson College</td>
<td>Northern Alberta Institute of Technology</td>
<td>Simon Fraser University</td>
</tr>
<tr>
<td>Georgian College</td>
<td>Northern College of Applied Arts and Technology</td>
<td>St.Clair College</td>
</tr>
<tr>
<td>Humber Institute of Technology &amp; Advanced Learning</td>
<td>Northern Lights College</td>
<td>Thompson Rivers University</td>
</tr>
</tbody>
</table>
Educational Institutions, cont'd

Université de Moncton
University of Alberta
University of Calgary
University of Manitoba
University of New Brunswick
University of Toronto
University of Victoria
University of Waterloo
Western University
Appendix C  Methodology

This appendix documents the methodology and primary data used in the 2011 ESC LMI Study. It covers the basic data sources, the surveys and interviews that guided the work and the labour market assessment process that summarizes the analysis into individual market rankings.

The analysis in the report is built on five sources:

1. Interviews
2. A survey of post secondary institutions
3. The employer survey
4. Statistical sources
5. A labour market assessment model

Interviews
Interviews with industry stakeholders were conducted at the start of the assignment. These fifteen interviews asked key industry stakeholders for their views on labour market conditions, their use of existing Labour Market Information provided by the Electricity Sector Council and their expectations for the current round of analysis. Responses were used to fine tune survey questions and to guide the addition of an inquiry into “next generation” occupations that are involved with the construction of new infrastructure by contractors and consultancies outside the electricity sector organizations. Respondents confirmed the general approach to the research and endorsed the value of the earlier studies and the intent to link the 2011 findings to the earlier work.

Stakeholder interviews in the 2011 update appear to have served a different purpose in comparison to the interviews reported in the 2008 report. There are few points of comparison across time for this part of the research.

A Survey of Post Secondary Institutions
The supply side of the labour market analysis is linked, in part, to the trends in registrations and completions of post secondary programs in Canadian institutions. The Electricity Sector Council has assessed key programs for electricity and renewable energy providers with a survey of faculty and administrators. The survey is addressed to university engineering programs, college technology and applied science and apprenticeship programs. Respondents are asked to identify key programs for the industry and to report on trends in enrolment, barriers to expansion, programs related to the industry and the student community. Identical questions were asked in the 2008 and 2011 surveys.

The Employer Survey
Key findings in each LMI Update are based on a detailed survey of employers. A sample of employers was designed to capture a cross section of the population by size, business line and region.
The sample was drawn from a list of organizations in the electricity and renewable energy industry. A first list was obtained from the Electricity Sector Council and this was an extension of the list used in 2007. The consulting team added names to this list in three categories:

- Construction, maintenance and related contractor organizations working with the industry
- New speciality firms in the renewable energy sector
- Engineering and related consulting firms

The survey questions were modified to address the occupations and circumstances for these new firms. In the end the number of firms responding to the survey from these added groups was very limited. Respondents were drawn mostly from the population that filled in the 2007 survey.

The survey questions and the sample were prepared to maximize the similarity between the 2007 and 2011 results. This was intended to allow a comparison of results and an assessment of how conditions have changed over the intervening period. Comparability was extended to the list of key occupations targeted in the questions.

The final sample included 89 firms employing 75,562 workers. The 2007 survey covered 87 firms employing 76,628 employees.

**Statistics from Various Canadian Sources**
The core analysis was conducted at a relatively detailed level, focusing on disaggregated definitions of industries and occupations. In terms of Canadian classification systems maintained by Statistics Canada the research targeted the electricity and renewable energy sector which is a four digit classification in the North American Industrial Classification System (i.e. NAICS 2211) and the occupational detail (e.g. civil engineers) was sourced at the four digit level of the National Occupational Classification system.

At this level of analysis the *Statistics Canada 2006 Census* provides the most reliable estimates and this source is used throughout the report as a starting point for estimates and projections. More recent measures of labour requirements, industrial and economic drivers and supply side measures were drawn from; the Business Registry the Labour Force Survey and the Survey of Establishments and Payrolls at Statistics Canada. Supply side measures include immigration data from Citizenship and Immigration Canada and apprenticeship data from the Registered Apprenticeship Information System at Statistics Canada. Finally, data on engineers in post secondary programs was gathered from Engineers Canada.

These data sources were also used during the 2007-2008 research, preserving another aspect of comparability across the years.

**Labour Market Assessments**
The primary data from the surveys was combined with the secondary sources described above in a detailed labour market assessment of markets for each occupation in each region. These assessments were prepared by combining measures of labour requirements (demand) and workforce availability (supply).
difference between these two measures corresponds to unemployment and represents a measure of market tightness as requirements approach and exceed supply of weakness in the opposite case.

A new model of nineteen occupations in six regions was created through these estimates of demand and supply measures. National totals for each of the occupations are also available. The measure of the basic market balance is combined with data on retirements and mortality (replacement demand), immigration and post secondary graduations to complete the assessment.

Each measure is assessed in each year in each market and the final analysis isolates a single ranking; ranging from the lowest value of 1 – signalling a weak marker, to 5 – signalling a very strong market.

A series of economic and demographic models maintained by the Center for Spatial Economics (C4SE) are used to project the historical values of the labour market measures into the future. A five year horizon was chosen to capture current economic and industry cycles and key demographic factors. Four linked economic models that are managed by the C4SE were used in the report.

The first is a series of provincial models that track economic activity for the overall economy (GDP, income and expenditure flows, government revenue and expenditure, etc.) industries (up to thirty separate industries) and demographic detail. The provincial economic and demographic analysis is added to a national total and is used to drive detailed employment and labour force measures. Labour market models have been customized for industry and occupational groups. These include the Information and Communication Technology Council, the Construction Sector Council and Engineers Canada. The Electricity Sector Council Model is a variation on these other models.

The latest addition to the C4SE system is the Provincial Occupation Modelling System (POMS) that applies all the content of the provincial to new and more detailed estimates of employment, labour force, unemployment, retirement, mortality, migration and new entrants. These measures are linked with new dynamic relationships that track the changing age distribution of each occupation and the associated change in retirement, new entrants, mortality and in-mobility.

Labour estimates in the models begin with the 2006 Census values for employment, the labour force and unemployment in each market. These starting measures are extended to 2010 and adjusted with reference to Labour Force Survey results. Projections to 2016 are driven by a series of measures taken from the Center for Spatial Economics Occupations model.

Labour market assessments are available at two levels for each occupation. An overall market assessment is taken from the C4SE analysis and this measures employment, labour force and related concepts for all industries. An electricity market assessment is prepared by Prism Economics starting with Census data measuring employment and labour force for each occupation in the Electricity industry (NAICS 2211). Various assumptions and calculations are made to link the two market assessments.

On the demand side employment in each occupation across all markets is taken from the C4SE model. Estimates in each market for the electricity industry are projected forward using a weighted average of the annual rate of change in output (measured by GDP) in electrical utilities and investment in all utilities.
Replacement demand is calculated as the sum of deaths and retirements. The latter is estimated for each occupation across all industries using the C4SE analysis. Retirements in the electricity sector are estimated using the findings of the ESC survey reporting the proportion of the workforce in responding employers expected to retire between 2010 and 2016.

Supply side measures are taken from C4SE estimates that decompose the annual change in the labour force into new entries into each occupation and net in-migration from other industries, occupations and regions. These measures are supplemented with Prism Economics analysis of graduates from post secondary programs (where applicable) and immigration.
Appendix D    Survey instrument

Please see separate document.
Memorandum of Settlement

Between

Ontario Power Generation Inc.

-and-

Power Workers’ Union
CUPE Local 1000

Now, therefore the parties herein agree the following constitutes a full settlement of all matters.

The parties will also agree this Ontario Power Generation Inc. Agreement shall include the terms of the April 1, 2009 – March 31, 2012 Ontario Power Generation Inc. Agreement provided, however, all the matters set out in the attached statement of Agreement are incorporated.

For the Union

Maureen Skopelanos

For the Company

March 20/2012

Date

It is jointly agreed that the Collective Agreement covering the period of April 1, 2009 – March 31, 2012 will be amended as follows. All changes will be effective April 1, 2012 unless otherwise dated. The parties herein agree that the terms of the Collective Agreement shall be from April 1, 2012 to March 31, 2015.
Preamble

- Amend the language in the preamble to the Collective Agreement as follows:

COLLECTIVE AGREEMENT

BETWEEN

ONTARIO POWER GENERATION INC.

(Hereinafter referred to as “The Company”)

and


Articles

8.4.3 Job Evaluation Plan

- Amend language in Article 8.4.3 as follows:

All occupation codes and associated job titles and job documents (job descriptions, occupational definitions and expectation documents) will be consolidated into new job groupings. Issues associated with the job groupings will be reviewed by the joint implementation committee.

The company will produce generic Job Documents to describe the job groupings within each band.

A gender neutral Job Evaluation Plan has been developed (see Article 8.13) to allow placement of any occupation code or job into one of the 3 bands. All new occupation codes will be evaluated under this new job evaluation process.

The Company shall notify the Union of the introduction of any new job classifications and their placement on a band (i.e. Band 1, 2 or 3). Where a difference arises between the parties, the Company may introduce the new job classification(s) or placement on a band (i.e. Band 1, 2 or 3). Either party may require that the differences between them be submitted directly to the arbitration process as detailed in Article 3 and the decision shall be binding on both parties.

When significant alterations in duties and/or technological changes occur, the Job Document will be modified by joint agreement or by the Job Challenge process outlined in Article 8 of the Collective Agreement.
Effective September 1, 2012, job challenges disputing the placement on the band shall be filed within one (1) year from the date that the Union is notified of the placement of the new job classification on the band and the classification has been populated.

Effective September 1st, 2012 any existing job not currently challenged and in effect for a minimum of one (1) year can only be challenged when the Union can demonstrate that significant alterations in duties and/or technological changes have occurred. Evidence will be restricted to one year prior to the filing of the grievance.

Supervision is not reflected in the job evaluation plan, but is recognized with a premium. Supervising responsibilities which attract a supervisory premium can only be assigned and not assumed. The responsibilities for all supervisors are stated in Section 8.8 below.

Each employee shall have access to his/her job document, through their supervisor, and to documents covering other PWU represented employees through the Chief Steward or the Union Office.

Note: See also PWU Negotiated Policies and Practice 4-2: Nuclear Skill Broadened Job Descriptions – Revised Tuesday January 17, 2006

(NOT TO BE REPRODUCED IN THE COLLECTIVE AGREEMENT)

Prior to September 1, 2012, any job challenge filed by the Union shall be deemed timely.

Article 11 – Surplus Staff Procedures

- Add language to Preamble of Article 11 as follows:

**Article 11**

**Surplus Staff Procedures**

No employee will be involuntarily laid off during the term of the Collective Agreement. Article 11 with the exception of Article 11.0 will be suspended for the term of the Collective Agreement.

During the term of the Collective Agreement there will be no involuntary lay-offs. Any surplus of staff will be handled through either worksite / location re-deployment in accordance with Article 11.0, or the offer of severance under the applicable VSP mid-term agreements.

Any **Fossil Thermal** plant closure will be dealt with under the existing mid-term for **Fossil Thermal** plant closures.

During the term of this agreement if a surplus cannot be accommodated through re-deployment, VSP under the applicable mid-term agreements, or the **Fossil Thermal** Plant Closure Mid-Term where applicable, the treatment of employees who are adversely affected by such an event will be subject for discussion between the parties. These discussions will occur in
the context of a commitment by the Company to employment security. If an agreement cannot be reached all unresolved issues may be referred to the Chief Arbitrator for resolution.

The suspension of Article 11 will expire on March 31, 2015 and will not be automatically renewed in any subsequent Collective Agreement.

(NOT TO BE REPRODUCED IN THE COLLECTIVE AGREEMENT)

Fossil Closures and Partial Closures/Re-Fuelling Midterm (GEN-PW-1006-1) to be amended to change “Fossil” to “Thermal” and to expire on March 31st, 2015.

Article 11.3 (1): Definitions

- Reference should be 8.4.3 (Clean-Up)

1. “Job Grouping” shall mean an employee’s job title as referenced in Article 8.4.43.

Article 12: Purchased Services Agreement

- Add and Amend language in Article 12.2.6 as follows:

12.2.6 Establishment of Thresholds

The guidelines to determine whether a purchased service is below the threshold are as follows:

- subject matter lacking in substance; or
- any consequences are relatively insignificant; or
- where the nature or consequences of the work which represents a purchased service is remote from work currently performed by the PWU on a continuing basis. For purposes of clarity, this does not mean geographically remote; or
- emergencies; or
- any work performed under a manufacturer’s warranty, except where the manufacturer authorized the Company to do the work; or
- Work being done for OPG by Hydro One, AMEC NSS, Kinectrics and NHSS at the point each company is spun off from OPG and work of the same nature done by these companies in the future, so long as the Union continues to represent the employees of these companies; or
- where a distinct work program or work package at a worksite identified in a PSA request(s) is 250 hours or less annually. The addition of the 250 hour threshold will expire on March 31st, 2015 and will not be automatically renewed in any subsequent Collective Agreement.

Article 16: Duration of the Agreement

- 3 year duration.
Part A, Item 1.4.2 – Temporary Part-Time

- Amend language as follows (Clean-Up):

  If as a result of the assessment above, the position is still temporary part-time at the 12 month accumulated service mark one of the following options must be selected:

  1) The job is posted as a regular part-time. This decision is a joint decision as per regular part-time provisions in the agreement.

  2) The Chief Steward agrees to an extension of the temporary part-timer’s service for a specific period and the employee retains temporary status.

  3) The temporary part-timer is terminated.

    Accumulated service applies to temporary employees. Such employees do not have either seniority or service credit.

Part A, Item 9.3 and 10.1.3: Remembrance Day and Service with Reserve Component of the Canadian Armed Forces

- Should read: “Canadian Forces”

Part A, Item 10.3 – Family Care

- Add language into the Family Care Intent Document as follows:

  Employees that have limited opportunities to work scheduled overtime or to work beyond regular hours due to lack of supervision, may with approval from their supervisor, be granted additional time to reconcile the outstanding family leave.

  Any additional time granted cannot exceed a total of five (5) months from the date the leave was taken.
Part A, Item 12: Disability Benefits and Income Protection

- Amend language in Part A, Item 12.1 and 12.1A as follows:

  All major medical absence forms will be completed for any absence of five (5) four (4) continuous days/shifts or more or when requested by management. The Company will compensate the employee for the cost associated with completing these forms up to a maximum of $30.00. Additionally, the company will compensate the employee for the full cost of all medical notes, medical forms or medical information required to support LTD or other Wellness programs. This provision does not apply to Doctor’s notes requested by Line Management as part of the administration of the sick leave plan.

Part A, Item 13 - Health Insurance Plans

- Amend Health and Dental Benefits Brochure as follows:

  **Physiotherapy**

  Implement an annual cap on Physiotherapy coverage of $2000.

  **Orthodontics**

  Increase orthodontic coverage from $4,000 to $4200 (effective April 1, 2012) and $200 increase each subsequent year of the agreement per person per lifetime.

  **Chiropractics**

  Increase chiropractic treatment from $700 per year to $725 (effective April 1, 2012) and $25 increase each subsequent year of the agreement per year.

  **Paramedical Services**

  Increase coverage from $650 per person per calendar year to $675 (effective April 1, 2012) and $25 increase each subsequent year of the agreement.

  **Registered Clinical Psychologist**

  Increase coverage from $2,000 per person per calendar year to $5,000 per person per calendar year.

  **Viagra**

  Viagra® includes: Cialis® and Levitra® and generic equivalents. (Level of coverage remains unchanged - a combined maximum of $500 per calendar year).
Vision

Coverage for eye lens implants included in the maximum allowance for laser eye surgery.

Part A, Item 16.2.2 – Temporary Employees – Statutory Holidays

- Amend language as follows:

Temporary employees will be entitled to statutory holiday pay as identified in the Collective Agreement consistent with the Employment Standards Act, provided that they have more than three months' accumulated service.

Temporary part-time employees will be entitled to statutory holiday pay provided that they:

1. Have more than three months' calendar service;

2. Have worked on at least 12 days during the four weeks immediately preceding the holiday;

3. Have worked on their scheduled regular day of work preceding and following the holiday.

Payment for such statutory holidays will be the amount the employee would normally earn on a scheduled day of work.

Part A, Item 26.2.2 – Joint Health and Safety Working Committee

- Amend language as follows:

1. Goal

   (a) To provide recommendations to assist Corporate Safety and Wellness, the Health and Safety Division in the development, implementation and evaluation of corporate OPG employee health and safety policy and programs.

2. Personnel

   (a) Membership will consist of:

      - Two Management representatives
      - Two PWU representatives

   (b) Additional Management and PWU resources as required.

   (a) Manager, Programming Department, Health and Safety Division and other management staff as deemed necessary from time to time.

   (b) Union Provincial Health and Safety Committee and Union staff advisor to a maximum of eight.
3. Function

(a) Participate in the identification and resolution of problems and issues of Company significance in employee health and safety policy and practice.

(b) Participate in the development, promotion and implementation of Company health and safety programs.

(c) Study, develop and make recommendations for changes to the eCorporate eSafety eRules and wWork eProtection eCode. This function can be delegated to an ad hoc group with mutual agreement.

(d) Recommend and establish additional working committees and task groups as required to fulfill the purpose of this Committee.

(e) The committee will normally attempt to resolve issues of mutual interest before seeking intervention by senior management or the Joint Policy Committee on Health and Safety.

(e) The committee will meet twice a year or as mutually agreed.

Part A. Item 33.2.6 – To Promote Safety

- Amend language in Part A, Item 33.2.6 (I) (1) and (2) as follows:

Safety headgear, eye protection, rubber gloves (electrical), and similar items which are designed exclusively for the safety of employees and the wearing of which is made obligatory on certain types of work, will be provided by the Company.

Special footwear will be provided for the safety of workers when required to work near forebays, sluices, etc., under icy, slippery or otherwise hazardous conditions.

Safety Footwear:

1. Employees required to wear protective footwear will be reimbursed as follows:

   The dollar limits (actual cost) are:

   (1) For those persons required to regularly wear climbing spurs or who are regularly required to climb steel structures as part of their normal duties:

   one or two pairs in one calendar year to a combined maximum of $350.
   one pair to a maximum of $200, and
   another pair to a maximum of $150
(2) One or two pairs in one calendar year to a combined maximum of $300. A dollar limit of $150.00 for each pair will apply to others who choose or are required to wear CSA approved ESR protective footwear.

Part A, Item 39.0 – Escalator Clause

- Amend language as follows:

1. The parties have agreed for the three year term of this Collective Agreement to include an escalator clause applicable in the last year of the contract. This provision will terminate as of March 31, 20215 and will not be automatically renewed in any subsequent collective agreement. This escalator clause is designed to generate a maximum of one wage increase on April 1, 201414 and none thereafter.

2. In the third year of the Collective Agreement, namely April 1, 201414 to March 31, 2014215, the following formula shall apply:

(a) An increase of more than 2.75% in the Ontario All Items index (2002 = 100) published by Statistics Canada in February, 201414 (published in March, 201414) over the index for February, 2014013 (published in March, 2014013) will activate the escalator clause.

(b) On April 1, 200114, base rates and band rates will be increased by an amount equivalent to the amount by which the increase in the Index exceeds 2.75% in the 12 month period specified in (a) above but in no case shall the amount of such increase exceed 2.75%.

(c) This wage increase would be implemented effective April 1, 201414 at the same time as the negotiated 2.75% wage increase referred to in Part A, Item 42.0 43.0 below. There will be no compounding of these wage increases.

3. In the calculation of fractions, the simple 5/4 method of rounding will be used. That is, .00001 to .00499 rounds to down and .00500 to .00999 rounds up. This rounding methodology is to be used in the calculation of wage rates.

4. The availability of the escalator shall depend upon the continued availability of the Index calculated on its present base and in its present form. If the index is not available, the parties will meet and agree on an appropriate alternative conversion of the Index.

Part A, Item 43.0 – Wage Structure

- Year 1 – 2.75%
- Year 2 – 2.75%
- Year 3 – 2.75%
Part C, Item 2.0 - FORTY-HOUR PER WEEK OPERATORS

- Amend language as follows:

2.1 Non-shift Day Operators

The normal work week for these positions shall be 40 hours per week, consisting of five days of eight hours each, Monday to Friday, inclusive, statutory holidays excepted. The standard specific hours of work shall be 0800 to 1200 hours and 1300 to 1700 hours, except where non-shift day such operators are part of a shift complement, in which case their hours of work shall be 0800 to 1600 hours.

With local agreement between the Plant Group Manager and the local Chief Steward, a change to the standard hours can be made. However, the hours of work shall be between 0700 and 1700 hours.

Where in the Plant Group Manager’s opinion, the change in standard hours is not meeting operational needs, the non-shift day operator(s) will revert back to the standard hours of work.

Operators filling such positions shall not be required to accept service duty or on-call duty.

Part E

Part E, Item 7: Shift Differential and Shift Work

- Add language from 2009 Memorandum of Settlement regarding Positive Time Balances: “All positive time balances to be paid out at 2x”
- Add language from 2009 Memorandum of Settlement regarding Lack of notice penalty: “All lack of notice penalty payments to be paid at premium rate (2x).”

Part E, Item 7.0 – Shift Differential and Shift Work

- Add language to paragraph (1) as follows:

  1. The Company will normally provide an individual with seven (7) days’ notice of a change from day work to shift work or between shifts with the following exception:

    72 hours’ notice is acceptable when:

    (a) an individual is transferred from shift work to day work,
    (b) shift is required to support critical path work in a planned outage and
(c) in emergency situations such as a forced outage, equipment failures or safety emergencies.

Notice will include the following:

i. Date of Shift Change Notice
ii. Reason for Shift Change
iii. Details of changed hours of work

Part F

Part F, Item 1.0 - Hours of Work

* Amend language as follows:

1.4 Special Provisions Concerning Notice of Transfer to a Different Work Schedule or Work Headquarters

One day of notice in this item is defined as 24 hours prior to the start of the first affected shift.

1.4.1 When an employee's hours of work or work headquarters are to be changed, seven (7) days' personal notice will be provided.

Part F, Item 1.7.6 – Statutory Holidays and Special Time Off

* Amend language as follows:

The basic Statutory Holiday and Special Time Off provisions remain unchanged in that the time off will be calculated on an eight (8) hour basis. However, employees eligible for Remembrance Day and scheduled to work will get the normally scheduled hours off with pay.

Part G

Part G, Item 2: Hours of Work

* Add new language to Part G, Item 2.1.1 as paragraph 4 as follows:

Part G, Item 2.1.1 #4 New (i)

(i) Shifts for Nuclear Operations crews at Pickering and Darlington may be scheduled to start 1/2 hour before the normal A-E shifts start time (i.e. 07:30 and 19:30)

(NOT TO BE REPRODUCED IN THE COLLECTIVE AGREEMENT)

Nuclear Operator turn over agreements continue to apply. Utilization of the above provision will be discussed locally as per Part G Item 2.1.1 (3) for each calendar year. Early start times will be inclusive of all A-E crews when being considered.
Part G, Item 2.1.2 – Revisions to Regular Schedule

- Add new language to Part G, Item 2.1.2 as new paragraph 11 as follows:

Revisions to the regular schedule for individuals assigned to day work that require working a sequence of either 1, 2 or 3 night shifts will be paid at two times the employee’s basic rate.

Part G, Item 2.1.6 #2 (d) – Conditions While Working on a 12-hour Shift Schedule

- Add new language as follows:

(d) In determining pay treatment for

  i) Statutory Holidays
  
  ii) Special Time Off

  a day will continue to mean eight hours. However, employees eligible for Remembrance Day and scheduled to work will get the normally scheduled hours off with pay.

Part G, Item 2.1.7 (d) – Conditions While Working on Ten Hour Shifts

- Add new language as follows:

(d) In determining pay treatment for

  i) Statutory Holidays
  
  ii) Special Time Off

  a day will continue to mean eight hours. However, employees eligible for Remembrance Day and scheduled to work will get the normally scheduled hours off with pay.

Appendix “A”

APPA, Item 4.3 – Employment

- Amend and add new language as follows:

Crew supervision may be performed by regular PWU or Appendix “A” employees, and Appendix “A” employees may be intermingled with regular crews. When selecting supervisors, first consideration will be given to PWU Regular Employees.

Crew supervision may be performed by regular PWU or Appendix “A” employees, and Appendix “A” employees may be intermingled with regular crews. When selecting supervisors for intermingled crews, first consideration will be given to PWU Regular Employees.
APPA, New Item – Hiring Hall Classifications

- Implement a pilot based on the following principles:
  - Add the following classification to APPA:
    - Radiation Protection Technicians

Principles:

1. During the pilot project the parties will work together to create processes designed to ensure success and demonstrate the ability to meet OPG’s labour needs with quality workers on an ongoing basis and without jurisdictional interference.
2. OPG will be involved in the screening process for recruiting new people to the PWU RPT supply pool for referral to OPG.
3. Explore opportunities for common training.
4. Cost Savings
   - Competitive labour rates (Civil Maintainer | Wage Scheduled as per APPA)
   - Improve efficiency (e.g. reduced administration).
5. APPA provisions apply in addition to the following:
   - Referral timelines for fulfilling work requests and if PWU cannot supply, OPG has the ability to hire who they want (go to the street).
6. Pilot will expire with the Collective Agreement, March 31, 2015 or at any time after March 31, 2013 with 90 days notice.

MIDTERMS

Article 11 Alternative Mid-Term GEN-PW-1001-6 and NUC-PW-1001-5

- Extend both Midterms for the term of the renewal Collective Agreement. (Attachments #1 and #2)

Midterm Review (Not to be reproduced in the Collective Agreement)

- A Midterm Review Committee will complete a review after bargaining.

LETTERS (NOT TO BE REPRODUCED IN THE COLLECTIVE AGREEMENT)

- OPG to PWU Re: Commitment to discuss utilization of Thermal Operators (Attachment #3).
- Joint Intent Letter re: Staffing (Attachment #4).
- Letter re: Window for Health and Dental Claims (Attachment #5).
- Letter of Clarification re: Physiotherapy Coverage (Attachment #6)
ATTACHMENTS

Attachment #1:

Mid-Term Agreement

Number: GEN-PW-1001-67
Original Date: 04/01/2006

Revision Dates:

Last Revised: 04/01/2009 03/20/2012

Obsolete Date:

It is jointly agreed that the following Mid-Term Agreement shall form part of the Collective Agreement between the parties ONTARIO POWER GENERATION INC. hereinafter referred to as "OPGI" and POWER WORKERS' UNION hereinafter referred to as "PWU":

Article 11 Alternative (Non-Nuclear)

The following process may be used as required by OPGI as an alternative to the triggering of Article 11.

1. OPGI will consult with the Union prior to the implementation of this process and identify affected classification(s) as defined by Article 11, worksite(s) and/or organizational units.
   For the purpose of this Mid-term the organizational unit is defined as:
   - A Head Office Function reporting to a Direct Report to the President; or
   - A Fossil Thermal Generating Station reporting to a Plant Manager; or
   - A Hydroelectric Group reporting to a Plant Group Manager

2. All job challenges will be frozen until the end of the offer period (not to exceed 30 calendar days).

3. Management may approach all employees in an affected classification in a worksite and/or organizational unit and offer them the opportunity to participate in a voluntary severance program as outlined below. At the time of the offer, employees who are eligible for an undiscounted pension will be provided with detailed pension calculation (including commuted value). At the time of that offer, all other employees will receive an estimated pension and commuted value calculation.

4. The voluntary separation program will consist of the following:
   a) Severance Pay
      An employee may direct all or a portion of his/her payment into an RRSP up to the amount permitted by law. The employee shall provide the Company with the TD2 Form directing the payment into his/her RRSP. An employee entitled to severance pay may elect to take a lump sum severance payment, or severance may be divided into two (2) equal installments, the first
on the date of termination and the second on or about January 15 of the following year. Severance will be calculated in accordance with the following:
Subject to statutory deductions the employee will receive;

- The "cash-out" equivalent of five months base pay, plus;
- 4 weeks base pay per year of service, (payments for incomplete years of service will be pro-rated) to a maximum 104 weeks plus;
- 2 weeks base pay per year of service of 21 years or greater, (payments for incomplete years of service will be pro-rated);

The combined total of the above not to exceed 120 weeks.

For regular part-time employees severance payments shall be pro-rated.

b) Benefit Continuance/Tuition/Outplacement Services

An employee who takes severance pay and terminates his/her employment is entitled to:

i) Coverage under the Company’s Health and Dental Plan for a period of nine (9) months from the date of termination of employment or until the commencement of alternate employment whichever occurs first;

ii) Reimbursement for tuition fees and other associated expenses up to a maximum of $5000.00 (less applicable statutory reductions) upon production of receipts from an approved educational program within 24 months of his/her termination;

iii) Outplacement services; the Company will determine the level of service and the service provider.

5. Employees will be given 7 calendar days to submit a written statement of willingness to accept the separation offer as described in the program;

6. OPGI may accept as many employees as it deems appropriate but is not obliged to accept all employees who are willing to accept the separation offer. Employees will be accepted in order of seniority by classification in a worksite and/or organizational unit. Such acceptances will be made following the seven day period in paragraph 5 above, but prior to the end of the 30 day period in paragraph 2 above.

7. Employee statements of willingness to accept the offer will be voluntary. However, once the written statement of willingness is submitted, it will be irrevocable. In the case of a dramatic and serious change in circumstances of an employee who has accepted the separation offer, the employee may rescind his/her statement of willingness before the date of his/her termination. Any dispute arising from this provision may be resolved by expedited mediation/arbitration before G. Charney.

8. Normally, employees accepted under paragraph 6 will terminate two weeks following acceptance, except as outlined in paragraph 9 and paragraph 10 below.

9. The date of termination and receipt of the separation payments and/or entitlement as set out in paragraph 4 may, by exception, be delayed by OPGI for up to 21 months. Delays beyond 21 months would require agreement of the PWU and employee. Employees on a rotation greater than 21
months within another organizational unit may be required to complete their rotation prior to termination.

10. Employees will be allowed to delay their termination date (non working bridge) for a period not to exceed an individual's severance in order to achieve one of the following pension milestones:

- Twenty-Five (25) years service
- Rule of 82
- Or age 65

Employees who avail themselves of this option will have their severance reduced by the amount of time elapsed between the date of acceptance of request to terminate and their actual termination date.

11. Whether delayed or not, employees accepted for termination under paragraph 6 will not be part of any subsequent Article 11 or other downsizing provision.

12. Separation monies will be calculated as per the date of termination. The base rate used will be no less than the base rate on the date of offer acceptance.

13. None of the work performed by employees who have accepted a separation package under this Mid-Term shall be assigned by the employer to any non-PWU employee of OPG unless otherwise agreed to by the PWU.

Any disputes arising under this provision over the assignment of work shall be jointly discussed between representatives of the PWU and OPG using the principles set out in the Tripartite Partnership Agreement. Any disputes that cannot be jointly resolved shall be referred to Gerald Charney for expedited mediation/arbitration.

14. Prior to termination, the employee will be required to sign a full release and indemnification that will include an agreement not to apply to vacancies within OPGI or accept a position in OPGI.

15. This agreement expires on March 31, 2015.

16. If, during the term of this agreement, changes are negotiated to the voluntary separation provisions of the Society collective agreement and these changes alter the relationship established between the monetary amounts provided to the PWU and Society, OPG and the PWU agree to re-adjust this Mid-Term to establish the relative monetary relationship between the two Unions.

17. Severance payments made under this Mid-Term satisfy all employer obligations for notice and severance pay under the provisions of the Employment Standards Act and Regulations including those applicable to mass terminations.

18. OPG and the PWU will form a Voluntary Surplus Committee (VSC) which will seek ways to maximize the number of voluntary departures. The committee will design a process to seek 'without prejudice' applications from employees who are interested in voluntary termination which will provide as much information to employees as possible regarding their opportunities for meaningful work to bridge to a milestone. This process may include a one on one meeting between the employee and their manager in order to investigate his/her options thoroughly.
The joint process will look for ways to use this Mid-Term and the above process, as well as the Collective Agreement, in the most effective manner. This could include replacing temporary/contract positions and arranging for exchanges between employees willing to accept Voluntary Surplus and employees seeking ongoing work.

The VSC will include members from Management and the PWU and will be Co-chaired by the Vice President - Labour Relations and by the PWU Vice President(s).

The parties hereto have caused this Agreement to be executed as of the date first written above.

Scott Martin                                     Brad Carnduff

Ontario Power Generation Inc. Non-Nuclear          POWER WORKERS' UNION

03/20/2012

DATE
Attachment #2:

**Mid-Term Agreement**

Number: NUC-PW-1001-56

Original Date: 04/01/2006

Revision Dates:

Last Revised: 04/01/2009 03/20/2012

Obsolete Date:

It is jointly agreed that the following Mid-Term Agreement shall form part of the Collective Agreement between the parties ONTARIO POWER GENERATION INC. hereinafter referred to as "OPGI" and POWER WORKERS' UNION hereinafter referred to as "PWU":

**Article 11 Alternative (Nuclear)**

The following process may be used as required by OPGI as an alternative to the triggering of Article 11.

1. OPGI will consult with the PWU prior to the implementation of this process and identify the affected classification(s) as defined by Article 11 within a worksite. For the purpose of this Mid-term the individual worksites are defined as:

   Pickering Nuclear Generating Station and associated buildings,
   Darlington Nuclear Generating Station and associated buildings,
   Business Services East and associated buildings,
   Head Office Staff reporting to a Vice President
   OPG employees located on the Bruce Site.

   NOTE: New worksites established by OPGI after the date of this agreement will be discussed with the PWU.

2. All job challenges and Management reviews will be frozen until the end of the offer period (not to exceed 30 calendar days).

3. Management may approach all employees in an affected classification in a worksite and offer them the opportunity to participate in a voluntary severance program as outlined below. At the time of the offer, employees who are eligible for an undiscounted pension will be provided with detailed pension calculation (including commuted value). At the time of that offer, all other employees will receive an estimated pension and commuted value calculation.

4. The voluntary separation program will consist of the following:

   a) Severance Pay
An employee may direct all or a portion of his/her payment into an RRSP up to the amount permitted by law. The employee shall provide the Company with the TC2 Form directing the payment into his/her RRSP. An employee entitled to severance pay may elect to take a lump sum severance payment, or severance may be divided into two (2) equal installments, the first on the date of termination and the second on or about January 15 of the following year. Severance will be calculated in accordance with the following:

Subject to statutory deductions the employee will receive:
- The "cash-out" equivalent of five months base pay, plus;
- 4 weeks base pay per year of service, (payments for incomplete years of service will be pro-rated) to a maximum 104 weeks plus;
- 2 weeks base pay per year of service of 21 years or greater, (payments for incomplete years of service will be pro-rated);

The combined total of the above not to exceed 120 weeks.

For regular part-time employees severance payments shall be pro-rated.

b) Benefit Continuance/Tuition/Outplacement Services

An employee who takes severance pay and terminates his/her employment is entitled to:

i) Coverage under the Company's Health and Dental Plan for a period of nine (9) months from the date of termination of employment or until the commencement of alternate employment whichever occurs first;
ii) Reimbursement for tuition fees and other associated expenses up to a maximum of $5000.00 (less applicable statutory reductions) upon production of receipts from an approved educational program within 24 months of his/her termination;
iii) Outplacement services; the Company will determine the level of service and the service provider.

5. Employees will be given 7 calendar days to submit a written statement of willingness to accept the separation offer as described in the program;

6. OPGI may accept as many employees as it deems appropriate but is not obliged to accept all employees who are willing to accept the separation offer. Employees will be accepted in order of seniority by classification in a worksite. Such acceptances will be made following the seven-day period in paragraph 5 above, but prior to the end of the 30-day period in paragraph 2 above.

7. Employee statements of willingness to accept the offer will be voluntary. However, once the written statement of willingness is submitted, it will be irrevocable. In the case of a dramatic and serious change in circumstances of an employee who has accepted the separation offer, the employee may rescind his/her statement of willingness before the date of his/her termination. Any dispute arising from this provision may be resolved by expedited mediation/arbitration before G. Charney.

8. Normally, employees accepted under paragraph 6 will terminate two weeks following acceptance, except as outlined in paragraph 9 and paragraph 10 below.
9. The date of termination and receipt of the separation payments and/or entitlement as set out in paragraph 4 may, by exception, be delayed by OPGI for up to 21 months from the date of offer acceptance by OPGI under paragraph 6. Delays beyond 21 months would require agreement of the PWU and employee. Employees on rotations greater than 21 months within another organizational unit may be required to complete their rotation prior to termination.

10. Employees will be allowed to delay their termination date (non working bridge) for a period not to exceed an individual’s severance in order to achieve one of the following pension milestones:

- Twenty-Five (25) years service
- Rule of 82
- Or age 65

Employees who avail themselves of this option will have their severance reduced by the amount of time elapsed between the date of acceptance of request to terminate and their actual termination date.

11. Whether delayed or not, employees accepted for termination under paragraph 6 will not be part of any subsequent Article 11 or other downsizing provision.

12. Separation monies will be calculated as per the date of termination. The base rate used will be no less than the base rate on the date of offer acceptance.

13. All work performed by employees who have accepted a separation package under this Mid-term shall be assigned by the employer to members of the PWU so long as such work continues to be done.

This provision applies to the application of this Mid-term only and is not intended to restrict or alter the right of OPG to assign work and manage its business as set out in the PWU Nuclear Collective Agreement.

Any disputes arising under this provision over the assignment of work shall be jointly discussed between representatives of the PWU and OPG using the principles set out in the Tripartite Partnership Agreement. Any disputes that cannot be jointly resolved shall be referred to Gerald Charney for expedited mediation/arbitration.

14. Prior to termination, the employee will be required to sign a full release and indemnification that will include an agreement not to apply to vacancies within OPGI or accept a position in OPGI.

15. This agreement expires on March 31, 2015.

16. If, during the term of this agreement, changes are negotiated to the voluntary separation provisions of the Society collective agreement and these changes alter the relationship established between the monetary amounts provided to the PWU and Society, OPG and the PWU agree to re-adjust this Mid-Term to establish the relative monetary relationship between the two Unions.

17. Severance payments made under this Mid-Term satisfy all employer obligations for notice and severance pay under the provisions of the Employment Standards Act and Regulations including those applicable to mass terminations.
18. OPG and the PWU will form a Voluntary Surplus Committee (VSC) which will seek ways to maximize the number of voluntary departures. The committee will design a process to seek 'without prejudice' applications from employees who are interested in voluntary termination which will provide as much information to employees as possible regarding their opportunities for meaningful work to bridge to a milestone. This process may include a one on one meeting between the employee and their manager in order to investigate his/her options thoroughly.

The joint process will look for ways to use this Mid-Term and the above process, as well as the Collective Agreement, in the most effective manner. This could include replacing temporary/contract positions and arranging for exchanges between employees willing to accept Voluntary Surplus and employees seeking ongoing work.

The VSC will include members from Management and the PWU and will be co-chaired by the Vice President - Labour Relations and by the PWU Vice President(s).

The parties hereto have caused this Agreement to be executed as of the date first written above.

Scott Martin  
Ontario Power Generation Inc. Nuclear

Bob Walker  
POWER WORKERS' UNION

03/20/2012  
DATE
Attachment #3:

ONTARIO POWER
GENERATION

700 University Ave, Toronto, ON M5G 1X6

January 24th, 2012

Re: Thermal Operator utilization discussions

Brad,

The parties agree to meet no later than July 1st, 2012 to explore options that effectively utilize the skills, training and qualifications currently held by Thermal Operating Technicians and Thermal Operator Supervisors to assist OPG in achieving its future business plans.

The parties further agree that these discussions do not modify any existing contractual agreements unless the parties mutually agree to any change(s).

Yours truly,

Scott E.R. Martin
Vice President – Labour Relations, Safety, Wellness & Corporate Security
H19 G1 (416-692-7234)

Cc:
Glenn Zavitz – Director, Labour Relations
Brad Walker – Senior Staff Relations Officer
Amanda Theobald - PWU
Ridhi Kukreja - PWU
Attachment #4:

Joint Intent Letter Re: Staffing

The parties agree to meet to discuss ongoing staffing plans for both regular, temporary and contract employees in a meaningful way.

Meetings will be established with senior Union and management participation, the first of which will be scheduled within 30 days of the contract ratification.

The parties agree to exchange staffing information and have discussions as they relate to impacts from business plan, business transformation, potential closures, refurbishment, new build, hiring of First Nations or Métis people, or peaking resource requirements as they become known.

Bob Walker & Brad Carnduff
For the PWU

Scott Martin
For OPG

03/20/2012
Date
Attachment #5:

Benefit Brochure to be revised to be consistent with the following agreed upon notification:

Notice Item re Window for Health and Dental Claims

Employees and pensioners will need to submit their claims within two years of the date that the expense was incurred in order to be eligible for payment. If an employee or pensioner does not submit their claim within this timeframe, it will not be eligible for payment. OPG will provide a six month window to allow employees and pensioners sufficient time to submit any previous claims with original receipts. After this notice period, the 24 month window will commence.

OPG will issue a communication no later than July 1, providing 6 month notice for employees to submit any previous claims. The 24 month window will commence January 1, 2013.

The Company will provide the following communication to all employees and pensioners.

Date: July 1, 2012

Time Limits for Filing Health and Dental Claims

Effective January 1, 2013, PWU employees and pensioners must submit their claims within two years of the date on which the expense was incurred in order to be eligible for payment. For example, a health or dental expense incurred on December 1, 2011 must be submitted by December 1, 2013 in order to be eligible for payment. Failure to submit within this time limit will result in automatic rejection of the claim.

Employees have until December 31, 2012 to submit any claims with original receipts that fall outside of the 24 month period.
Attachment #6:

Letter of Clarification re: Physiotherapy Coverage

Effective April 1, 2012 there will be an annual limit to physiotherapy of $2000.00.

In the first year of implementation of this new limit (2012 only) any claimant who exceeds the $2000.00 limit will receive an amount not to exceed the amount submitted by the claimant and approved by Great West Life for physiotherapy treatment received between January 1, 2012 and March 31, 2012.

As an example, if a claimant spent $500.00 on physiotherapy during the period January 1, 2012 to March 31, 2012 and exceeded the $2000.00 limit by the end of 2012, they would be reimbursed the amount they exceeded the $2000.00 limit to a maximum of $500.00 (for a total of $2500).

Scott Martin

Scott E.R Martin
Vice President – Labour Relations, Safety, Wellness & Corporate Security

03/20/2012

Date
IN THE MATTER OF AN ARBITRATION

BETWEEN

ONTARIO POWER GENERATION
(“the company” / “OPG” / “the employer”)

- AND -

THE SOCIETY OF ENERGY PROFESSIONALS
(“the Society” / “the union”)

CONCERNING AN INTEREST ARBITRATION FOR THE RENEWAL OF A
COLLECTIVE AGREEMENT

BOARD OF ARBITRATION
Christopher Albertyn – Mediator / Arbitrator

APPEARANCES
For the Society:
Joseph Fierro Local Vice-President
Victor Chetcuti Unit 2 Director
Peter Tien Unit 8 Director
Tony Kokus Unit 9 Director
Joel Barton Unit 10 Director
Alex Saba Unit 16 Director
Shirley Kung Unit 43 Director
Andre Kolompar Staff Officer
Sonia Pylyshyn Staff Officer
Andrew Todd Staff Officer
Mary Byberg Staff Officer
For OPG:
Richard Charney       Legal Counsel, Norton Rose
Brian Gottheil       Legal Counsel, Norton Rose
Jason Fitzsimmons    VP Safety, Wellness, Employee & Labour Relations
Glenn Zavitz         Director, Labour Relations
Connie Hergert       Director, Employee Relations
Matt Dowdle          Manager (Acting), Labour Relations
Carissa Nowak        Senior Labour Relations Consultant
Scott Martin         SVP Business & Admin Services
Mike Peckham         VP Projects & Modifications
Melanie Braaten      VP Business Partners- People and Culture
Jeff Hansen          Plant Manager - Nanticoke
Gerry Foote          Production/Project Manager – Chenaux GS
Brandon Bondy        Senior Human Resources Officer - Pickering
Joanne Kranyak       Human Resources Advisor – Hydroelectric Northwest

Mediation-arbitration held in TORONTO on January 29, 30, 31 and February 23, 24 and 28, 2013.

Award issued on April 8, 2013.
1

AWARD

Jurisdiction

1. This is an interest arbitration pursuant to the parties’ collective agreement in order to effect a renewal collective agreement, following the expiry of the parties’ collective agreement on December 31, 2012. The principles agreed by the parties that govern the arbitrator’s jurisdiction read as follows under Article 15 of the parties’ collective agreement:

15 Collective Agreement Negotiation Disputes

Future contract negotiations disputes shall be resolved by binding arbitration.

The dispute resolution process shall be mediation-arbitration using the same individual as both the mediator and arbitrator. The negotiating process is set out in full in Appendix VII.

The mediator-arbitrator shall consider the following issues as relevant to the determination of the award on monetary issues:

a) a balanced assessment of internal relativities, general economic conditions, external relativities;

b) OPG need to retain, motivate and recruit qualified staff;

c) the cost of changes and their impact on total compensation;

d) the financial soundness of OPG and its ability to pay.
A mediator-arbitrator shall have the power to settle or decide such matters as are referred to mediation-arbitration in any way he/she deems fair and reasonable based on the evidence presented by representatives of OPG or The Society in light of the criteria in items (a) to (d) and his/her decision shall be final and binding.

2. The determination of monetary items is to be done on the basis of categories a) to d) above. The determination of other issues is to be done on the basis of what the arbitrator considers fair and reasonable based on the evidence presented, having regard to the considerations in categories a) to d) above.

3. The general arbitral principle that an arbitrator’s award should replicate the results the parties would have reached had they freely negotiated a collective agreement also applies and informs this award: Re Board of School Trustees, School District 1 (Fernie) (1982), 8 L.A.C. (3d) 157 (Dorsey), at p. 159; Re Bruce Power LP and Society of Energy Professionals (2004), 126 LAC (4th) 144 (Burkett), p.152.

Background

4. The parties have a long established collective bargaining relationship.
5. Ontario Power Generation (“OPG”) is a corporation wholly owned by the Province of Ontario. Since 1999 it has operated the majority of the electricity generating assets of the former Ontario Hydro. OPG operates three nuclear stations (Pickering A, Pickering B and Darlington); five fossil-fuel stations (Nanticoke, Lambton, Lennox, Thunder Bay and Atikokan); and 65 hydroelectric stations, the principal two of which are regulated by the province, under the Ontario Energy Board (OEB), which sets electricity rates for the regulated portion of OPG’s business.

6. Although OPG is wholly owned by the province of Ontario, it is a non-transfer payment partner of the Government, i.e., it is an entity that does not receive any funding from the provincial government, but rather funds its operations through its own revenue generation.

7. OPG employs approximately 10,910 regular employees (as of October 31, 2012) widely distributed throughout Ontario. Approximately 90% of OPG’s employees are covered by collective bargaining agreements respectively with the Society and the Power Workers Union (PWU). Approximately 3,453 of OPG’s employees are members of the bargaining unit represented by the Society, and 6,308 by the PWU.
8. OPG and the Society have a single collective agreement covering OPG’s nuclear and non-nuclear generating operations.

9. The Society membership is comprised of engineers, scientists, and other highly skilled professional staff who provide supervisory, administrative and technical services at OPG. Certain nuclear plant employees are licensed by the Canadian Nuclear Safety Commission (CNSC). They supervise and train licensed employees. OPG employees require particular knowledge and skill to work in nuclear power generation.

10. The previous round of collective bargaining did not result in agreement between the parties. As in the present case, the parties referred their interest dispute to mediation-arbitration. The award, Ontario Power Generation and The Society of Energy Professionals, [2011] O.L.A.A. No. 117 (Burkett), resulted in a collective agreement for the period January 1, 2011 to December 31, 2012. In that award, Society-represented employees were awarded wage increases of 3% on January 1, 2011, 2% on January 1, 2012, and a further 1% on April 1, 2012.

11. In the current round of collective bargaining the parties did not reach an
agreement. Their disagreement was referred to mediation-arbitration. The mediation phase did not produce an agreement. The dispute was then dealt with by arbitration. This award determines the terms of the renewal collective agreement.

12. The bargaining pattern of the parties, as reflected in the internal comparison criterion described above for the conduct of this arbitration, has, on monetary issues, substantially followed that agreed between OPG and the PWU. The two units have historically engaged in pattern bargaining and have received very similar, if not identical, increases.

13. OPG and the PWU do not have an agreement to refer their interest disputes to arbitration. Strikes or lockouts potentially result from impasse. Although they draw somewhat different conclusions, both the Society and OPG treat the OPG-PWU three-year agreement as an important guide for the replication of collective bargaining.

**Relevant facts**

14. In the most recent bargaining round between the PWU and OPG, they
negotiated wage increases of 2.75% on April 1 in each of the three years of the collective agreement (for the period April 1, 2012 to March 31, 2015) (“the PWU agreement” concluded on March 20, 2012). So the increases of 2.75% were, or are to be paid, on April 1, 2012, April 1, 2013 and April 1, 2014. There were other improvements for workers represented by the PWU. The Society relies upon those increases and improvements for advancing its wage increment and other proposals in this arbitration. OPG responds that, despite the improvement in wage rates for the PWU agreement, closer analysis of the agreement reveals that the agreement resulted, calculated without compounding, in a net zero cost for OPG over the term of the agreement. This contention was vigorously challenged by the Society.

15. As a result of the factual dispute between the parties, and unusually for an interest arbitration, OPG presented the oral evidence of its Vice-President of Business Planning & Reporting, John Mauti. His evidence was subject to a comprehensive confidentiality undertakings, signed by all who attended the hearing. I will respect that confidentiality in this award, so I address the financial issues of which Mr. Mauti testified with circumspection and with much greater generality than I was privy to. Mr. Mauti’s evidence followed a ruling made during the arbitration on the scope of production and evidence by OPG:
The dispute between the parties is as to the scope of evidence to be produced by the employer to support submissions on two issues: the company’s claims regarding its financial projection and that it achieved a net zero collective agreement with the PWU, the Society’s principal internal comparator.

The employer argues that providing some additional written material is sufficient to support the submissions it makes in its written brief. The Society argues it is necessary to go beyond the written material to the source documents that inform the additional submissions.

As the employer argues, interest arbitration is an extension of bargaining. The disclosure requirements within an interest arbitration are akin to those in bargaining. A party presents a position and supports it to the extent it considers prudent and persuasive, given considerations of confidentiality and proprietary concern.

The procedure of an interest arbitration, particularly in the context of a mediation-arbitration such as this, under Article 15 of the collective agreement, is designed to expedite the resolution of the disputes and to avoid a long and detailed hearing. Speed and informality are traded for the precise investigative characteristics of court trials. There is a robustness to the conduct of interest arbitration. Each party provides the evidence it considers relevant in its brief, very occasionally supplemented by oral evidence, and disputes of fact are left to the arbitrator to determine on a balance of probability. The evidence referred to in Article 15 is the evidence the parties consider relevant to present for consideration by the arbitrator. Not every document any party wishes to have forms part of an interest arbitration, and nor does natural justice require that. The arbitrator must be placed in the position, as here, where the parties provide the information they consider relevant, supplemented by oral argument on what they and the other party have submitted. The arbitrator makes an assessment of the relevant agreed facts, the relevant disputed facts and the arguments in the context of all of the information provided by the parties, some of which may be inconsistent. The arbitrator assesses all of the information provided to determine the reasonable probabilities and to draw appropriate conclusions.

In light of these principles and the contest that has arisen over the company’s projections and its net zero claim, I will admit the additional information the employer wishes to introduce to supplement its submissions. I will permit the employer to have its Vice-President
Finance explain its financial projections and the structure of savings in the PWU agreement, with the Society being able to question him, though subject to the employer’s proprietary interest in the scope of the financial information it will provide, and also subject to the rules of confidentiality to be stipulated.

It is important to bear in mind that the parties have made submissions and provided information on areas other than the two that have been focused on in this ruling. The company’s Vice-President Finance is to testify. This is in itself unusual. It entails the provision of more tested information than is customary in an interest arbitration. The Society will have an opportunity to question the witness on the several financial questions Ms. Pylyshyn raises. The Society will have the opportunity to inquire into the apparent financial anomalies she mentions and to question the apparent contradictions. From the additional information provided by the witness, the Society can make its own assessments and draw its own conclusions on the two matters on which the witness will testify. Thereafter, it will have the opportunity to make submissions to me on those assessments and conclusions. If, after hearing the evidence and all of the submissions, I am left in such significant doubt as to the likelihood of any evidence, such that I am not able to render a decision on the information and submissions the parties have made, I will address that situation with the parties at the time and the issue raised now might be revisited.

However, at this stage, I will not require the employer to produce the source documents that inform its witness’s evidence and the documents it wishes to add to its brief. To do so would, as the employer argues, fundamentally alter this interest arbitration process, converting it from being an extension of bargaining into a much more formal proceeding with the attendant consequences in delay and cost.

The case of each party will be evaluated on the submissions made, including any submissions they make on the additional documents and evidence I am permitting the employer to present. This evaluation will be done in the context of all of the submissions made by the parties in their briefs and subject to the usual process of assessing factual disputes that arise in an interest arbitration made on written briefs, supplemented by oral submissions.

16. Mr. Mauti’s evidence sought to establish two propositions that the Society
disputed. Firstly, that OPG’s financial prospects for the foreseeable three years are grim; markedly more gloomy than prevailed at the time the PWU agreement was concluded. Secondly, that, despite the relatively large increases each year of the three year term, the PWU agreement resulted in a net zero cost (costed without compounding) as a result of concessions OPG was able to obtain. The cost savings were in eight different categories, of varying percentages, the details of which were presented confidentially in evidence.

17. Closer analysis of the actual cost of the PWU deal, compounded, showed, on OPG’s calculation, a net cost of 0.73% annualized, in each of the three years of the PWU agreement. The cost savings achieved by OPG included concessions within the collective agreement, as well as the value of ending certain practices that OPG told the PWU it would not extend beyond the term of the previous collective agreement. The Society suggested that OPG’s cost savings assumptions inflated the actual cost saving. The Society focused particularly on two items of cost saving (of the eight categories): those from changes in the rules governing nuclear radiation protective clothing, and the efficiency gains in staggering the start and stop times of operations and maintenance crews. The Society pointed out that these changes regarding protective clothing and shift times occurred later than the start of the three year period, so arguably have been marginally inflated.
There is no evidence as to whether the original cost saving calculations took account of the later start of the changes, though they might have. I give the Society the benefit of the doubt that in this respect the cost calculation might be slightly inflated. Moreover Society members were also affected by the protective clothing change. The Society should receive some monetary acknowledgement in cost saving as a result. I treat the impact of these minor adjustments to the net annualized increase to the PWU (after taking account of the cost savings, including base rate, overtime and benefits impact, compounded over the three period) as amounting to 0.75%. In other words, the total compensation adjustment for the PWU amounted to a yearly increase of 0.75%.

18. The principal dispute between the parties concerns compensation increases for the period of the renewal agreement. OPG takes the position that there should be no compensation increase whatsoever. This position follows the expectations and directives of its shareholder, the government of Ontario, in line with the Public Sector Compensation Restraint to Protect Public Services Act, 2010, SO 2010, c 1, Sch 24, which froze compensation adjustments in the public sector until March 31, 2012, and The Broader Public Sector Accountability Act, 2010, SO 2010, c 25, which extended the freeze indefinitely from March 31, 2012 forward. The Society takes the position that it should see improvements in certain
conditions of employment, as well as a 2.75% wage increase in each of the three years of the collective agreement it proposes, following the increases agreed between OPG and the PWU.

19. As a relevant internal comparator, besides the PWU, the Society relies on increases given to managerial employees. OPG management has been subject since 2010 to the provincial government’s compensation freeze applicable to the broader public sector. There have been some salary adjustments, though. The first category of adjustments is performance bonuses that are exempt from the compensation freeze legislation. The Society points out that the top 50 income earners within OPG had their income increase by an average of 10.7% in 2011 over 2010, the result of incentive pay improvements. The second category of adjustments is for increased responsibilities. The Society says that in the first 10 months of 2012 there was significant upgrading of managerial positions into highest bands – an increase of over 8%. OPG explains this was the result of restructuring, on the recommendation of a third party. Over 100 Society-represented employees were also promoted as a result of the exercise. OPG also points out that the net overall saving in 2012 over 2011 in management compensation was 8%, in spite of the promotions. The third category is of adjustments made to prevent wage compression as a result of increases to Society
members in the 2011-2012 collective agreement. In 2012, 680 Society-represented employees earned greater salaries than their management supervisors. To temporarily mitigate the impacts of this compression, a one-time salary adjustment was made for 220 management supervisors (about 20% of management) to place them at 3% above their highest paid reporting employee.

20. One of the proposals made by OPG is that there be a freeze on automatic step progression by Society-represented employees. The cost savings of such a freeze within the Society wage grid in any year would be equivalent to approximately 1% of the Society wage cost.

**Internal relativities**

21. PWU-represented employees typically report to Society-represented supervisors, who in turn report to management group employees. Therefore, an important measure of internal relativity is salary differentials between these groups. Salary compression between supervisors and their direct reports is of concern.

22. The Society points out that if no increase were given to the Society, with
the PWU members receiving their 2.75% per year under the PWU three-year agreement, and taking account of the higher pension premiums paid by Society members as compared to PWU members, some PWU wages would eclipse the salaries of their supervisors in the Society. OPG responds by showing that only 10 would earn more than their Society-represented supervisors in 2013 and 2014 if no salary adjustment occurred for the Society.

23. The wage compression between Society-represented employees and management was a more severe problem until the one-time salary adjustments described above. Increases of the amounts sought by the Society would result in a repeat of that problem.

24. I conclude from this that, although there would be some limited wage compression between the PWU and the Society if no increase were given to the Society, any increase to the Society will necessarily have a greater wage compression impact in relation to management, who are subject to the public sector provincial wage freeze. Any increase will necessarily distort internal relativity between those two groups. The extent of the distortion will depend on the extent of any increase to Society-represented employees. This is a relevant consideration because management group employees are chiefly drawn from the
ranks of Society-represented employees.

25. I conclude from the evidence presented in the arbitration, as explained above, that internal relativity with the PWU will be maintained if the Society-represented employees receive increases of 0.75% in each of the three years of the collective agreement. Any other increases must be off-set by savings to the company, as occurred in the PWU deal.

**General economic conditions**

26. The parties have rival extrapolations on the future of the Ontario economy, and on its recovery from the recession. The Society has a more optimistic projection than does OPG.

27. Part of this consideration is the Ontario government’s direction to OPG, as part of its wage restraint policy, that OPG, among the broader public sector, is to give no compensation increases during the term of the collective agreement. This reality is a factor to be considered as part of the resolution of the dispute between the parties concerning compensation adjustments: The Participating Nursing Homes and Service Employees International Union Local 1 Canada (September

28. General economic conditions continue to be weak as Ontario makes a slow recovery from the recent major recession. Overall economic growth in Ontario was less than 2% in 2012. Projected growth for 2013 is under 2% (TD Canada Trust).

29. Weak general economic conditions directly affect OPG’s revenues and its ability to fund compensation increases. OPG draws attention to the OEB’s considerations when setting OPG’s electricity rates. The OEB considers the public interest in low-cost electricity. This is particularly pertinent when economic conditions are poor.

**External relativities**

30. The relevant external comparators are those in the energy sector, particularly the Society-represented employees in other energy sector companies.

31. Society-represented employees have received the following comparative increases, at:
a. Bruce Power a 3.5% increase on January 1, 2013 with a 2.75% increase effective from January 1, 2014.

b. Brookfield Power (a one-person bargaining unit) increases of 4.75% in 2013, 4.50% in 2014 and 4.50% in 2015.

c. The OEB, 3% increase on January 1, 2013 and 3% on January 1, 2014.

d. Kinectrics, spun off from OPG, providing technical services to OPG and to other energy related companies in the province, 3% on January 1, 2013.

e. New Horizons System Solutions (NHSS), spun off from OPG, providing information technology services for OPG, 3% on January 1, 2013.

f. The Independent Electricity System Operator (IESO), pursuant to an interest arbitration award, 2% increase in each of 2013 and 2014.

g. The Electrical Safety Authority (ESA), in a recently concluded a collective agreement, wage increases of 2.5% in 2012, 2.5% in 2013 and 2.75% in 2014, though with substantial increases in employee contributions to the ESA’s pension plan.
32. From the above, the normative increase over the relevant period in the energy sector is in the region of 3% p.a.

33. In the nuclear industry, in an interest arbitration award released on December 10, 2012, the federal Public Service Labour Relations Board awarded salary increases in the Canadian Nuclear Safety Commission (CNSC) of 1.75% in 2011, 1.5% in 2012 and 2.0% in 2013.

34. OPG refers to more distant external comparators, outside of the electricity sector, such as nursing homes, particularly The Participating Nursing Homes v. Service Employees’ International Union Local 1 Canada (unreported, September 27, 2012) (Teplitsky), in which 0% wage increases with lump sum payments were ordered for a significant portion of the nursing home sector. OPG relies also on the 0% increases in the public sector: between the provincial government and AMAPCEO, and with OPSEU, between the Ministry of Education and OECTA, and between the Ontario Provincial Police and the police association. The average compensation increase in public sector collective agreements during 2012 was 1.7% (Mercer Report).

35. Of all of these, the most relevant external comparators are those in the
energy sector.

**OPG’s need to retain, motivate and recruit qualified staff**

36. The Society compares the Society members’ compensation at OPG with the compensation paid to engineers of the Ontario Society of Professional Engineers (OSPE), given that about 38% of Society represented employees of OPG have an engineering background. The relative salary variance of Society-represented OPG employees is 8.8% above the OSPE median, as a weighted average.

37. The Society points out that OPG’s current workforce demographic is aging rapidly. Half the current workforce is 47 years of age or older. 20-25% (25%-50% of engineering staff) will need to be replaced due to retirement by 2014. The Society projects that employers in Ontario will have difficulty recruiting qualified engineering staff in the local and regional labour market in the years ahead. The Society suggests the compensation increases it is requesting will assist OPG to retain and recruit qualified staff.

38. OPG responds that Society-represented engineers at OPG are paid above
the 50th percentile of the engineering market on base salary and incentive pay. They also receive numerous other benefits which increase the value of their compensation relative to their private sector counterparts.

39. OPG is going through significant downsizing. Almost 2,000 positions are to be reduced, by attrition, by December 2015. Consequently the retention and recruitment of staff will not be a priority for OPG’s business for the foreseeable future. Also, OPG experiences no difficulty recruiting qualified staff.

40. Similarly, OPG appears to experience no difficulty in retaining qualified staff. Except for employees who retired, the termination rate for Society employees in 2011 was only 1.1%.

The cost of changes and their impact on total compensation

41. As a result of attrition and headcount reductions, OPG’s staffing costs for Society-represented employees was lower in 2011 than in 2010, despite the 3% increase given in 2011. Further staffing reductions in 2012 have had a similar impact: lower staffing costs than in the previous year, despite the 3% salary increase.
42. The changes sought by the Society would have an impact on total compensation. The purpose of the staffing reductions is to reduce overall staffing costs. So while some cushion is created through the reductions, that does not warrant that OPG has the ability to pay for the proposed changes. The net income calculations from OPG’s forecasts were based on zero increases to Society-represented employees. Those calculations took account of staff reductions and cost savings. They also took account of further projected staff reductions in 2013, 2014 and 2015, estimated to be a further 2,000 positions. Consequently, little credit can be given to the cost savings from staff attrition because that credit has already been taken into account in the cost projections for the forthcoming years. The Society correctly notes, though, that existing staff have maintained the efficient operation of the company and will continue to be expected to do so, despite the overall staff reductions.

43. Any increase to Society-represented employees will result in an increased projected loss for 2013. Increases in subsequent years will compound the compensation costs.

The financial soundness of OPG and its ability to pay
The business of OPG is diminishing. One of its nuclear generating stations (Pickering) will be at the end of its life by 2020, and all coal-fired thermal generating stations will be closed by 2014. In recent years, demand for electricity in Ontario has dropped, largely on account of declining manufacturing, while OPG has experienced substantially more competition, resulting in a shrinking market share within a smaller market. OPG’s market share is expected to decline significantly even compared to January 2011, when these parties last engaged in interest arbitration. At that time, OPG generated approximately 70% of all electricity consumed in Ontario. Market share has continuously declined since then and by 2015 OPG’s market share is expected to be approximately 55%.

OPG’s operations, maintenance and administration (OM&A) costs are projected to increase. The most significant factor underlying the increase is the higher pension and other post-employment benefits (OPEB) costs expected in the coming years. There are almost 10,000 former employees, survivors and dependants receiving pensions from OPG, including 3,052 pensioners (including survivors and dependents) represented by the Society. OPG has nearly as many pensioners as active employees and the ratio of pensioners to active employees is expected to increase, as OPG has recently announced its need to significantly
reduce its employee headcount by December 2015.

46. OPG must retain nuclear funds. These are segregated funds which OPG is obligated to maintain to cover the cost of decommissioning its nuclear generation facilities at the end of their lives and for the long term management of nuclear waste. The money in the nuclear funds is not available to OPG to cover operational expenses or reinvestment. OPG expects to contribute an additional $800-million to the funds over the 2012-2015 period. These contributions will have to be paid out of OPG’s operating revenues.

47. For the first time in its history, OPG has budgeted for a sizeable financial loss in the 2013 fiscal year, and will face continued net income financial challenges for the period covered by the collective agreement. As described more fully below, OPG faces significant regulatory constraints on its ability to increase the rates it charges for its regulated assets, enter new lines of business, or take other large-scale measures to improve its financial performance, while facing increasing pension, benefit, operational and capital costs. Furthermore, in November of 2012 the rating agency Standard and Poor (S&P) revised OPG’s ratings outlook to “negative” from “stable,” reflecting OPG's weaker cash flow and funds from operations (FFO) interest coverage.
48. To address these financial challenges, OPG has in part focused on reducing operations, maintenance and administration (OM&A) costs. To that end it has reduced its staff complement or headcount by attrition.

49. The regulated portion of OPG’s business accounts for approximately 80% of its electricity production. The proportion of OPG’s revenues from its regulated production will increase in the future as the government plans to eliminate coal-fired generation, which is unregulated, by 2014. OPG’s business will therefore be even more extensively regulated by the OEB and the government than at present.

50. In OPG’s most recent rate application to the OEB it sought an increase of approximately 6.2%. At the end of the two-stage process of hearing, the OEB actually reduced the rate OPG is entitled to charge, by approximately 1%. (This decision was made, in part, because the OEB was persuaded that OPG compensation levels should be lowered, benchmarked to the 50th percentile of North American comparators, rather than to the 75th percentile as OPG had done.) This means that OPG’s electricity is being charged at rates frozen at approximately 2008 levels. As a consequence, with declining demand and declining market share, at fixed rates, OPG’s revenue is projected to drop.
51. OPG is the low cost electricity producer in Ontario. For electricity generated from its regulated hydroelectric plants, under the OEB, OPG receives a rate of $37/MW. For its unregulated hydroelectric plants it received on average $25/MW during 2012. These rates are considerably below those of its competitors. New hydroelectric generators under the Green Energy Act, 2009, SO 2009, c 12, Sch A receive $110/MW. The only other major producer of hydroelectric power in the province, Brookfield, gets $68/MW. OPG’s nuclear plants are also highly regulated. Under the OEB’s direction, OPG receives $54/MW for the electricity generated from those plants. Bruce Power, the only other operator of a nuclear plant in the province, receives $68/MW from Bruce A. OPG is the residual cheap electricity producer, an implicit subsidizer of ratepayers.

52. Restrictions on OPG’s capacity to enter the new, more lucrative markets prevent it from taking advantage of the higher rates for generating electricity. The mandate the government has set for OPG precludes OPG from investing in renewable electricity generation. Consequently, OPG is unable to pursue investment in non-hydro-electric renewable generation projects.
53. The approximately 20% unregulated energy production by OPG is sold at the Ontario electricity spot market price, which is subject to volatile fluctuations. The current spot market price is approximately half of what it was in 2008, with equivalent loss of revenue for OPG.

54. Prices are not expected to recover during the next few years. Factors including low electricity demand, low natural gas prices, a dramatic ramp-up of wind and solar capacity driven by the Green Energy Act, 2009 (over 8,400 MW between 2003 and 2010) and abundant supply from competitors are likely to continue in the coming years and keep spot market prices at historic lows. All of this will have an adverse impact on OPG’s profitability.

55. OPG’s future projection depends in large measure on the rate increase the OEB will give to OPG when it makes an application for a rate increase in 2014. The OEB will either force OPG into the gloomy net income forecast presented in Mr. Mauti’s evidence, or, if it allows collection of the full cost of the service and the payment of receivables from ratepayers that have accumulated in OPG variance accounts, it will enable OPG to proceed on a firmer financial footing.

56. As OPG argues, in summary, OPG’s financial outlook reflects declining
market share, lower electricity production, lower electricity spot market prices, currently little appetite from the OEB and the province for regulated rate increases, increased pension and OPEB costs, high annual contributions to its pension and nuclear funds, and challenges to reduce its costs. These factors result in adverse financial performance and prospects, including a substantial expected net loss for the 2013 fiscal year.

57. As a consequence of the above, despite OPG’s efforts to lower OM & A costs as it improves efficiencies and reduces headcount, OPG’s capacity to function profitably is significantly constrained. The effect is that OPG’s ability to pay compensation increases to its Society employees is severely restricted.

**Conclusions on proposals**

58. The Society requests that the collective agreement be effective for a period of three years. Although OPG prefers a two-year agreement, it is not strongly opposed to a three-year agreement. Having regard to the pattern of bargaining between OPG, the Society and the PWU, with the Society agreement generally following the pattern of the PWU agreement, a three-year agreement is preferable. Such extended agreement also brings stability to the relationship between the
parties.

59. The most important comparator for the OPG-Society collective agreement is the agreement between OPG and the PWU. From the evidence presented I am persuaded that the PWU agreement resulted in a net cost to the employer of 0.75% per year over the three-year agreement. External comparators recommend a substantially greater increase than the 0.75% p.a., but OPG’s financial circumstances discount that factor. I must consider, though, whether the greater awareness of a downturn in OPG’s fortunes since the conclusion of the PWU agreement in March 2012 should affect Society-represented employees relative to their PWU counterparts. In my view, that awareness should not affect the financial outcome for Society-represented employees. The historical pattern of maintaining parity with the PWU settlement should be conserved.

60. Taking account of the factors referred to in Article 15 and replication, I have determined that the net increase to the Society-represented employees should be 0.75% for each of the three years of the collective agreement. Taking account also of the additional items awarded, and having regard to their impact on total compensation, those awarded to the Society slightly increase the cost to the company, but the items awarded to the company mean cost savings that offset the
slight increase.

61. OPG has asked for a freeze on grid movement for the period of the collective agreement. Pursuant to the Ontario Government, its shareholder’s, direction, it asks that any movement through the wage grid be fully offset by cost savings within the total compensation package. As I have said, a grid freeze is worth about 1% p.a. of the Society-represented employees’ payroll. With a grid freeze the bargaining unit can be credited with the saving. 1% can be added to the salary increase in the two years, 2014 and 2015, when the grid freeze will apply, so as to make the compensation deal between the parties as commensurate as possible with that between OPG and the PWU. The increases to be paid to the Society-represented employees will therefore be 0.75% in 2013, 1.75% in 2014 and 1.75% in 2015. At the end of 2015 the employees affected by the escalator clause freeze (Article 24) will be restored to where they would have been on the grid had there been no freeze, on their normal progression date.

62. The parties currently have a cost of living adjustment (COLA) provision. The Society would like to amend it, to make it more favourable to employees by lowering the inflation rate at which it will become effective and by making any adjustment payment part of the base wage and no longer a lump sum. OPG would
like to suspend it for the operation of the collective agreement. Given the length of the collective agreement being awarded, there ought to be some protection against unanticipated inflation, permitting an appropriate offsetting adjustment. In my view, the COLA provision should apply as does the escalator clause at Part A, Item 29.0 of the PWU agreement, with the necessary changes. So, COLA will apply in the third year of the collective agreement, January 1 to December 31, 2015 if the increase in the Ontario All Items index in November 2014 (published in December 2014) over the index in November 2013 (published in December 2013) is more than 2.75%.

63. The Society proposes an amendment to the payment method for the overtime worked provision. The Society complains that its members are increasingly unable to take time off for overtime worked. It seeks an amendment that gives the election to the Society member concerned to decide between overtime payment and time off. Currently the employee’s supervisor has the discretion to determine the method of payment. I recognize the employer’s concern that operational needs should prevent payment as time off. Subject to operational needs, I am persuaded that a reasonable limit should be placed on the supervisor’s discretion.
64. My reason for declining the Society proposals on eyeglasses and travel time compensation is that they are cost items that would increase the financial burden on OPG. Taking account of total compensation, save for one exception, I have placed the compensation adjustments into wages, rather than benefits.

65. The exception concerns the parental leave provision. Unlike the OPG-PWU agreement, which treats the waiting period for EI parental benefits the same as the waiting period for pregnancy benefits, the OPG-Society agreement has no equivalent provision. Article 41.3 currently guarantees continuation of 93% of an employee’s base pay for the first two weeks of pregnancy leave, but not for the first two weeks of parental leave.

66. The Society tables a proposal for two changes to the Supplementary Unemployment Benefits (SUB) Plan in Article 41.3. The first change is that mentioned in the paragraph above. It would amend the language that currently disadvantages fathers, parents of adopted children and same sex partners relative to biological mothers. The second proposed change would improve top up for parental leave from 3 to 5 weeks. Both of these changes are warranted. The first brings the Society agreement in line with the PWU agreement, which has the benefit, and it addresses an inequity that is not justified. The second brings the
benefit closer to the parental top up provided by the external comparators (OEB 35 weeks, IESO 8 weeks, ESA 6 weeks, Bruce Power 5 weeks).

67. The Society would like to reduce some of the pension contribution rates its members pay (currently 7% for all, including for those below the year’s maximum pensionable earnings (YMPE)) to the lower rate paid by some PWU members (5% for those below the YMPE). OPG would like to increase the current contribution rates. The pension contributions made by OPG have been considerably higher than the amounts contributed by employees, heightened by additional payments to address fund deficits. OPG would like to move to the position recommended by the provincial government, that single-employer public sector plan members steadily increase their contributions to the point where they share the ongoing cost of pension benefits equally with the employer. OPG proposes that the Society be directed to meet to negotiate a more affordable pension plan. In addition OPG would like an order of more equal premium contributions by OPG and members. These important issues require much fuller consideration and discussion by both parties, including with the PWU. I am not persuaded to order such discussion and to remain seized. Furthermore, I am not persuaded that the Society’s proposal of a contribution reduction should be awarded. I leave over to a future collective agreement any discussions for reforms
to the current pension plan contributions structure.

68. OPG proposes a provision for the appointment of a chief arbitrator to expedite the resolution of rights disputes between the parties, with powers to schedule hearing dates, appoint arbitrators, issue standing orders and orders for particulars, and otherwise promote efficiencies. This is the same proposal it put forward for inclusion in the current collective agreement, before the last mediation-arbitration. Arbitrator Burkett thought the proposal required further deliberation by the parties and did not grant it. While I think the proposal would serve the parties’ best interests, it is a material departure from what obtains at present and it requires further deliberation by both parties. I think the parties should have further discussion on the issue and I refer it back to them, with the requirement that, within the next 3 months, they meet to discuss the proposal. I do not remain seized.

69. The purpose of Article 64B is to provide for the redeployment of Society-represented employees to different work locations or to lower-rated positions, instead of declaring them surplus. It is designed to protect employees in the event of reorganizations by maximizing the number of employees who are able to “follow their work.” Given the prospect of substantial headcount reductions in the
forthcoming period, OPG would like the process to be as expeditious as possible.

70. Currently, the redeployment process in Article 64B takes place within certain units of application which broadly reflect OPG’s existing business units: nuclear, corporate, hydroelectric, and fossil. However, the existing units of application may no longer accurately reflect the structure of OPG’s business. OPG proposes that the redeployment process mirror OPG’s actual business structure. To this end, it proposes that Article 64A of the Collective Agreement, which deals with “surplus” redeployment, also apply to redeployments governed by Article 64B. Specifically, OPG proposes to move Articles 64.9.9 and 64.9.10 of the Collective Agreement (currently in Article 64A) to the general section of Article 64, and to clarify that they apply to both Article 64A and Article 64B. This will make available to the parties the expedited process of resolution that currently applies to surplus redeployments. In my view this proposed change will be of benefit to the parties in resolving issues concerning the units of application for non-surplus redeployment.

71. The Society proposes that the units of application in Article 64A (as amended by Letter of Understanding 191) be amended. Article 64A describes the staff redeployment process to be followed when reorganization may result in
employees being declared surplus. Article 64.9 describes how the size of a unit of application is to be determined. The Society’s concern is with the units of application to be used for employees in the Corporate area in an Article 64A (surplus) redeployment. The four units of application, regardless of the scope of the redeployment, are: Finance (approximately 150 employees); People and Culture (approximately 100 employees); Business and Administrative Services (BAS) (approximately 150 employees); and the balance of Corporate groups (approximately 125 employees). The Society’s proposal is that, where a redeployment impacts more than 10% of Society-represented employees in any of the four Corporate Divisions, the 4 small units of application will be treated as a single unit of application, consisting of approximately 525 employees.

72. I am not persuaded that this change is warranted because Letter of Understanding 191 was negotiated very recently and the units of application described were determined on the basis of communities of interest between the employees in each unit. Furthermore, as OPG points out, if a refinement of the Letter of Understanding 191 units of application were appropriate, there is a mechanism in Articles 64.9 and 64.10 to amend units of application for Article 64A redeployments.
73. OPG proposes a variation in the contracting out provisions of Article 67 read with Letter of Understanding 188. The effect of the proposal is to alter the status quo pending determination of a dispute over contracting out. Currently the OPG may not effect the contracting out until agreement with the Society is achieved or an arbitrator rules it is permissible. The proposed change is that OPG could contract out work, pending the determination of a grievance challenging the contracting out. This proposal has very significant financial implications for the Society and its members. It also significantly affects the integrity of the Society’s bargaining unit. I am not persuaded it should be granted.

74. Pursuant to OPG’s employee pension plan, employees are eligible to retire with a reduced pension at age 55. OPG’s Extended Health Benefits Brochure, which is incorporated by reference into the Collective Agreement, states that any employee who retires with a pension will receive other post-employment benefits (OPEBs) for life. The impact of this provision is that, if an employee hired by OPG at age 55 leaves OPG’s employ, say, the next year at age 56, they receive lifetime OPEBs. To address this, OPG proposes requiring employees to have at least 10 years of service with OPG in order to qualify for OPEBs.

75. This proposal will be awarded, save that it will not apply to any Society-
represented employee who reached the age of 55 prior to the date of this award or who is declared surplus as part of the headcount reductions during the period of the collective agreement.

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76. In light of the above considerations, I make the award set out below.

77. The renewal agreement will consist of the unchanged items from the collective agreement which expired on December 31, 2012, the item agreed by the parties themselves, described below, which are incorporated into this award, and the items described below on which the parties made submissions.

78. Unless directly dealt with in this award, all outstanding employer and union proposals are dismissed. All items awarded are effective from the date of the award, save for the wage increases that are retroactive to the dates specified.

79. The agreed item is under Article 30.5, concerning boots. It will read as follows:
Article 80.5 - Boots

80.5 Staff will be reimbursed for the cost of up to two pairs of protective footwear per year where such footwear is required by OPG as follows:

- Safety boots/shoes – 50% of actual cost to a maximum of $75 per pair;
- Electric Shock Resistant footwear – 75% of actual cost for one or two pairs per calendar year to a total annual maximum of $250.

80. The items awarded are as follows.

81. The term of the collective agreement will be for the period January 1, 2013 to December 31, 2015, under the following Article 9.1:

This collective agreement shall remain in effect from January 1, 2013 to December 31, 2015 inclusive and, thereafter, shall be renewed automatically from year to year, subject to Section 4.0 of the Voluntary Recognition Agreement (VRA) as amended in the Collective Agreement, unless either Party notifies the other, in writing, not less than 90 days prior to the expiration of the Collective Agreement that it desires to amend the Collective Agreement. As long as Sections 4.0, as amended, and 5.0 of the VRA remain in effect, where notice to amend the Collective Agreement is given, the provisions of this Collective Agreement shall continue in force until a new Collective Agreement is signed.

82. The wages are adjusted as follows:

a. Effective January 1, 2013: 0.75%

b. Effective January 1, 2014: 1.75%
c. Effective January 1, 2015: 1.75%

83. Progression on the salary grid will be frozen for the two-year period from the end of 2013 until the end of 2015.

84. A COLA provision will apply, as the PWU - OPG Part A, Item 39.0 escalator clause, with the necessary date changes, as described above.

85. As to the method of payment of overtime worked, Article 57.1 is amended to read:

The method of compensation, for authorized overtime, may be money or time off at the appropriate premium rate. If the employee elects for time off, the time for such time off will be subject to their supervisor’s approval, which will be granted unless OPG’s operational needs are such as to make the time off unreasonably difficult. If approval is not granted, the method of compensation will be money.

86. The parental leave provisions will be amended as follows:

a. Article 41.3 b) i) will read:

for the first 2 weeks, payments equivalent to 93% of the employee's base pay (pregnancy and parental leaves); and

b. Article 41.3 b) ii) will read:
when receiving EI benefits, the employee is eligible to receive payments equivalent to the difference between the EI benefits and 93% of the employee’s base pay for up to 15 weeks while on pregnancy leave and for up to 5 weeks while on parental leave. Where the employee’s base salary exceeds 1.5 times the Years Maximum Insurable Earnings, the employee will receive an additional $300 as a lump sum as full compensation if a clawback is required by Canada Customs and Revenue Agency or any other government agency.

87. OPG’s chief arbitrator proposal is referred back to the parties for further discussion and consideration within the next 3 months. I do not remain seized if they are unable to resolve the issue.

88. Articles 64.9.9 and 64.9.10 of the Collective Agreement (currently in Article 64A) are to be moved to the general section of Article 64, so that they apply to both Article 64A and Article 64B. The provision will therefore read as follows:

- There are three separate and distinct parts to Article 64:
  1. Part A Redeployment Surplus
  2. Part B Non-Surplus Redeployment of Society Staff
  3. Part C Decontrol/Change of Employer

- In accordance with Article 64.32 Article 64 Part B is applicable in non-surplus situations that necessitate the redeployment of Society represented employees, except as follows:
- In the Nuclear Unit of Application, where employees who are in an over complement situation at their work headquarters and can be
accommodated at another work headquarters that is under complement on the basis of same job classification (i.e. like to like) Article 105.5 will apply;

• In the Fossil Unit of Application, where there is a “closure” of a Fossil location announced by the government LOU #166 “Coal Plant Closure” will apply.
  
  Clarity Note: The term “closure” applies to both full and partial station closures (e.g. unit closure or fuel conversion).

• For Surplus redeployment as outlined in Article 64.34 Article 64 Part A is applicable.

• Notwithstanding the above, in the event where there is decontrol or change of employer the parties agree Article 64 Part C will apply.

Unit of Application

• Where OPG establishes organizational units which do not clearly fit the definitions contained in the unit of application default provisions under Article 64A and/or Article 64B, the matter of the appropriate unit of application will be reviewed by the JSMC. The JSMC will make a decision which ensures that employment continuity rights are fairly applied.

Unit of Application Dispute Resolution Process

• In the event of a change during the term of the Agreement, with respect to a default units of application issue under Article 64A and/or Article 64B, that cannot be resolved by the parties, the dispute shall be resolved as follows:

  • Where no decision of the JSMC is reached on a proposed change to default units of applications, within 10 working days of the JSMC’s consideration of the matter, the parties shall exchange written briefs.

  • The matter will be determined prior to the mix and match by a designated, mutually agreed arbitrator within 10 working days after the briefs have been exchanged.

  • The arbitrator shall hear the matter in the most expeditious manner possible, and shall only hear oral evidence where he/she determines that it cannot be determined on the basis of the written briefs and oral submissions. The arbitration decision shall be based on an updated equivalent balance of the Units of Application of this Article as of January 1, 2006.

  • The arbitrator shall issue an award within 5 working days of the hearing, setting out the default unit of application.
The arbitrator has all the powers under the applicable Labour Relations Act.

The JRPT shall continue to function and develop other elements of its first report pending determination of the default unit of application through this process, and the outcome of this process does not preclude the JRPT from achieving consensus on a unit of application notwithstanding the arbitrator’s award.

This process does not prejudice or waive any grievance rights under Article 64.3 but the arbitrator’s award on the default unit of application cannot be grieved.

89. As explained above, employees who take early retirement shall have at least 10 years of service with OPG in order to qualify for OPEBs, provided that this limitation will not apply to any Society-represented employee who reached the age of 55 prior to the date of this award or who is declared surplus as part of the headcount reductions during the period of the collective agreement. The Extended Health Benefits brochure is to be amended accordingly, as follows:

- Employees who go from employee to pensioner and are \( \geq \) age 55 with at least 10 years of pensionable service or have reached rule of 82 WITHOUT a break in service having had subsidized Health and Dental coverage will continue to receive benefits during their retirement equivalent to the current benefits available to active employees. This includes former employees who are otherwise eligible to retire under the OPG Pension Plan on their last day of employment and who instead elect a commuted value pension.

90. I remain seized of the implementation of this award until a collective
agreement is in effect between the parties. I further remain seized to deal with any errors or omissions.

DATED at TORONTO on April 8, 2013.

_____________________
Christopher J. Albertyn
Sole Arbitrator
IN THE MATTER OF AN ARBITRATION

BETWEEN:

ONTARIO POWER GENERATION

("the Employer")

AND:

THE SOCIETY OF ENERGY PROFESSIONALS

("the Society")

IN THE MATTER OF:

RENEWAL COLLECTIVE AGREEMENT

SOLE ARBITRATOR:

Kevin M. Burkett

APPEARANCES FOR THE EMPLOYER:

John West - Counsel
Brian Gottheil - Counsel Associate
Scott Martin - Vice President – Labour Relations, Safety, Wellness and Corp Security
Glenn Zavitz - Director – Labour Relations
Joe Kennedy - Manager – Labour Relations
Carissa Nowak - Senior Staff Relations Officer
Connie Hergert - Manager – Labour Relations, Safety, Wellness and Corp Security
Brian Duncan - Deputy Site Vice President – Darlington Nuclear
Mike Martelli - Plant Manager – Niagara Plant Group
Tom Christensen - Director – Thermal Supply Chain
Eric McCarthy - Director – Fuels
Jean Beharrell - Human Resources Manager
APPEARANCES FOR THE SOCIETY:

Joe Fierro - Local Vice-President
Victor Chetcuti - Unit 2 Director
Peter Tien - Unit 8 Director
Tony Kokus - Unit 9 Director
Alex Saba - Unit 16 Director
Andre Kolompar - Staff Officer
Elizabeth Traicus - Staff Officer
Joe Lesperance - Staff Officer

Hearing in this matter was held in Toronto, Ontario on January 17, 2011.
The Society of Energy Professionals (Society) has had a longstanding collective bargaining relationship with Ontario Power Generation (OPG) and its predecessor, Ontario Hydro. The Society and OPG were party to a collective agreement that expired December 31, 2010. Pursuant to article 15 of that collective agreement, "Future contract negotiations disputes shall be resolved by binding arbitration (and further that) the dispute resolution process shall be mediation-arbitration using the same individual as both the mediator and arbitrator." I have been appointed under article 15 as the mediator-arbitrator in respect of the renegotiation of the collective agreement between the parties that expired December 31, 2010. There is no dispute with respect to my jurisdiction in this regard. Mediation/arbitration briefs were submitted by both parties in advance of the mediation that took place on January 15 and 16, 2011, followed by a formal arbitration hearing on January 17, 2011.

By way of background, OPG was incorporated on December 1, 1998 as one of five successor companies to the predecessor Ontario Hydro. OPG is charged with generating electric power and in this regard operates three nuclear stations (Pickering A, Pickering B and Darlington), five fossil fuel stations and 65 hydroelectric stations. OPG employs some 11,900 employees, located at various sites across the province, of whom approximately 3,724 are represented by the Society and 6,917 by the Power Workers' Union (PWU), an affiliate of the Canadian Union of Public Employees. The
Society membership is comprised of engineers, scientists and other professional staff, including those in supervisory, administrative and engineering services.

Because Society members oversee and supervise the work of PWU members, the differentials between these two groups of employees come to the fore in collective bargaining. Further, given the education, training and responsibilities of Society members, they earn sizeable incomes. The maximum for the lowest salary band (MP2) exceeds $90,000 per annum and then, moving from MP3 to MP6, the maximum salary ranges from $98,113 to $118,924 per annum. Six hundred twenty-seven of the 966 professional engineers employed by OPG earn in excess of $100,000 per annum. However, as I made clear in *Bruce Power LP and Society* (2004) 126 LAC (4th) 144, also an interest dispute involving the Society, "absent comparative analysis of duties and responsibilities as between these and other similarly educated and trained persons ... there is no basis upon which to conclude that the members of this bargaining unit enjoy an absolute salary advantage that should act to moderate future salary increases."

The background also requires a brief overview of the statutory regime under which OPG operates. As part of the restructuring of the predecessor Ontario Hydro, OPG was incorporated under the *Ontario Business Corporations Act* to perform the electricity generation functions of the predecessor Ontario Hydro. Its sole shareholder is the Province of Ontario who appoints its 12-member board of directors. This ownership structure is especially important in this round of bargaining, given the
The restructuring of the predecessor Ontario Hydro was designed to introduce competition into the electricity market. As a result, OPG now faces competitive pressure from other electricity producers that has been statutorily arranged and encouraged. The Green Energy Act, enacted in 2009, enables the Ontario Power Authority (OPA) to implement the "feed-in tariff (FIT)" program. Under this program, OPA offers guaranteed contracts to producers of electricity from renewable sources (wind, solar). These contracts offer significantly higher rates than the rates OPG is able to charge. They also ensure that electricity is purchased from renewable sources before it is purchased from OPG. The OPA has also entered into a number of other generation supply contracts pursuant to ministerial directives with natural gas generators, nuclear generators and hydroelectric generators. In the result, OPG, because it, in effect, stands last in line, has not been able to sell all of its available generation even though responsible for operating and maintaining the assets necessary to supply the base power load for the province of Ontario.

OPG also faces greater regulatory pressures than did Ontario Hydro. The Ontario Energy Board (OEB) is an independent, quasi-judicial energy industry regulator with a statutory obligation to protect the interests of consumers with respect to electricity prices. Given the recent spike in consumer electricity prices, for reasons
related to the higher price of "green" energy, it can be expected that the OEB will be seeking to moderate these price increases, including any price increase sought by OPG. OEB determines the rates that OPG can charge for its nuclear-generated electricity and its regulated hydroelectric plants (70% of OPG's energy production and 45% of its generating capacity). The OEB exercises its mandate in this regard through a public hearing process under which OPG has a legal onus to demonstrate that its costs are just and reasonable. The OEB decision on 2011-12 rates is expected in February 2011. Because the Province has announced that it intends to eliminate coal-fired generation, the proportion of OPG's revenues that it derives from regulated production will increase in the future.

While OPG develops its own business strategies and business plans, these plans must be approved by the Government of Ontario as its sole shareholder. More generally, the Government of Ontario also controls OPG's overall mandate and, in this regard, ensures that OPG provides a consistent level of base power and, at the same time, restrains OPG from pursuing certain investment opportunities, including investments in renewable electricity generation. In addition, the Province of Ontario, as sole shareholder, has required OPG to make significant capital investments to upgrade and refurbish its nuclear generation facilities. The Government of Ontario must also approve any decisions on new generation, such that OPG asserts that it lacks control over its ability to invest in activities that it believes might increase its revenue.
All of the foregoing has informed OPG's bargaining position in this round.

Notwithstanding the foregoing, however, OPG had a net income of $623 million in 2009 and $447 million for the first three quarters of 2010 (the most recent reporting period). Over the 2012 to 2015 period, OPG's return on investment is forecast at the 5% to 6% range which would produce net income of between $440 million and $480 million annually throughout the period.

In this round, the influence of the Government of Ontario extends beyond the statutory, regulatory and administrative parameters already identified. In March 2010, the Government of Ontario enacted the Public Sector Compensation Restraint to Protect Public Services Act 2010 (Bill 16) in response to a ballooning provincial deficit. The bill freezes the compensation of non-unionized government employees and non-union employees of its transfer partners. Although it does not apply to the unionized employees of these employers, the Government of Ontario made a number of related pronouncements having to do with wage restraint for unionized employees and the withholding of funding for collectively bargained compensation increases that had not already been finalized. The budget speech cautioned that there would be "no funding for incremental compensation increases for any future collective agreements."

As recently as January 12, 2011, the week before this mediation/arbitration, the Government of Ontario, over the signatures of both the Minister of Energy and the Minister of Finance, wrote to remind OPG that "as an agency of the Province (it) is subject to these obligations and expectations." Consistent with the direction of the
Government of Ontario, the bargaining position of OPG and the position it has taken throughout is that there should be a zero net compensation increase over a two-year term.

It should come as no surprise that the parties made very little progress in direct two-party negotiation. Once OPG made it known that it was seeking a zero net compensation agreement and that it would be maintaining that position throughout, there was no reason for the Society to moderate its position or to seriously consider the OPG demands designed to improve the efficiency of its operations. The effect of the Government pronouncement and its direction to OPG was to "freeze" the bargaining and thereby to prevent the parties from either moving to an agreement or at least prioritizing their respective bargaining positions. In the result, an inordinate number of issues have been put into dispute before me. These are:

**Society Items**

- Term
- Wages
- Cost of Living Allowance (COLA)
- Practice of Terminating Employees' Sick Leave Entitlements While Employee has Medical Certification for Sick Leave and the Requirement for Independent Medical Examinations
- Employee Choice on Payment Methods for Overtime Worked
• Modify Article 5 to Collect Dues from Society Members in Management Rotations Beyond 90 Days
• Incorporate Vacation Carryover Language
• Improvements to Shift Change/Lack of Notice Payments
• Parties to Agree to any Changes to an Employee's Normal/Standard Hours of Work
• Move Band N LOU (174) into Collective Agreement
• Add Additional Arbitrators to List of Arbitrators
• Improved Work Boot Allowance
• Clarify Posting of Vacancies
• Increase Eyeglasses Coverage
• Reinstate Coverage for Over-the-Counter Drugs
• Improve Coverage for Dental Implants
• Increase Retirement Bonus
• Amend Funeral Leave Provisions
• Expedited Release of Persons Selected to Vacancies and No Loss Suffered by Them for any Delays in Release
• Remove Relief Pay 15-Day Waiting Period
• Update Language to Pay for Training Time Beyond Normal Working Hours
OPG Items

- Article 16 – Complaint and Grievance/Arbitration Process and Article 19 – Job Challenges
- Article 64(b) – Non-Surplus Redeployment of Staff and Article 105 – Change of Work Headquarters
- Article 67 – Purchased Services Agreement
- Article 65.3 – Advanced Planning
- Article 65.6.3 – Selections for Assignments Other Than Relief or Rotations
- Articles 59.3 and 60.4 – Shift Allowances
- Hours of Work and Averaging
- Article 9 – Collective Agreement Term
- Article 24 – Escalator Clause
- General Administrative Points – Review of LOUs and Midterms; Correcting Article 59.7

OPG served the Society with notice of its intent to alter a number of practices that it maintains, although beneficial to Society members, are not required under the collective agreement. The Society responded with corresponding contractual demands that are incorporated within the Society issues that are in dispute. Further, it must be noted at this point that OPG has also moved to cancel the Award for Performance (AFP) program that existed outside the collective agreement. The AFP program
provided Society members with, on average, an annual salary adjustment of
2.5%.

The collective agreement under which I have been appointed is explicit with
respect to the factors that I am to consider in rendering an award. Article 15 stipulates
that I must weigh the following:

(a) A balanced assessment of internal relativities, general economic
conditions, external relativities;
(b) OPG's need to retain, motivate and recruit qualified staff;
(c) The cost of changes and their impact on total compensation;
(d) The financial soundness of OPG and its ability to pay.

I have assessed the respective positions of the parties having regard to the factors
identified in article 15 above, together with the long accepted interest arbitration
criteria of demonstrated need and replication.

What account then is to be taken of the Government's compensation restraint
pronouncements and their application here? Absent legislative confirmation, these
pronouncements are of no binding force or effect and, given the specific factors under
article 15 that must govern my deliberation, they can be of no practical effect either.
Except to the extent that I must take account under article 15(a) of "general economic
conditions," that might support the Government's restraint pronouncements, these
pronouncements cannot be taken into account. To find otherwise would make the
article 15 factors irrelevant and thereby undermine the acceptability of my award and
raise grounds upon which to challenge its enforceability. The interest arbitration awards that have spoken with respect to the application of the Government of Ontario's restraint pronouncements are consistent with the conclusion that I am bound by the contractual factors set out at article 15 and by the longstanding criteria used in interest arbitration that must be implied as binding under language that establishes interest arbitration as the final dispute resolution mechanism. These include:

- **Science Centre and SEIU (August 19, 2010) unreported (McDowell)**
- **Participating Hospitals and SEIU (November 5, 2010) unreported (Burkett)**
- **University of Toronto and Faculty Association (October 5, 2010) unreported (Teplitsky)**
- **Participating Nursing Homes and SEIU (September 15, 2010) unreported (Jessin)**
- **Brain Injury Services of Hamilton, etc. and United Steel, Paper, etc. Workers International Union, Local 1-500 2010 OLAA No. 581 (Albertyn)**

I have decided on an application of the contractual factors set out at article 15 that a two-year term is appropriate with an across-the-board wage increase of 3% effective January 1, 2011 and further across-the-board wage increases of 2% effective January 1, 2012 and 1% effective April 1, 2012.

Factor (a), a balanced assessment of internal relativities, general economic conditions and external relativities, supports these increases. The PWU, in voluntary two-party negotiations, settled with OPG for 2011 for 3% effective January 1, 2011
(with the continuation of its goal sharing program) and has tentatively scheduled Bruce Power for 2.75% effective January 1, 2011, 2.75% effective January 1, 2012 and 3.5% effective January 1, 2013. Arbitrator Herman has awarded 3% increases for Society members employed by the Electrical Safety Association for both 2010 and 2011. Further, the Society and Kinectrics have in place a two-party settlement that increases wages by 3% per annum for 2011, 2012 and 2013. Inflation is projected to exceed 2% for both 2011 and 2012, with the evidence establishing that historically average wage settlements across Ontario (2005 to 2009 inclusive) have consistently exceeded the increases in the CPI for the comparable periods by amounts ranging from .3% to 1.2% per annum. The evidence further establishes that the wage increases for Society members at OPG during this period have outstripped average Ontario wage settlements by amounts ranging from 0% to .6% per annum.

Turning to factor (b), OPG, in its submissions to the OEB, has estimated that 20-25% of its employees will need to be replaced by 2014 due to a rapidly aging workforce demographic. The turnover estimate for engineering staff (represented by the Society) ranges from 25-50% in this period. In regard to the difficulties that this presents, OPG advised the OEB as follows:

In order to support the diverse mix of generation technologies within OPG, staff must be highly skilled, and must possess a wider array of skills than employees in many other utilities. OPG's workforce is comprised of engineers, scientists, other professional staff, and skilled trades people. Approximately 8,760 employees (73 per cent of the OPG population) require post secondary education to perform their jobs. For the majority of these, two or more years of community college or a
university degree is required, and this education ranges from skilled technical or technologist training, to advanced university degrees in fields such as engineering and finance. The highly skilled staff are in demand across the country, and OPG must compete for these employees with Bruce Power and other private generators and energy service organizations as well as the general marketplace.

Given the foregoing, the 75th percentile link to the external market does not seem out of line.

Factor (c) requires an assessment of the "cost of changes and their impact on total compensation." Under this factor, account must be taken of OPG's unilateral discontinuance of the Award for Performance program – a program that existed outside the collective agreement. This plan had, on average, provided Society-represented employees with an annual increase of approximately 2.5% in pay. OPG served notice of its intent to discontinue this plan effective December 31, 2010, in conjunction with the negotiation of this renewal collective agreement. It follows that the cost savings to OPG, which directly impact the total compensation of these employees, must be taken into account under factor (c). When reference is had to the approximate 2.5% annual savings to OPG and the corresponding approximate 2.5% decrease in the total compensation of these employees, it must be found that on any objective assessment, the cost impact of this award is reasonable.

Finally, under factor (d), "the financial soundness of OPG and its ability to pay," it must be found that even though being forced to operate, in effect, with one arm tied behind its back, OPG is a profitable enterprise. OPG had a net income of
$623 million in 2009 and a net income of $447 million for the first three quarters of 2010 (the last available reporting period). The projections are for net income approaching $500 million per annum going forward. While there may be an element of financial uncertainty caused by the strict parameters that apply to the scope of OPG's operations and by the favoured treatment afforded producers of renewable energy, the fact remains that OPG is charged with producing the base load power that the renewable producers cannot guarantee. It follows that OPG, absent a significant recession, will remain a profitable enterprise capable of maintaining the relative compensation position of its employees.

When reference is had to the foregoing analysis of the article 15 factors, salary increases of the magnitude that are to be awarded over a two-year term (3% effective January 1, 2010, 2% effective January 1, 2012 and 1% effective April 1, 2012), coupled with minimal other compensation improvements (see below), are both supportable and necessary.

It became clear that the priority benefit improvement sought by the Society is the inclusion of coverage for dental implants in circumstances where the treating dentist advises that dental implants are the effective treatment choice. Presently, coverage is provided where dental implants are the least costly alternative. OPG estimates the cost of this benefit improvement at .05% of base payroll or $210,000 per year. The Society asserts that these figures are inflated because they are based on an estimated cost of $4,500 per implant when, in fact, dental implants range from $1,500
to $4,500 depending upon the tooth that is being replaced. Even on OPG’s cost analysis, this is not an overly expensive item in the context of the two-year agreement sought by OPG, especially where there are no other benefit improvements, where it is awarded in the second year and where there has been a 2.5% takeaway. Accordingly, while I acknowledge that this is a "breakthrough" item, I am prepared to award it as the Society's priority benefit item commencing in the second year and as the only benefit improvement that is awarded.

OPG served the Society with notice of intent to alter a number of practices that it considers as providing benefits and/or entitlements that are beyond the requirements of the collective agreement. One of these concerned the ability to carry over from one year to the next a portion of one's vacation credits. There has been a practice of allowing such carryover. Indeed, there is a form designed for the purpose of recording and facilitating such requests. I am of the view that professionals should be able to carry over a specified number of vacation days per year where to do so would not interfere with the employer's operation. Indeed, as noted, this has been the practice. The notice of intent was filed for the purposes of allowing OPG to discontinue the practice. This would amount to another takeaway. In the context of negotiations where there has already been a major takeaway (albeit outside the collective agreement) in the form of the discontinuation of the AFP plan, I am not prepared to have this practice discontinued. Accordingly, I am awarding the Society demand, which strikes an appropriate balance between employee convenience and operating imperatives. As
for the remaining notice of intent items, I am awarding that, going forward, the parties will rely on their respective interpretations of the relevant language without regard to the past practice under that language. In other words, the practice is not to inform the interpretation nor is it to form the basis of an estoppel.

Turning to the Employer items, I have attempted to discern where there is real operational need and to balance that need against the need to protect essential employee interests from arbitrary or unreasonable Employer actions. I have attempted to identify compromises that may have resulted had these parties been faced with strike or lockout and thereby to apply the principle of replication. In this regard, I have proceeded on the basis that within the confines of the Society having to protect the essential interests of its members, both parties share a common interest in the efficient operation of the enterprise.

In addition to a number of other issues, OPG has identified the need for greater flexibility in assigning and/or moving individuals between various worksites in its nuclear division, especially within Durham Region. I am satisfied that OPG has a legitimate business interest in such flexibility and that to a meaningful extent such flexibility can be achieved without unduly impinging upon employee interests. I refer specifically to the OPG request to redefine the Darlington work headquarters as including a 10-kilometre radius around the station (from 5 kilometres) under article 105 and the OPG request to amend the definition of "incumbent" under article 64(B). However, whereas I see no difficulty in amending the definition of incumbent to
include volunteers, I am uncomfortable with expanding the definition to include anyone not eligible for relocation assistance. I am uncomfortable because the degree of employee protection under article 64(B) would then be determined by where an employee resides. Where an employee resides is a matter of an individual choice that involves a host of family, personal and economic considerations that ought not to determine whether an employee is entitled to avail him/herself of the article 64(B) process. Having said this, the current application of article 64(B) is overly expansive. I intend to remit this narrow issue back to the parties for the purpose of having them negotiate a definition of incumbency that includes not only volunteers but also employees subject to work location changes of less than a stipulated distance and to remain seized.

Having regard to the foregoing, I will be awarding that, under article 105, the Darlington site be defined as including a 10-kilometre radius around the station (provided there is no change to the administration of the relocation assistance); the definition of incumbents in article 64(B) be expanded to include volunteers and those subject to a work location change of less than a stipulated distance (this issue to be remitted back for determination by the parties with the arbitrator remaining seized); article 65.3 be amended to make the clause applicable to work arrangements of greater than five working days' duration; and finally, I will be awarding the incorporation of an LOU confirming the Society agreement to averaging hours of work under the Employment Standards Act.
The Society argues that I am without jurisdiction to award a letter of understanding confirming its agreement to averaging of hours of work beyond that stipulated under the Employment Standards Act. Subsection 22(2) of the ESA states that in order to average an employee's hours for overtime purposes, the employer must have both an agreement with the employee and a permit from the Director. An interest arbitrator imposes whole collective agreements. Indeed, these parties have clothed me with the jurisdiction to make an award with respect to any and all disputes arising out of the renegotiation of their collective agreement. The parties are free to include an averaging provision, confirming employee agreement, within a collective agreement. The question of an averaging agreement was the subject matter of negotiation between these parties and ultimately a disagreement. It follows, therefore, that it is within my jurisdiction to award where the parties are in dispute with respect to the averaging specifics. Further, the Society's policy argument that an averaging agreement should not be imposed because it will not be subject to ratification ignores the essential function of the interest arbitrator – to award a collective agreement that itself is not subject to ratification. If the issue of an averaging agreement is a legitimate matter for collective bargaining, which it is, and if the parties are in disagreement, which they are, it falls to the interest arbitrator to decide the issue as part of his overall award – which is not subject to ratification by either side.

In circumstances where the parties have agreed to 74 arbitration dates for 2011, where the parties have agreed between themselves in this round to add three
arbitrators to the list of mutually acceptable arbitrators and where the transformative amendments sought by OPG have not been the subject of extensive discussion and analysis between the parties, I have not awarded the OPG proposals under article 16, Grievance and Arbitration. This is not to say that the even-handed and efficient operation of the grievance and arbitration procedure should not be the subject matter of ongoing monitoring and discussion between the parties.

The parties tendered extensive briefs and made oral submissions dealing with all the issues in dispute. I have given full consideration to these submissions. Having regard to these submissions and to the foregoing commentary, I hereby award as follows.

**AWARD**

The parties are hereby directed to enter into a renewal collective agreement for the term January 1, 2011 to December 31, 2012 that contains all the terms and conditions of the predecessor collective agreement save and except that it is amended to incorporate the following:

1. All matters agreed between the parties prior to the date hereof.
2. Across-the-board salary increases applicable to all salary schedules as follows:

   Effective January 1, 2011  3%
   Effective January 1, 2012  2%
   Effective April 1, 2012  1%

3. Maintain article 24, escalator clause, unchanged except for updating to reflect the January 1, 2011 to December 31, 2012 term.

4. Effective January 1, 2012, amend dental coverage to provide for coverage for dental implants where dental implants are recommended by the treating dentist as the most effective treatment choice.

5. Amend article 5.1.2 to provide that dues shall be deducted and remitted to the Society for the entire period of a temporary assignment of a Society member to perform work outside the bargaining unit.

6. Add a new article 39.3, Leave with Pay for Remembrance Day Observation, to read as at pgs. 57-58 of the Society's mediation/arbitration brief.
7. Amend article 38.13 by adding the following regarding vacation carryover:

Employees will be allowed to carry over two (2) weeks of vacation per year with the approval of the manager. Any such request will not be unreasonably withheld.

8. Insert a clause into the collective agreement to provide that with respect to the "notice of intent" practices identified by the Employer as part of its bargaining agenda, except with respect to vacation carryover that has been awarded upon, the parties agree to be bound by their respective interpretations of the collective agreement language and not to rely upon the past practice.

9. Effective April 1, 2011, amend article 59.2, Shift Workers, to insert the following:

Management shall provide an opportunity for input from employees prior to establishing shift schedules.

Management will provide a minimum of seven (7) days' notice for shift workers and non-shift workers working on shift, when their hours of work, as shown on their shift schedule, are to be changed. Failure to provide appropriate notice will
require payment at the appropriate overtime rate for all hours worked during the notice period.

In the case of a forced unit outage or for reasons of equipment failure or safety, employees can be shift changed effective immediately and overtime rates apply for all hours worked during the first three (3) days.

Where a PWU represented employee working on shift receives "Penalty" payment for insufficient notice of a shift change, their direct shift supervisor will be entitled to the equivalent "Penalty" treatment. For clarity, where both the Society represented shift supervisor and the PWU represented crew member(s) have received insufficient notice of the shift change, the Society represented shift supervisor shall receive the equivalent premium rates as the PWU represented employee for work performed on shift until the notice has expired.

Written notification, such as email, shall be provided. In situations where the employee is absent from their regular
work location, verbal notice shall be given and will be followed by written notice.

Management will use reasonable efforts in revising the regular schedule so as to provide the following minimum hours off between shifts:

10. Amend article 66.4 to provide that a Society member will receive the increase in salary resulting from a temporary assignment to a higher rated job from the first day of such assignment.

11. Amend article 57.7 to read as follows:

   Where management directs an employee to attend a training course, he/she will receive overtime payment for all hours spent in training beyond his/her standard hours of work. Management agreement to an employee request for training does not constitute a management direction to attend.

12. Amend article 105.2 to read:

   Darlington, including a 10-kilometre radius around the station and including the following location – 1908 Colonel Sam Drive.
Note: Relocation assistance under Part XI of the collective agreement will continue to be applied as if a 5-kilometre radius is in effect.

13. Amend article 64(B) to include in the definition of incumbent "volunteers." The parties are directed to negotiate a further amendment to article 64(B) to include within the definition of incumbent any employee subject to a move of less than a stipulated distance.

14. Amend article 65.3 to make the clause applicable to work assignments of greater than five working days' duration.

15. Effective April 1, 2011, incorporate an LOU dealing with ESA averaging hours of work approval, to read as follows:

1. In accordance with the ESA the Society consents to employees working schedules that average hours over a period of greater than two weeks. Specifically, the Society agrees to average employees' hours over a period of five weeks for A-E crews and over a period of 52 weeks for project crews.
2. This letter of understanding will come into effect April 1, 2011 and shall form part of the collective agreement between the parties and shall continue in effect until March 31, 2016.

16. Retroactivity – Wage retroactivity based on all paid hours is to be paid to all bargaining unit employees employed since the expiry of the predecessor collective agreement within sixty (60) days of the date hereof. Any bargaining unit employee who has left the employ of the Employer since the expiry of the predecessor collective agreement is to be notified in writing at the address on file within thirty (30) days of the date hereof. The retroactive payment to a former employee is to be made within thirty (30) days of receipt of notice of entitlement.

I remain seized to deal with any errors or omissions and with respect to the implementation of this award. I am also seized in the event the parties are unable to agree upon the expanded definition of incumbent under article 64(B).

Dated this 3rd day of February 2011 in the City of Toronto.

Kevin Burkett

______________________________
KEVIN BURKETT
Ref: F4-3-1-Attach 6

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please provide a revised copy of Appendix 2-K which sets out the average per employee of the total salary & wages, including overtime, incentive pay and fiscal year adjustment.

Response

Please see Attachment 1 to this response.

In preparing this response an error was discovered affecting the total salary & wages, including overtime, incentive pay and fiscal year adjustment reported for the Newly Regulated Hydroelectric facilities. Attachment 2 to this response is a corrected version of the second page of Ex F4-3-1, Attachment 6.
FTE, Compensation and Benefit Information  
for OPG’s Regulated Facilities  
("Appendix 2k")

Numbers may not add due to rounding

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FTE, Compensation and Benefit Information
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SEC Interrogatory #112

Ref:
[F4-3-1]

Issue Number: 6.8
Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please provide a breakdown of FTEs for a) nuclear, b) hydroelectric-previously regulated, c) hydroelectric- newly regulated and d) corporate, by function.

Response

A breakdown of FTEs for Nuclear, Hydroelectric-previously regulated and Hydroelectric – newly regulated can be found in Ex. F4-3-1, Attachment 6. A breakdown of FTEs for Corporate by function is provided below.

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Witness Panel: Corporate Groups, Compensation
SEC Interrogatory #113

Ref:
[F5-1-1 Part a]

Issue Number: 6.8
Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please provide a copy of the engagement letter and/or retainer between OPG and Goodnight Consulting.

Response

The Purchase Order and Scope of Work for the Goodnight Nuclear Staffing Benchmarking Analysis are included in Attachment 1.
SUPPLEMENTARY TERMS AND CONDITIONS

All in accordance with the following and the order of precedence in the event of a conflict shall be as listed:

1. The requirements of this Purchase Order #207675;
2. Ontario Power Generation's Contract Standard A-29-2010;
3. PO Invoicing Terms;
4. Withholding Canadian Income Tax;
5. Business Expense Schedule 2010;
6. The Company’s Proposal dated 27JUN11 and e-mail clarification dated 02JUL11; and
7. OPG’s RFP #NA2011-714 dated 10JUN11.

This Purchase Order is the governing contract document. Subsequent instruction notices shall take precedence for matters in which the purchase order is amended.

Instructions will be contractually binding only when issued in writing by the Nuclear Supply Chain Division of Ontario Power Generation. Communications (verbal or otherwise) from other Ontario Power Generation departments will not be recognized as changing the scope, price or terms of the contract.

WORK REQUIRED:

To provide consulting services on:

1. Benchmark OPG nuclear staffing levels against other nuclear operations
2. Identify the sources of any significant differences in staffing levels;
3. Analyze the nature of these differences; and
4. By reference to OPG’s 2012 business planning, analyze OPG’s planned 2012 staffing levels and compare them with the benchmarks.

For detailed scope of work, please refer to the Scope of Work document attached to OPG RFP #NA2011-714.

DURATION OF WORK: Approximately 10 weeks (From July 25, 2011 to September 30, 2011)
PRICING SUMMARY:

1. Labour cost based on Time and Material: C$396,000 to complete this project.
2. Total estimated work hours: 1,080 hours.
3. Estimated business and travel cost: C$85,088.
4. Expenses for OPG authorized business travel will be charged at cost as per OPG’s Business Expense Schedule 2010 and based on actual receipt.

INTELLECTUAL PROPERTY RIGHTS:

Upon completion, OPG will retain all proprietary rights to intellectual property (IP) and the rights of sharing/publication of the materials will be under the full control of OPG.

KEY PERSONNEL:

1. Charles T. (Chuck) Goodnight: Engagement Director
2. Thomas E. (Teb) Bowman: Senior Nuclear Consultant
3. John McGaha: Executive Advisor
4. Lawrence (Larry) Womack: Senior Nuclear Consultant
5. Joachim E. (Ed) Scholz: Senior Nuclear Consultant
6. Peter Schneider: Senior Nuclear Consultant
7. Daniel J. Scholz: Nuclear Consultant

The Company shall keep on the work, during its progress, competent personnel satisfactory to Ontario Power Generation. It is expressly understood that such personnel shall be in the employ of the Company and not in the employ of Ontario Power Generation. The Key Personnel shall not be changed except with the consent of Ontario Power Generation, which shall not be unreasonably withheld, unless they prove to be unsatisfactory to the Company and cease to be in its employ. Ontario Power Generation shall have the right to require replacement of any employee of the Company or its sub-contractor if, in the opinion of Ontario Power Generation, their performance is unsatisfactory. Ontario Power Generation shall be the sole judge in these matters. The Company shall advise Ontario Power Generation of any changes of Key Personnel prior to the change. In such cases the Company must provide for the training of the new personnel. The cost of the training shall be to the Company’s account. OPG will provide orientation training at no cost to the Company, provided suitable advance notice is given.

Note: Ontario Power Generation personnel will be available throughout the contract to confer with the Company on relevant technical issues.

OPG Project Contact: Joel Sheinfield, (416) 592-8060 or joel.sheinfield@opg.com
SCOPE OF WORK

Revision No.: 

Project Name: Nuclear Staffing Study

Location: Toronto/Pickering Ontario, Canada

Approved: J Sheinfield

Date: June 3, 2011
Scope of Work for [Project Name]

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   1.3. Target Start/Completion Date of the Project ..................................................... 4
2. Implementation Strategy ........................................................................................ 4
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   6.1. Contractor’s Responsibilities ............................................................................. 6
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8. Others .................................................................................................................... Error! Bookmark not defined.
APPENDIX A ........................................................................................................... Error! Bookmark not defined.
LIST OF documents ............................................................................................. Error! Bookmark not defined.
ABOUT OPG

OPG is an Ontario-based electricity generation company whose principal business is the generation and sale of electricity in Ontario. Our focus is on the efficient production and sale of electricity from our generation assets, while operating in a safe, open and environmentally responsible manner. OPG was established under the Business Corporations Act (Ontario) and is wholly owned by the Province of Ontario.

OPG’s generating portfolio has a total capacity of over 21,000 megawatts (MW) from sources of Nuclear, Hydro, and Thermal stations, making us one of the largest power generators in North America.

OPG owns and operates the Pickering and Darlington Nuclear Power Stations. The two stations have a combined generating capacity of about 6,600 megawatts.

For more information on OPG, go to www.OPG.com

1. INTRODUCTION

1.1. Background of the Project

In 2011, OPG will be undertaking a nuclear staffing study. The primary objective of the exercise will be to compare OPG nuclear staffing levels against other nuclear operators; identify the source of any significant differences in staffing levels; and analyze the nature of these differences.

This initiative is being undertaken pursuant to a direction from the Ontario Energy Board (see attached Appendix A: Board Decision from EB-2010-0008. The 2009 ScottMadden Benchmarking Report referenced in Appendix can be found at

http://www.rds.ontarioenergyboard.ca/webdrawer/webdrawer.dll/webdrawer/rec/256262/view/dec_reasons_OPG_20110310.PDF

The relevant discussion is at Section 4.2 Benchmarking which starts at page 40 of the Decision Report.

PURPOSE OF THE PROJECT

The purpose of the project is to retain the services of an external consultant to benchmark OPG nuclear staffing levels against other nuclear operators; identify the source of any significant differences in staffing levels; and analyze
the nature of these differences. Excluded from scope will be major project staffing (i.e. Darlington Refurbishment; Darlington New Nuclear Project)

By reference to OPG’s 2012 business planning, the external consultant should also comment on OPG’s plans with respect to staffing levels.

1.2. Target Start/Completion Date of the Project

The target start date is the week of July 4, 2011. The completion of the final report is targeted by the end of September 2011, as it is required prior to the finalization of the 2012 business plan, expected to occur in November 2011.

The consultant may be required to testify to the report at an OEB hearing in mid 2012, respond to interrogatories and undertakings, etc.

2. Implementation Strategy

OPG requires consultant to provide an implementation strategy in its RFP response. The implementation strategy should include a kick off session, derivation and analysis of staff levels, and interviews with OPG subject matter experts. There is an OPG steering committee overseeing this project and OPG requires interim progress updates followed by a final report of the methodology employed, analysis performed and findings, for presentation to OPG management.

3. Scope of Work

The following process/scope of work is recommended to be undertaken by an external consultant to examine staffing levels. As labour costs are the most significant component of OPG’s cost of service, the process outlined below would also require the consultant to directly address, by reference to staffing, the major cost differences between CANDU and PWR/BWR.

- Access potential data sources (e.g. WANO, EUCG, consultant proprietary databases, COG), and compile comparison analysis of OPG staffing with that of industry peers. The comparison should be by job function and organizational structure. Separate peer group comparisons (e.g. Canadian CANDU, All CANDU, CANDU plus PWR/BWR) should be provided, if possible. Nuclear staffing levels analyzed should include regular company employees, full time equivalents (FTEs) of temporary employees, contractors and contracted services.

- Identify relevant factors which need to be taken into account in making comparative assessments of staffing levels. In particular, in correlating OPG staffing with US plants, the assessment should take into account current OPG staffing levels required to pursue the various initiatives
underway at OPG to improve reliability through improved plant material condition that will allow OPG to narrow the reliability performance gap with its peers. The report should assess OPG levels of contracted services and external contractor against peers to ensure accurate comparison. A detailed examination of staffing levels and required level of work effort within an OPG organizational unit (e.g. engineering) may be feasible and would be an option to be pursued with the consultant.

- Analyze OPG staffing levels for factors which are beyond OPG’s control, which are not actionable or a significant constraint (e.g. technological differences between CANDU and PWR/BWR, geographic differences, level of unionization, hours of work, economies of scale in U.S nuclear industry versus Canada, different nuclear regulatory requirements, etc).
- Review for reasonableness, achievability and timeliness the staffing performance targets and implementation plans under development as part of OPG’s 2012 business planning.

4. Deliverables

The consultant will deliver a report that:

- provides an analysis of OPG staffing relative to industry peers,
- highlights the differences in staff levels between OPG and the industry benchmarks, and explain the factors contributing to the differences,
- reviews preliminary short term and long term staff targets for reasonableness, achievability and timeliness.

The external consultant’s report will be included in the next filing of an OEB application for new rates (expected April 2012).

5. Requirements

5.1. Qualification of Personnel

Established credibility in the evaluation and assessment of staff benchmarking

5.2. Previous Experience

Demonstrated experience in the evaluation and assessment of staff benchmarking in general and of nuclear operators in particular.
Relevant regulatory experience will be a consideration in the evaluation criteria.

6. Responsibilities

6.1. Contractor’s Responsibilities

Benchmarking OPG’s current staffing levels is to be performed by an independent third party consultant experienced in the evaluation and assessment of staff benchmarking in general and of nuclear operators in particular. The consultant will be assisted by OPG subject matter experts.

The consultant may be required to testify to the report at an OEB hearing in mid 2012, respond to interrogatories and undertakings, etc.

6.2. OPG’s Responsibilities

OPG to provide office space, computer access and limited administrative support. OPG has assigned a project manager to this project, which will co-ordinate access to subject matter expert assistance as required.

OPG will provide reference material, as requested. OPG is a member of EUCG and WANO.

Abbreviations and Acronyms

<table>
<thead>
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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>OEB</td>
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<td>EUCG</td>
<td>Electric Utility Cost Group</td>
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<td>WANO</td>
<td>World Association of Nuclear Operators</td>
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Appendix A: Full report of EB-2010-0008

Appendix B: SCOTTMADDEN PHASE 2 NUCLEAR BENCHMARKING REPORT
SEC Interrogatory #114

Ref: [F5-4-1]

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

In 2011, OPG undertook stakeholder consultations regarding its Terms of Reference for the compensation study. Please provide a copy of all submissions and materials from that consultation.

Response

Information regarding the Terms of Reference and stakeholder consultations can be found under the heading “OPG Application for 2013-2014 Payment Amounts” on OPG’s website at:

http://www.opg.com/about/regulatory-affairs/stakeholder-information/Pages/payment-amounts.aspx
SEC Interrogatory #115

Issue Number: 6.8
Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

With respect to the Aon Hewitt “National Utility Survey Ontario Power Generation”:

(a) Please provide a copy of the Terms of Reference.

(b) Please explain how the Terms of Reference differ from the Total Compensation Study Terms of Reference, dated August 30, 2011, which were provided to stakeholders for comment as required by the EB-2010-0008 Decision.

(c) Why did Aon Hewitt not benchmark non-power generation specific positions (public relations, finance, human resource, IT) to non-utility comparator organizations.

Response

(a) A copy of the Terms of Reference is provided as Attachment 1 to this response. A copy of an agreement amending the Terms of Reference is provided as Attachment 2 to this response.

(b) The Terms of Reference in response to the EB-2010-0008 Decision was finalized August 30, 2011. The work on the survey was abandoned in the spring of 2012 as OPG did not proceed with a rate application. In the spring of 2013 the work on the survey resumed in support of the current application. The original Terms of Reference was amended for the completion of the survey. The difference between the original terms of reference and the amendment is that a new benchmark survey was not conducted but rather the data in the finalized Aon-Hewitt report was refreshed with 2013 compensation information.

(c) The Aon Survey did use non-utility comparator organizations where appropriate. As per the Terms of Reference, Aon Hewitt obtained data on general industry organizations (i.e., non-utility) and used nationally reported data from two published survey sources for their analysis.
Total Compensation Study
Terms of Reference

August 30, 2011
August 30, 2011

Mr. Craig Halket  
Vice President - HR Services  
Ontario Power Generation  
700 University Avenue  
Toronto, ON M5G 1X6

Dear Craig,

Subject: Total Compensation Study Terms of Reference – Draft for Consideration

On behalf of Aon Hewitt, thank you for the opportunity to work with Ontario Power Generation (“OPG”) on this very exciting project.

Through the combined efforts of our team, we outline in the attached document a detailed account of our approach and methodology for the project and the immediate need to conduct a study of Total Compensation. The one caveat with this study is that we cannot guarantee the full participation of the identified comparator organizations but our strategy is to work with OPG to maximize participation.

Key to the success of the collection of a data set will be the involvement of OPG at key phases of the project to: provide internal project management, provide information/background, coordinate internal OPG resources and review/approve key milestones/deliverables.

For this assignment, we believe that the team we have assembled can provide the most comprehensive depth of expertise — from custom survey and market assessment standpoint and is a testament to Aon Hewitt's combined strengths. Aon Hewitt will conduct this study to the best of our professional ability acting independently and objectively.

We look forward to working with you on this very interesting and challenging set of objectives.

Yours truly,

Respondent:

Per: Phil Wallace  
Senior Vice President  
Authorized Signatory
Aon Consulting and Hewitt Associates Merger

On October 1, 2010, Aon Consulting Inc. and Hewitt Associates Corp. merged to form the new firm Aon Hewitt. For the purposes of this proposal, all references to Aon Hewitt automatically encompass Aon Consulting Inc. and Hewitt Associates Corp.

About Aon Hewitt

Aon Hewitt is the world's pre-eminent human capital consulting and outsourcing firm with the resources, expertise, and global reach to solve the most pressing and complex people challenges that organizations face today.

We employ the strongest team of professionals in the industry, who have access to the widest breadth and depth of research, platforms, and services in more locations and for more industry segments than any other human capital firm.

Our singular focus is on our clients: We deliver distinctive value, top-rated customer service, and measurable business impact.

Key Facts

- Number one human capital consulting and outsourcing firm in the world
- 29,000 employees
- Offices in 90 countries
- $4.3 billion combined revenue
- Serves more than half of the Fortune 500
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2. Identifying Benchmark Positions 5

3. Determine Elements of Compensation 6

4. Methods for Collecting Data 7

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Appendix A – Team Member Profiles
Understanding of Ontario Power Generation’s Objectives

We understand that in May 2010, Ontario Power Generation ("OPG") submitted an “Application for the Payment of Amounts for OPG’s Prescribed Facilities” to the Ontario Energy Board ("OEB"). The OEB’s Decision on OPG’s application requires OPG to conduct a study of total compensation against a set of market comparators and/or industry sectors.

The terms of reference which follow outlines Aon Hewitt’s approach and methodology for gathering data for the appropriate comparator market and/or industry sectors and to collect sufficient and appropriate data so as to determine OPG’s current position against the market relative to Total Compensation.

Our Approach

Our approach outlines the four major parameters which will ensure the proper foundation for gathering market data for OPG. Following the collection of the market data, Aon Hewitt will provide its observations and conclusions on the data, including any assumptions made and the significance of the study’s findings.

1. The process to determine a representative comparator sample of organizations against whom OPG will be compared;

2. The process to identify the benchmark positions to be surveyed;

3. The recommended elements of compensation which will be collected/reported; and

4. The recommended methods for collecting data.

1. Identifying a Representative Comparator Sample

Using a best practice approach, identify the relevant industry sectors for comparison and the relevant geographic region(s) whether that is local, provincial, national or international.

Address the following considerations:

- From which organizations does OPG recruit?
- From which organizations does OPG lose employees?
- Who do OPG’s people naturally see as comparators?

Further consideration should also be given to ensuring that the group of comparator organizations:

- Are representative of the same and/or similar industry sectors*;
- Are reflective of the complexity and size of OPG;
Includes some organizations in a similar business mode (i.e. stable businesses versus businesses being restructured); and

Is large enough so that it can withstand individual fluctuations (i.e. losing a comparator organization).

* Where appropriate and feasible, represent similar levels of unionization and industry regulation

Consider both industry-specific and general industry positions. Industry-specific positions are positions which can only be found in organizations within the same industry sector. For OPG, the industry-specific jobs would be all jobs directly involved in the generation of electricity from one of its three sources: nuclear, thermal and hydroelectric with definite emphasis on nuclear. For OPG, general-industry positions would be found in support functions such as HR, Finance, etc. and these are positions that can be found at organizations in different sectors.

In general, for industry-specific positions, the organizations from which they recruit and lose their employees are:

- Primarily, organizations in the same industry sector as they have a similar talent pool
- Secondarily, organizations which are in related sectors and which have similar jobs filled by employees with transferable skill sets.

**Recommended Approach for OPG**

Preliminary information gathering to answer the questions relating to where OPG attracts and loses employees suggests that the primary comparators for industry-specific jobs are Power Generation/Electric Utility organizations with similar forms of power generation, namely nuclear, hydroelectric and thermal. The proposed secondary comparators for OPG are the Petroleum/Natural Gas sector, the Mining sector, the Nuclear Research and Development and Engineering sectors and for general-industry positions, general industry organizations of a similar size/complexity to OPG.

The rationales for recommending each sector for the basis of comparison are outlined in Table 1 below. It is important to note that these recommendations are a suggested starting point and that these comparator groups will be further refined and finalized with input from OPG. As outlined in the Approach Sub-Section below "Establishing the Comparator Group", OPG has indicated their intention to share this recommended comparator group with stakeholders to get their input prior to finalization of the Terms of Reference.
### Table 1

<table>
<thead>
<tr>
<th>Comparator Type</th>
<th>Sector</th>
<th>Rationale for Inclusion</th>
</tr>
</thead>
</table>
| Primary                  | Power Generation/ Electric Utilities             | • Power Generators represent a direct talent pool for nuclear, thermal and hydroelectric power generation positions within OPG  
                                 |                                                                                                           | • Electric Utilities operate within the same general sector and hire employees with similar transferable skill sets for some OPG positions |
| Secondary                | Mining                                           | • Mining companies hire employees with similar transferable skill sets for some OPG positions and as an industry share OPG’s issue of having an insufficient supply of fully qualified talent to meet their recruiting needs  
                                 |                                                                                                           | • Similar to OPG, mining companies hire for a base skill set for many positions and train employees to meet the organization’s skill needs |
| Secondary                | Petroleum/ Natural Gas                            | • Petroleum/ Natural Gas companies hire employees with similar skill sets as OPG and also as an industry share OPG’s issue of having an insufficient supply of fully qualified talent to meet their recruiting needs  
                                 |                                                                                                           | • Similar to OPG, Petroleum/Natural Gas companies hire for a base skill set for many positions and train employees to meet the organization’s skill needs  
                                 |                                                                                                           | • Work involves some of the same base products and processes used in power generation |
| Secondary                | Nuclear Research, Development and Engineering    | • Nuclear Research, Development and Engineering organizations represent a direct talent pool for nuclear generation positions                                                                                          |
| Secondary                | General-Industry (similar size/ complexity organizations to OPG) | • For general industry positions, general industry organizations of a similar size/ complexity represent a direct labour pool                                                                                   |

### Geographic Focus

Adopt the best practice approach to determine the geographic focus of the comparator group. The best practice approach suggests that geographic focus will vary by position according to the level of the position within the organization and the specificity/depth of skill set.

### Recommended Approach for OPG

For senior management and executive positions the labour market group is North America.

For positions below senior management there are several factors that must be considered. First, the power generation sector is highly consolidated for the generation streams in which OPG operates (i.e. nuclear, hydroelectric and thermal) with comparator organizations found across the country.
Consequently, the geographic focus of industry-specific jobs automatically starts at the national level across all levels in order to get a sufficient number of participating organizations to provide reliable and valid data for the purposes of comparison.

The predominance of OPG positions within the nuclear sector of power generation and the relatively small number of nuclear generation positions in the Canadian market presents a major problem in developing a direct market comparison on specific positions. We will therefore survey a number of U.S. power generation companies and examine the data to determine if there are insights that are relevant to the study. It is important to note that direct compensation data from U.S. power generation companies will not be used for this study for a number of reasons: the high degree of regionalization of pay across the U.S., the foreign exchange fluctuations, the differences in taxation and employee benefit programs.

The proposed geographic focus by comparator sector is outlined in Table 2 below as well as a list of sample organizations by Sector and Geographic Focus.

**Table 2**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Geographic Focus</th>
<th>Sample Organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Generation/ Electric Utility</td>
<td>Canada</td>
<td>Hydro Quebec, Bruce Power, New Brunswick Power, BC Hydro, Hydro One, Manitoba Hydro, Epcor, Capital Power, etc.</td>
</tr>
<tr>
<td>Mining</td>
<td>Canada</td>
<td>Barrick, Xstrata, Vale, etc.</td>
</tr>
<tr>
<td>Petroleum/ Natural Gas</td>
<td>Canada</td>
<td>Suncor, Imperial Oil, Shell, Syncrude, etc.</td>
</tr>
<tr>
<td>Nuclear Research, Development and Engineering</td>
<td>Canada</td>
<td>Atomic Energy Canada Limited, SNC Lavallin, Wardrop, etc.</td>
</tr>
<tr>
<td>General-Industry (similar size/complexity organizations to OPG)</td>
<td>Canada – National and Local Markets where appropriate by position</td>
<td>Public and Privately owned organizations of a similar size/complexity to OPG</td>
</tr>
</tbody>
</table>
Establishing the Comparator Group

We understand OPG will be consulting with stakeholders on the Terms of Reference prior to its finalization.

2. Identifying Benchmark Positions

Apply a best practice approach to determine benchmark positions. Evaluate OPG positions against the following set of generally accepted criteria for determining benchmark positions:

- Ensure the position can be easily defined within a benchmark position description and is not a hybrid position
- Ensure the position is represented within the proposed comparator companies and business sectors
- Ensure the position is relatively stable over-time and is expected to remain in the organization, therefore facilitating the possibility of year-over-year comparisons
- Ensure where possible that positions with high numbers of incumbents are selected to help ensure the greatest possible representation of employees within the organization.

The list of potential benchmark positions can then be evaluated to ensure that they are a representative cross-sample of:

- All functional groups,
- All levels within the organization
- All employee groups (i.e. Management group, Power Workers Union and the Society of Engineering Professionals)
- Jobs within each segment of power generation (i.e. nuclear, hydroelectric and thermal).

Ultimately a sample of positions will be targeted at 50% of the employee population in order to provide a robust representative sample of OPG positions.

Recommended Approach for OPG

In order to maximize the number of potential benchmarks, we propose to use job families and describe generic level descriptors for application to each of the job families. When using this methodology, Aon Hewitt will replicate the hierarchical framework of the job families which currently exist within OPG and leverage as much as possible OPG’s existing job descriptions as a foundation.

Key to obtaining the most complete and appropriate list of benchmark positions will be a dialogue with OPG in:

- Gathering a complete data set of jobs by functional group/ generation segment with levels of incumbency by position
- Gathering and validating job documentation to ensure a common understanding of job responsibilities and education/skills requirements
3. Determine Elements of Compensation

**Recommended Approach for OPG**

Collect data on all elements of total compensation where available, including:

- Base Salary
- Target and Actual Short-Term Incentive
- Target Long-Term Incentive
- Other Cash Compensation
- Pension and benefits (at the plan or organizational level)

We will report statistics showing OPG’s relative position where there is sufficient data on the following individual elements of total compensation:

- Base Pay
- Target and Actual Incentives (i.e. short-term and long-term)
- Benefits
- Pension

We will also report the same statistics as above on the following aggregated elements of compensation:

- Total Cash – Base Pay and Target Short-Term Incentive
- Total Direct Cash – Base Pay, Target Short-Term Incentive and Target Long-Term Incentive

All statistics on individual elements and aggregated elements of Total Compensation will be reported at the 25th, 50th and 75th percentiles and average where there are a sufficient number of data points to provide a valid and reliable statistic and to ensure that confidentiality of participant data is maintained.
4. Methods for Collecting Data

Given the lack of relevant industry specific surveys for OPG's proposed comparator sectors (primary and secondary) in both Canada and the United States, we propose a three-pronged approach:

1. Conduct a custom survey of the proposed primary and secondary comparator sectors in Canada and the United States. We cannot guarantee that there will be sufficient participation in order to publish reliable and valid data. We know that generally, the more information we ask participants to provide, the greater the challenge to get sufficient levels of participation, as such we will ensure that questions are asked in a succinct fashion and generate value for participants to encourage participation.

2. Use Aon Hewitt’s Total Compensation Management (“TCM”) database to provide general industry data where required.

   Aon Hewitt possesses one of the best databases in Canada on compensation and total rewards data and insights. Our Total Compensation Measurement database includes over 550 organizations across Canada.

3. As appropriate, use additional industry specific surveys available to Aon Hewitt.
About Aon Hewitt

Aon Hewitt is one of Canada’s leading human capital consulting firms. Our global network, our involvement in industry task forces and our ongoing commitment to professional development enable us to provide leading-edge advice in all areas of human capital management.

Aon Hewitt was formed by the merger of Aon Consulting and Hewitt Associates on October 1, 2010, becoming the leading human capital consulting and outsourcing firm in the world. Aon Consulting’s presence in Canada is the result of the 1998 merger of three highly-respected and well established Canadian actuarial firms: MLH+A (founded in 1965), Martineau Provencher (founded in 1976) and Alexander Consulting Group (founded in 1987). Hewitt Associates was founded by Ted Hewitt in 1940 and became a publicly traded company in 2002. Hewitt’s Canadian operations were founded in 1975.

We have offices in 12 cities across Canada (Vancouver, Calgary, Edmonton, Regina, Saskatoon, Winnipeg, London, Toronto, Ottawa, Montreal, Quebec City, and Halifax).

Human Capital Management Is Our Core Business

Aon Hewitt is unique in its ability to provide proven services across the full range of human capital management. Our three business segments—benefits outsourcing, human resources business process outsourcing, and consulting—help clients develop, implement, and deliver strategies and programs that embed effective human resources business process design, administration, and technologies into their business environment. At the same time, these services help our clients effectively manage the complex human elements that enable them to successfully meet their business objectives.

Aon Hewitt delivers integrated solutions in the areas of:

- **Consulting** with clients to develop strategies and design human resources programs to solve the challenges of acquiring, managing, motivating, and retaining the pivotal talent needed to create and sustain a competitive advantage.

- **Benefits outsourcing** solutions provide services to improve benefits delivery, reduce compliance risk, and enable clients to focus on more strategic human resources issues. Our industry-leading, proprietary systems integrate the seamless administration of clients’ primary benefits programs—defined benefit, defined contribution, health, and benefits.

- **Human Resources Business Process Outsourcing** provides clients with secure market-leading solutions to manage employee data; administer benefits, payroll, and other human resources processes; and record and manage transactions across talent management, workforce management, and core process management.

We closely align our consulting services with our outsourcing services so we can offer clients total end-to-end solutions.

Aon’s History and Background

Headquartered in Chicago, Aon Corporation (our parent company) is the leading provider of risk management services, insurance and reinsurance brokerage, and human capital and management consulting. Our key advantage is our broad view of the insurance industry.
The history of Aon Corporation can be traced back as far as the 1680s to the founding of Hudig-Langeveldt, the world’s first commercial insurance brokerage and one of Aon’s predecessor firms. Aon as we know it today grew from the 1982 merger of Combined Mutual Casualty Company (founded in 1939) and Ryan Insurance Group (founded in 1964). As a publicly traded company, we are profiled by Dunn & Bradstreet (20−771−6994) and rated by Standard and Poor's (Baa2), Fitch (BBB+/A-2) and Moody's (BBB+).
Appendix A – Project Team
Our primary focus to meet OPG's needs is to bring together our best talent. For this engagement, we have selected the Aon Hewitt team presented below.

Susan Hunter will function as your Client Relationship Manager or CRM for the compensation project and will be responsible for ensuring Aon Hewitt's team fulfill work requirements on time, on budget and to established objectives. Susan will be working in collaboration with Phil Wallace and Cathy McKnight. Phil Wallace will provide executive level expertise throughout the project and will be the expert witness at the Ontario Energy Board (OEB) hearings. Cathy McKnight, a seasoned project manager, will have a key role in ensuring the completion of project steps, activities and deliverables at key milestones.

Our team members' project role and their relevant experience and expertise are summarized in the table below. Please refer to team member biographies in the following section for more details of each individual.

<table>
<thead>
<tr>
<th>Team Member / Role</th>
<th>Relevant Experience and Expertise</th>
</tr>
</thead>
</table>
| **Philip G. Wallace, Senior Vice President** | - More than 30 years of industry and consulting experience, previous leader of Aon Consulting's Compensation Strategies practice  
  - Areas of expertise include compensation strategy, executive compensation, incentive play design, sales compensation, job evaluation, market surveys and competency-based pay  
  - Advisor to numerous private and public sector organizations |
| **Role:** Executive Advisor  
  - Strategic advisor on labour and compensation plan and strategy  
  - Expert witness to the Ontario Energy Board hearings |
| **Susan Hunter, Practice Leader** | - Over 20 years of HR and compensation consulting experience  
  - Relevant compensation expertise includes design and development of compensation programs with an emphasis on total rewards, compensation strategy development and competitive market research and analysis  
  - Experienced client relationship manager and account manager  
  - Public sector experience including federal, provincial and municipal levels of government |
| **Role:** Client Relationship Manager (CRM)  
  - In her role as CRM, Susan will coordinate Aon's delivery of the full scope of compensation services required by OPG, on time, on budget, and in accordance with project objectives |
| **Robert Carlyle, Ph.D., Vice President** | - Global Practice Leader for Workforce Planning with extensive depth and experience in strategic and human capital planning, and business model development, including labour/workforce forecasting and modeling  
  - Led several large projects for provincial governments and other public sector bodies, typically requiring extensive stakeholder input  
  - Frequent speaker on workforce and economic trends and issues in Canada and the U.S. |
| **Role:** Workforce Planning Advisor  
  - Rob will draw upon his deep expertise in strategic HR management and statistical modelling and analysis to advise OPG on workforce planning |
<table>
<thead>
<tr>
<th>Team Member / Role</th>
<th>Relevant Experience and Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Matt Walker, Consultant and Survey Leader</strong>&lt;br&gt;Role: Survey Project Manager</td>
<td>- Provides organizations with reliable and relevant data to support decision making  &lt;br&gt;- Responsible for the reward survey program for Canada at Aon Hewitt &lt;br&gt;- Leads the various industry and association surveys that Aon Hewitt conducts and the Canadian portion of the global Aon Hewitt Total Compensation Measurement databank. He is responsible for the integration and expansion of our Canadian offering into the new Aon Hewitt global survey offering. Also leads custom survey projects and executive compensation assignments &lt;br&gt;- Areas of expertise include compensation governance and risk assessment, competitive market analysis, short term and medium incentive program design and long term incentive valuation and program design</td>
</tr>
<tr>
<td><strong>Cathy McKnight, Senior Consultant</strong>&lt;br&gt;Role: Project Manager</td>
<td>- Over 15 years experience in strategic communications, systems and project management  &lt;br&gt;- Certified Project Manager with the Project Management Institute (PMI)  &lt;br&gt;- Extensive experience and expertise managing enterprise wide change management initiatives involving multiple stakeholders</td>
</tr>
<tr>
<td><strong>Tara McRae, MIR, Consultant</strong>&lt;br&gt;Role: Project Consultant</td>
<td>- Over 10 years of compensation consulting and industry experience  &lt;br&gt;- Compensation expertise with particular specialization in the design of total rewards/compensation strategy, base pay delivery programs, incentive pay, competency-based programs, and total compensation</td>
</tr>
</tbody>
</table>
Philip (Phil) G. Wallace  
**Senior Vice-President**

**Position and Responsibilities**
Phil is a Senior Vice President working out of Aon Hewitt's Calgary office, serving the compensation needs of clients in the Central/Western region. He specializes in providing consulting services in the areas of compensation strategy, executive compensation, incentive plan design, sales compensation, job evaluation, market surveys and competency-based pay.

**Areas of Specialization**
His experience has included holding senior HR management positions, including Compensation Manager, at two major Canadian corporations (Bank of Montreal and Shell Canada Ltd.) and 16 years of experience in the consulting industry.

**Background and Affiliations**
University of Calgary -1960 to 1963  
Fellow of the Institute of Canadian Bankers  
Management Certificate Program - University of Calgary & McGill University  
Management of Human Resources Program – University of Western Ontario

Major private sector clients have included Oracle, Deloitte & Touche, Clarica, Energizer, Sunoco, and Apotex. Public sector clients have included City of Burlington, Regional Municipality of Halton, Manitoba Hydro, BC Hydro, Greater Toronto Airport Authority.

Phil is Past President of WorldatWork (formerly the Canadian Compensation Association), Past Director of the Canadian and American Compensation Association (WorldatWork) and a past member of the Advisory Board of the Global Remuneration Organization (GRO).

1996 to Present – Aon Hewitt Consulting formerly Aon Consulting and MLH&A
- Senior Vice President
1994 to 1996 – Towers Perrin Consulting  
- Geographic Leader Compensation, Calgary and Toronto
1986 to 1994 - Shell Canada Limited
- Compensation Manager  
- Director Human Resources- Shell Canada Resources  
- Director Human Resources - Shell Canada Products
1982 to 1986 – Bank of Montreal, Toronto & Calgary
- Compensation Manager  
- Senior Staffing Manager  
- Human Resources Manager, Western Canada
1976 to 1982 - Dunhill Personnel, Calgary  
- Owner & President
1963 to 1976 – Bank of Montreal, Calgary, Toronto & Montreal
- Various branch banking positions  
- Compensation Co-ordinator  
- Compensation and Benefits Manager  
- Employee Relations Manager
**Susan Hunter**  

**Practice Leader**

**Position and Responsibilities**
Susan Hunter is the National Practice Leader for Aon Hewitt's Rewards and Performance practice. In this role, Susan is responsible for the profitable development and growth of the practice in Canada.

**Areas of Specialization**
Susan has over 20 years of experience working with clients to develop people strategies that advance business goals and organizational effectiveness. She specializes in designing and developing HR and reward programs for a broad range of clients in both the private and public sectors providing solutions to talent management issues and business challenges.

Susan’s consulting work involves designing and developing HR and reward programs for a diverse range of clients in both the private and public sectors across Canada. Susan has directed and conducted a number of broad based human resource management, organizational and compensation assignments, including performance management systems design, competency model development, training and organizational development. Her experience covers all aspects of total rewards strategy and design, broad base employee pay programs, executive compensation, and incentive rewards. Susan is also experienced in the design of strategies and processes to ensure compliance with regulatory requirements at both the provincial and federal levels.

**Background and Affiliations**
Prior to joining Aon Hewitt, Susan held consulting positions in Aon Consulting’s Talent Strategies, Strategic Communications and Compensation practices with business development and account management responsibilities. Susan’s corporate experience includes research and learning and development roles with another international consulting organization.

Her qualifications include a Bachelor of Arts degree from the University of Toronto and she is an accredited Certified Human Resource Professional (C.H.R.P.).

Susan is a speaker at conferences in Canada, speaking on topics such as Rewards and HR Strategies for the future. Susan serves as the Executive Sponsor for Aon Hewitt’s Women’s International Network (WIN), a global mentoring program for female employees across the Aon companies. Susan’s current professional affiliations include the Strategic Capability Network, the Human Resources Professionals Association (HRPA), WorldatWork, and the Institute of Cultural Affairs (ICA). She is an active volunteer with Rotary International.
Robert Carlyle, Ph.D.  
Vice-President and Global Practice Leader

**Position and Responsibilities**
Robert is a Vice President and the Global Practice Leader for Workforce Planning at Aon Hewitt, and provides clients with strategic consulting, workforce planning, program and project management, information technology (IT) tools and talent management.

**Areas of Specialization**
Robert specializes in strategic and human capital planning and business model development, which includes:

- Business planning within large organizations
- Workforce forecasting based on operational modeling and simulation
- Change management
- Organizational design
- Effectiveness and performance measurement

Robert joined Aon in 2005 through Aon Hewitt’s acquisition of Carreg Solutions Inc. His key projects and accomplishments at Aon include:

- Designing and leading the development and implementation of a workforce planning capability for a global mining company.
- Developing the 5-10 year HR strategy for a health care system.
- Conducted engagement surveys and action planning for a variety of organizations, including accounting and IT departments, where statistical links between employee perceptions and attitudes and performance were identified.
- Leading the Health Benefit Design Options project for Alberta Health and Wellness. This study included long-term health utilization projections within the province, as well as economic and labour market analysis on the sustainability of the health care system.
- Leading the development of workforce forecasting and simulation capabilities

From 1999 to 2005, Robert was president and co-founder of Carreg Solutions Inc. During this time, he directed more than 70 projects for multi-national clients. This work focused on integrated strategic and project planning and development of management information capabilities to support successful project implementation. Prior to this, Robert progressed from a Consultant to practice leader at an independent management consulting firm. Robert consults to a wide variety of international business clients in both, public and private sector. He specializes in Strategic and Human Capital planning, Business Model Development, Corporate Strategy and Governance Issues, including Restructuring, Mergers and Acquisitions. Robert was a featured speaker on workforce planning at the Human Resources Planning Society’s Annual Conference in 2007. In addition to frequent speaking engagements on workforce planning and employee analytics, he has spoken on the future of Health Care in North America. In 2008 he co-authored Global Health Care Systems: A perspective on issues, practices and trends among OECD nations.

**Background and Affiliations**
Robert has a Ph.D. in Strategic Theory and Planning from Cranfield University at the Royal Military College of Science (UK). He also has a Masters in International Security and Defense Management from Lancaster University (UK) and a Bachelor of Commerce from the University of British Columbia.
Matt Walker  Consultant and Leader of Rewards Survey Team

**Position and Responsibilities**
Matt is a consultant at Aon Hewitt, covering Executive Pay and Performance, Board Governance and is responsible for the Aon Hewitt Talent Planning Network, including the various industry surveys that Aon Hewitt conducts and the Aon Hewitt National Survey. He is the lead for the Canadian portion of the global Aon Hewitt Total Compensation Measurement database. He is responsible for integrating and expanding the Canadian presence in the new Aon Hewitt global survey offering.

**Areas of Specialization**
Matt has worked with a number of Canadian Boards and executive teams to design and implement effective pay and performance systems. Matt specializes in the areas of governance, compensation risk, competitive market analysis and performance measurements and rewards. He has experience developing executive compensation programs and processes that align business goals and strategies. He also has experience in developing and implementing executive salary structures, short term and medium incentive program design, and long term incentive valuation and program design. He has been published in the Institute of Corporate Directors.

**Background and Affiliations**
Matt has an Honours Bachelor of Arts degree from the University of Toronto where he specialized in Economics and Political Science. Prior to joining Aon Hewitt, Matt held positions with the Ontario government and a boutique law firm.
Cathy McKnight

Senior Consultant

Position and Responsibilities
Cathy McKnight is a Senior Consultant in Aon Hewitt’s Talent, Rewards and Communications practice based out of the Toronto office. Working with clients across Canada, Cathy develops and implements strategic employee communication plans that align with her clients’ overall business objectives and culture.

Areas of Specialization
With more than fifteen years of combined communications, systems and project management experience, Cathy has experience in an array of communication mediums from traditional print to more current electronic channels such as the web, intranets and social media tools. She is able to set strategies that integrate into existing corporate parameters without missing opportunities to add new elements that will enhance employee communication efforts’ effectiveness.

An advocate of collaboration, Cathy works with her colleagues and client team members to ensure the proposed solution is appropriate for the goals at hand, and that the messaging reflects that of the organization’s culture and desired end state.

Cathy applies her communications and project management know-how to clients’ needs to ensure success on every level of a project.

Background and Affiliations
Born and raised in Montreal, Cathy has an Honors Bachelor of Arts degree from the University of Guelph and a post-graduate certificate from Ryerson University in Public Relations. She has had the privilege of working with many Fortune 500 companies on their internal web strategies, and has had the opportunity to speak at various North American communications and web related events on such topics as social media, web governance, and employee engagement.

Cathy is a certified Project Manager with the Project Management Institute (PMI).
Tara McRae, M.I.R.  Consultant

Position and Responsibilities
Tara is a consultant in the Talent, Rewards and Communication practice in Aon Hewitt's Toronto office. She has close to ten years of human resources experience both as a compensation consultant with Aon Hewitt and as a general practitioner at a major consumer packaged goods firm.

Areas of Specialization
Tara's consulting work covers a broad range of industries including health care, manufacturing, broadcasting and financial services. She focuses on the development of integrated total reward strategies and programs to support business objectives, in particular:

- The development of total reward strategies philosophies, as well as guiding and design principles around total rewards
- The design and implementation of base pay delivery programs using role-based approaches, such as role profiles, and traditional job-based approaches
- The design, modeling and implementation of incentive pay
- The development and implementation of competency models and performance management systems
- The analysis of Pay Equity compliance in Ontario and Quebec
- Conducting competitiveness assessments around total compensation

Background and Affiliations
Tara has a Bachelor of Science and a Masters of Industrial Relations specializing in human resources/organizational behaviour, both from Queen’s University. She is an active member of WorldatWork and expects to complete her CCP designation in 2011. Tara's speaking engagements have included presentations at the Canadian WorldatWork conference and to local compensation and HR groups in the Greater Toronto Area.
Amending Agreement No. 2

THIS AMENDING AGREEMENT made in duplicate as of this 6th day of May, 2013.

BETWEEN:

ONTARIO POWER GENERATION INC.,
("OPG")

- and -

AON CONSULTING INC. and HEWITT ASSOCIATES CORP. (operating as
Aon Hewitt)
("Aon Hewitt")

WHEREAS, OPG and Aon Hewitt have previously entered into a Consulting Services Agreement dated
June 1, 2011 (the "Agreement") pursuant to which Aon Hewitt provides certain consulting services to
OPG;

AND WHEREAS, OPG and Aon Hewitt desire to amend the terms and conditions of the Agreement to
provide for additional services;

AND WHEREAS, Aon Consulting Inc. has changed its legal name to Aon Hewitt Inc.;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged,
OPG and Aon Hewitt hereeto agree as follows:

1. All references to Aon Consulting Inc. in the Agreement shall hereafter be replaced with Aon
Hewitt Inc., following a legal name change.

2. The attached Schedule 5.1.A shall be appended to the Agreement. All terms not defined herein
shall have the meaning ascribed to them in the Agreement.

3. Update Schedule 3.2 under the heading “Talent and Organization Consulting/Compensation
Consulting” to add or modify the following individuals and their respective billing rates:

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>2013 Hourly Rate ($) for Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susan Hunter</td>
<td>Lead Rewards Consultant</td>
<td>$510</td>
</tr>
<tr>
<td>Phil Wallace</td>
<td>Lead Rewards Consultant</td>
<td>$580</td>
</tr>
<tr>
<td>Suzanne Thomson</td>
<td>Rewards Consultant</td>
<td>$360</td>
</tr>
<tr>
<td>Vikhe Sathasivam</td>
<td>Rewards Consultant</td>
<td>$320</td>
</tr>
<tr>
<td>Jessica Ash</td>
<td>Rewards Analyst</td>
<td>$285</td>
</tr>
</tbody>
</table>
4. All other provisions of the Agreement remain in full force and unchanged by this Amending Agreement.

IN WITNESS WHEREOF, authorized representatives of the parties have executed this Amendment as of the date first set out above.

ONTARIO POWER GENERATION INC.

[Signature]
Name: Phil Remsey
Title: Director, Supply Chain Services

AON HEWITT INC.

[Signature]
Name: Scott Bunker
Title: Partner

HEWITT ASSOCIATES CORP.

[Signature]
Name: Howard Lyons
Title: Partner
SCHEDULE 5.1.A
Rewards Consulting Services
Survey Report Refresh and OEB Preparation

Scope of Services and Fees

The Consultant shall provide the following Consulting Services/deliverables to OPG HR and Regulatory Affairs, as requested by OPG.

Services/Deliverables – Phase 1 – Update Compensation Survey Report for 2013
1. Project planning meetings on a weekly basis to monitor project progress.
2. Review Report from April 2012 and re-visit outstanding questions from Regulatory Affairs. Resolve all outstanding questions and issues with respect to the report.
3. Update OPG incumbent data and confirm revision(s) to any total compensation program practices and policies.
4. Meet with HR to confirm and validate incumbent data re-fresh.
5. Update participant compensation data (base and bonus) by confirming aging for regulated and non-regulated benchmark roles.
6. Revise data analysis including tables and charts and revise same in the Report.
7. Revise pension and benefit value and update in the Report.
9. Revise Report based on updated information from #3 to #8 above.
10. Participate in meetings and discussions with OPG team (HR and Regulatory Affairs) to review, update and revise the Report.
11. Conduct detailed data review and analysis as discussed with OPG team (HR and Regulatory Affairs).
12. Produce drafts of the Report for review and discussion with the OPG team.

Services/Deliverables – Phase 2 – OEB Hearing Preparation
1. Participate in expert witness preparation meetings as required.
2. Meet with Regulatory Affairs and/or HR as required to review and discuss the Report.

Authorized Representative
In accordance with section 2.6, OPG’s initial authorized representative is Associate Partner.

Consultant’s Personnel
In accordance with section 2.7, the Consultant appoints Susan Hunter and Phil Wallace as the individuals responsible for performing the work described in this Schedule.
<table>
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<th>Fixed Fee Projects</th>
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<tr>
<td>Phase 1 – Update Compensation Survey</td>
<td>Fees will be determined on a time and materials basis in accordance with Aon Hewitt’s standard billing rates in Section 3.2 and the value of our services based on our time.</td>
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<td>Report for 2013</td>
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<tr>
<td>Phase 2 – OEB Hearing Preparation</td>
<td>Fees will be determined on a time and materials basis in accordance with Aon Hewitt’s standard billing rates in Section 3.2 and the value of our services based on our time.</td>
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<tr>
<td>Special projects</td>
<td>All other services listed in this Schedule fall under the special projects category. Although the parameters of some services are predictable, there are variations – driven by legislative changes, organizational changes and corporate requests which restrict the possibility of providing a fee estimate. However, where there is a specific project with a definable scope, a fee estimate will be provided.</td>
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</table>
SEC Interrogatory #116

Ref: Auditor General's 2013 Annual Report/p.162

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

In response to Recommendation 1, OPG stated that: “In 2012, the Ministry of Energy engaged a consulting firm to assess OPG’s existing benchmarking studies, and to identify organization and structural opportunity for savings”. Please provide a copy of the referenced report.

Response

OPG does not own the referenced report. A request has been made to the Ministry of Energy for permission to submit the report as part of these proceedings. The response to that request is pending.
SEC Interrogatory #117

Ref:
[Auditor General’s 2013 Annual Report/p.170]

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

In response to Recommendation 2, OPG stated that: “Annual Incentive Plan (AIP) awards are based on individual, business unit and corporate performance. As recommended by the Auditor General, OPG will assess options to further reinforce this linkage.” Please provide details about how OPG plans to do this for the test period.

Response

To create a stronger link between awards and staff performance based on documented annual evaluations, management is making the following changes to the incentive process:

- Eliminate Fleet Scorecards from the process so performance is based on the overall OPG scorecard and individual performance scorecard. This will link individual performance awards performance more closely to the key OPG financial and operating deliverables.

- Ensure the individual performance scorecards of key leaders include Fleet specific key operational and financial metrics. This will further strengthen the link between individual performance and OPG financial and operational performance.

- The linkage between performance and awards will be strengthened by increased management review and peer challenge on individual annual performance ratings:
  - The CEO will score and/or review and validate performance ratings for all Senior Executive staff in Bands B-D.
  - The Executive Leadership Team (“ELT”) will collectively review and validate appropriate relativity of all individual performance ratings for Senior Management staff in Bands E-F across OPG.
  - ELT members will review and validate appropriate relativity for all individual scores for Management staff in their individual business units.
  - ELT will collectively review and validate individual performance ratings for all staff receiving a top rating.
  - The CEO will review the overall distribution of individual scores by band and organization across OPG to ensure distribution appropriately reflects OPG and business unit performance results.
• The reviews noted above will all be based on documented supporting rationale.

Compliance with Performance Management requirements will be monitored via the Pay for Performance Review tool (“PPR”). Regular reminders will be sent to all managers and compliance report results will be reported to managers and the Executive Leadership Team in Q2.
SEC Interrogatory #118

Ref: Auditor General's 2013 Annual Report/p.171

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please provide a copy of the 2011 review of OPG's pension and benefit plan.

Response

OPG declines to provide the review requested on the basis that it is not relevant to the Application. The review results in no cost implications for the test period 2014 – 2015 as none of the elements of the review form part of the current plan.
SEC Interrogatory #119

Ref: Auditor General's 2013 Annual Report/p.175

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

In response to Recommendation 4, OPG stated that it, “will conduct a cost-benefit analysis to explore various ways, including schedule and hiring staff and/or contractors, to minimize overtime costs”. Please provide a copy of all cost-benefit analyses OPG has conducted to minimize overtime costs.

Response

OPG completed a high level, preliminary cost benefit analysis in March 2014. In order to address the issue, collective agreements may have to be changed and as such, the analysis contains information that may be used by OPG during the next round of collective bargaining. Therefore, the cost benefit analysis referenced as an attachment has been provided on a confidential basis since its public production would prejudice OPG’s negotiating position.

In addition, OPG notes that while these materials may inform OPG’s proposed negotiating position, this does not in any way guarantee a specific outcome in collective bargaining. The negotiations must play out fully before the outcome is determined. Accordingly, the materials are not, in and of themselves, determinative of any savings.
MEMORANDUM

Date: February 12th, 2014

IMS Overtime Usage: Economic Analysis and Recommendations

As part of OPG’s response to the Auditor General’s findings on overtime usage, IMS committed to perform a simplified economic assessment to understand whether overtime costs can be minimized by scheduling their staff in a more cost-beneficial manner.

The AG report noted that Inspection and Maintenance (I&M) technicians have traditionally worked significant overtime to support the critical path of planned outages. They also noted that this overtime is typically paid at a rate of 1.5x-2x the I&M technician’s base hourly wage.
SEC Interrogatory #120

Ref: Auditor General's 2013 Annual Report/p.75

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

In response to Recommendation 5, OPG stated that it “will review its sick leave plans and assess the costs and benefits of any changes that are required through collective agreements”. Please provide a copy of any analysis conducted regarding its sick leave plans.

Response

Part of OPG’s work program for 2014 is an analysis and review of sick leave plans including an assessment of the costs and benefits of any changes required through collective agreements. This analysis has not yet been conducted.

The report OPG Sick Leave Trends (2002 – 2012) provides analysis of sick leave usage and trends over a decade and is provided as Attachment 1 to this response.

In 2012, which was the last round of negotiations with the Power Workers’ Union, management negotiated the ability to require that a major medical absence form be completed for any absence of four (4) continuous days/shifts. This was a reduction of 1 day/shift from 5 to 4.

The driver for this change was the analysis provided below which demonstrated a dramatic drop in the number of absences beyond the 5 day limit in place at that time.
PWU Sick Leave (Oct. 2010 to Oct. 2011)
OPG Sick Leave Trends
2002 –2012

Sick Leave usage in OPG is reported for regular and probationary leading to regular employees. It is tracked against an employee’s home base assignment regardless of whether or not the employee is on a rotational assignment. Dental/medical appointments are not included in the OPG sick leave statistics. Results are reported on a per employee basis and aggregated for performance reporting on an organizational basis.

CONFIDENTIAL: The data contained in this report should be treated as OPG confidential information. All users must comply with corporate policies, standards, and guidelines governing use of e-mail and IT systems when storing and transmitting sensitive information. For further information please refer to the OPG Information Management Policy, Code of Business Conduct and Corporate Privacy Procedures.

Prepared by: Performance & Program Analysis, Total Rewards & Solutions Centre
Appendix

<table>
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<tr>
<td>Short Term, Major, and Modified / Rehab Sick Leave Usage by Year</td>
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<td>Sick Leave Usage Definitions</td>
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<td>Sick Leave Usage Tables – Total, Short Term and Major Medical Absence</td>
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<td>OPG Total, Short Term, and MMA days Lost per Employee by Representation</td>
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Short Term, Major, and Modified / Rehab Sick Leave Usage by Year

Total Days Lost

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Average:
- Short Term Absence Sick Leave Usage: Ave. = 4.59
- Major Absence Sick Leave Usage: Ave. = 4.71
- Modified/Rehab Absence Sick Leave Usage: Ave. = 0.30
Sick Leave Usage Definitions

OPG Total, Short Term, MMA days Lost per Employee

Sick Leave Usage is reported against an employee’s home base assignment and includes modified and rehab sick days. Dental/Medical appointments are not included in the sick leave statistics. Only sick leave for Regular and Probationary leading to Regular employees are included in the OPG rates. The employee count used in the sick leave rates is the average number of employees in a given period and we do not include employees who are unavailable for work, such as on a leave of absence, as they would not be eligible for sick leave benefits.

Short term sick leave usage is categorized as such when the sick leave absence is less than 5 workdays/shifts in length. Major absence sick leave usage is categorized as such when the sick leave absence is 5 or more continuous workdays/shifts in length. A Major Absence Report (MAR) is required when an employee’s absence extends into a major absence. Modified/Rehab sick days are categorized separately from short term and major absence days lost and require the approval of a Nurse Care Co-ordinator to be classified as such. Total Sick Leave usage sums up Short-Term Sick Leave usage plus Major Absence Sick Leave Usage plus Modified/Rehab Sick Leave usage. Therefore, Total Days Lost per employee equals the sum of Short Term Days Lost plus Major Absence Days Lost, plus Modified/Rehab Days Lost per employee.

Corporate re-organization can have considerable impact on results as (i.e. Real Estate has been with various Business Units over the years: Corporate Finance, Corporate Secretary, Law & General Counsel Business Group, Energy Markets and Business Services & IT).
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(*) Includes: Nuclear Function Staff not assigned to a specific Nuclear Generating Station.
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(*) Includes: Nuclear Function Staff not assigned to a specific Nuclear Generating Station.
### Major Days Lost (i.e. ≥ 5 work days / shifts) per employee

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(*) Includes: Nuclear Function Staff not assigned to a specific Nuclear Generating Station.
TOTAL Sick Leave Usage by Gender and Age Group
Weighted Average for the Years 2002 - 2012

Days Lost per Employee

Age Group

Male
Female
Both Male and Female

NOTE: Female population under 20 years of age represents a very small sample and has been excluded.
SHORT TERM Sick Leave Usage by Gender and Age Group
Weighted Average for the Years 2002 - 2012

Days Lost per Employee

Age Group

Male  Female  Both Male and Female

NOTE: Female population under 20 years of age represents a very small sample and has been excluded.
MAJOR ABSENCE Sick Leave Usage by Gender and Age Group
Weighted Average for the Years 2002 - 2012

Days Lost per Employee

Age Group

0 to < 20 20 to <25 25 to <30 30 to < 35 35 to < 40 40 to < 45 45 to < 50 50 to < 55 55 to < 60 Over 60

NOTE: Female population under 20 years of age represents a very small sample and has been excluded.
OPG
Total Days Lost per Employee
by Representation

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<th>Representation</th>
<th>2008</th>
<th>2009</th>
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### OPG

#### Short Term Days Lost per Employee by Representation

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<tr>
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OPG
Major Medical Days Lost per Employee by Representation

![Bar chart showing major medical days lost per employee by representation from 2008 to 2012 for different bands of staff.](chart.png)
SEC Interrogatory #121

Ref: Auditor General's 2013 Annual Report

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please provide the aggregate OM&A reduction for the test period resulting from any proposed changes that are an outcome of the Auditor General's report.

Response

See Ex. L-1.0-3 CME-001.
SEC Interrogatory #122

Ref:
[Auditor General’s 2013 Annual Report/p.154,161]

Issue Number: 6.8
Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Please explain what policy changes OPG has implemented to address the concern of the Ontario Auditor General that OPG’s recruitment of employee family members may not have been conducted through the normal recruitment process.

Response

To address the Auditor General’s concerns around the perception of unfair hiring practices, OPG has implemented the following actions:

OPG has amended the OPG Code of Business Conduct to clarify expectations regarding the need for a transparent hiring process. Failure to follow the direction in the Code will result in disciplinary action up to and including termination.

In addition, all vacancy documentation associated with full-time regular hiring and student hiring will be held centrally by the Recruitment & Resourcing Department. Once the file is received, a review will be conducted by the Recruitment and Resourcing Department to ensure the file is compliant. If there are any issues or missing information, the accountable hiring manager will be contacted. Part of this review will include verification that a transparent hiring process was followed.
SEP Interrogatory #009

Ref: Exh F-5-4-1

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

Does OPG carry out any independent assessments of the validity and accuracy of the benchmarking data used by AON Hewitt and similar firms?

Response

No. OPG relies on its service provider, who are experts in their field, to follow industry standards for quality assurance with respect to the benchmarking data process and results.
SEP Interrogatory #010

Ref: Exh F-2-1-1

Issue Number: 6.8

Issue: Are the 2014 and 2015 human resource related costs (wages, salaries, benefits, incentive payments, FTEs and pension costs) appropriate?

Interrogatory

At page 13, line 8, the application says,
Safe and reliable operations remain OPG’s top priority. OPG will not put at risk its efforts to improve performance reliability by moving too quickly to eliminate staff as improved plant reliability will improve OPG’s TGC/MWh metric. OPG is using the Goodnight study to monitor attrition reductions to assess those functions identified as being at or below benchmark. One of the challenges of using an attrition-based model to reduce FTEs is that attrition does not always occur in areas that are over the benchmark. As such, a controlled hiring process was implemented to ensure critical functions do not fall too far below functional benchmarks so that they can continue to meet performance expectations and mitigate risks.

Is OPG aware of any industry studies that examine the trade-off between skilled staffing levels and the cornerstone metrics (including safety)? Has OPG carried out any such studies? Is OPG concerned that there may be thresholds or critical masses of certain types of staff that, if crossed or diminished, respectively, impair performance beyond recovery or without extreme expense?

Response

OPG is not aware of any industry studies nor has OPG completed any studies that examine the trade-off between skilled staffing levels and the cornerstone metrics. Notwithstanding that formal studies have not been undertaken, clearly having skilled and motivated staff is key to the success of any business.

From the perspective of ensuring staffing thresholds or critical masses of certain types of staff, OPG has five year staffing models for key work groups, including operations, maintenance and engineering to ensure that there is sufficient staff to achieve performance objectives. The models are not limited to a simple attrition replacement; they consider staff movement within OPG, the length training required to become qualified or certified, and the experience needed to become competent to perform work.

In addition, OPG has put a substantial effort into knowledge retention to ensure that staff are capable of performing their roles. As part of business planning, where knowledge gaps could potentially occur, OPG has considered if it is feasible to purchase or develop specific services.
Board Staff Interrogatory #125

Ref: Exh F3-1-1 page 4

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

The evidence states that “Support Services costs decrease over the 2013-2015 periods mainly due to Support Service groups leveraging attrition by not replacing staff that retire, implementing organizational changes to take advantage of economies of scale by consolidating staff that perform similar work, streamlining processes, and eliminating lower value work.”

a) Please list all the “lower value work” that will be eliminated as part of Business Transformation in 2013-2015.
b) What savings (in dollars) will be achieved through the elimination of lower value work in 2013-2015? Please provide data by year.

Response

a) OPG has not tracked all of the “lower value work” that is being eliminated and the related dollar savings. The list below provides some examples of areas where lower value work has been eliminated.

- In Finance, weekly financial reports in Nuclear were eliminated and monthly reporting has been standardized across OPG. The number of cost centres that carry budgets has also been reduced, which reduces both the planning and reporting effort. Finally, the number of low value journal entries between cost centres has been reduced to eliminate the need for many of the manual journal entries each month.

- In Business and Administrative Services, the Document Management process is being improved through a move to electronic filing and the introduction of technology to eliminate the need for manual intervention for record storage. The move to more electronic filing has facilitated the decommissioning of three records vaults to date.

- In Business and Administrative Services, internal mail delivery services were reduced to every other day in some locations and this will expand to other locations in 2014. The reception support in a number of buildings has also been reduced through either eliminating the reception desk or a reduction in the reception desk staff hours.
In Business and Administrative Services, the stocking and maintenance of non-plant equipment within OPG’s warehouses has been eliminated. This will eliminate work in processing and handling of these low value items in the warehouses and allow the items to flow directly to the stations.

In Commercial Operations and Environment, internal face-to-face education sessions on Sustainable Development and some station specific progress reporting have been eliminated.

b) As mentioned above, the requested information is not specifically tracked. For the total projected savings from Business Transformation over 2013 - 2015, please refer to Ex L-6.8-4 CCC-022.
Board Staff Interrogatory #126

Ref: Exh F3-1-1

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

Exhibit F3 describes the corporate support services.

a) Please confirm the data in the following table for corporate support services.

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<th>2012 Actual</th>
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</tr>
<tr>
<td>7 %Current Regulated (2+3)/1</td>
<td>69%</td>
<td>70%</td>
<td>79%</td>
<td>80%</td>
<td>80%</td>
<td>81%</td>
</tr>
<tr>
<td>8 %Current &amp; Newly Prescribed 5/1</td>
<td>77%</td>
<td>79%</td>
<td>86%</td>
<td>87%</td>
<td>88%</td>
<td>88%</td>
</tr>
</tbody>
</table>

b) Please explain the trend in corporate support service expense for total regulated (row 5) for the period 2010 to 2015.

c) The unregulated business corporate support service expense is largely unchanged in the period 2010 to 2013 (row 6). Please explain why the costs for the regulated business (nuclear and hydroelectric) are going up when the costs for the unregulated business are largely unchanged.

Response

a) The data in the above table for corporate support services is correct.

b) As discussed in Ex. F3-1-2, corporate support service costs for total regulated increased from 2010 to 2013 mainly due to a transfer of staff from generation business units to
Corporate Support groups due to the implementation of a centre-led organization as part of Business Transformation. In addition, economic increases, various business development activities, increased Nuclear training requirements, and planned OEB related costs in anticipation of filing a rate application in 2013 also contributed to the increase.

Corporate support costs decrease in both 2014 and 2015 due to lower labour costs resulting from managing staff attrition, lower information technology costs as a result of completing the Enterprise Systems Consolidation Project (e.g., lower SAP maintenance costs and support costs). Support Services’ labour costs decrease from 2010 to 2015, but were largely offset by wage increases, and the transfer in of staff from the generating business units.

c) The costs for the regulated business increased from 2010 to 2013 while the costs for the unregulated business remain largely unchanged due to the implementation of a centre-led organization. This change resulted in a transfer of staff from generation business units to Corporate Support groups, predominantly from the nuclear business. This is outlined in Ex. F3-1-1 pages 2 and 3.
Board Staff Interrogatory #127

Ref: Exh F3-1-1

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

Exhibit F3 describes the corporate support services.

a) Please complete the following table for corporate support services. Provide references for the data from the pre-filed evidence and EB-2010-0008.

<table>
<thead>
<tr>
<th></th>
<th>2010 Plan¹</th>
<th>2010 Actual</th>
<th>2011 Board Approved</th>
<th>2011 Actual</th>
<th>2012 Board Approved²</th>
<th>2012 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nuclear</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Currently Regulated Hydroelectric</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Variance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1 – As noted in EB-2010-0008
Note 2 – As restated for Business Transformation

b) Please provide explanations for the variances, and the trend if any, determined in row 3.

Response

a)

<table>
<thead>
<tr>
<th></th>
<th>2010 Plan¹</th>
<th>2010 Actual</th>
<th>2011 Board Approved</th>
<th>2011 Actual</th>
<th>2012 Board Approved²</th>
<th>2012 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nuclear</td>
<td>247.0</td>
<td>226.5</td>
<td>249.2</td>
<td>233.1</td>
<td>450.3</td>
</tr>
<tr>
<td>2</td>
<td>Currently Regulated Hydroelectric</td>
<td>25.1</td>
<td>22.4</td>
<td>24.8</td>
<td>22.0</td>
<td>29.0</td>
</tr>
<tr>
<td>3</td>
<td>Variance</td>
<td></td>
<td></td>
<td>(23.2)</td>
<td>(18.9)</td>
<td>(46.4)</td>
</tr>
</tbody>
</table>

References for the data from the pre-filed evidence and EB-2010-0008 can be found in Ex. F3-1-1-3 and Ex. F3-1-1-2. The 2012 Board Approved as restated for Business Transformation can be found in Ex. F3-1-1 pages 2-3.
b) Please refer to Ex. F3-1-2 (pages 2, 3, 6, 7) for variance explanations for actual versus plan for 2010 and actual versus Board Approved for 2011.

2012 Board Approved (Restated) versus 2012 Actual

Actual Support Services costs in 2012 are $46.4M lower than the 2012 Board Approved (restated for Business Transformation). This is due to reductions in information technology related costs due to hardware optimization and successful contract negotiations for IT maintenance and system support costs. In addition, OPG reduced labour costs by effectively managing staff attrition.

Actual costs were 9% and 7% below plan in 2010 and 2011 respectively as OPG has been managing attrition and not replacing staff that retire by virtue of eliminating work, and implementing efficiencies. The variance between 2012 actual costs and 2012 Board approved was 10% for this same reason. In addition, OPG was able to achieve cost reductions in the Information Technology area as explained above.
Board Staff Interrogatory #128

Ref: Exh F3-1-1, Tables 1, 6 and 7

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

Table 1 summarizes the actual and forecast corporate support costs for OPG, regulated and unregulated, for the period 2010 to 2015. The most significant increases in total dollars and % change are related to three functions: Business and Administrative Service, People and Culture and Corporate Centre.

a) Tables 6 and 7 summarize the Business and Administrative Service costs for the regulated hydroelectric and nuclear businesses respectively. As summarized in Table 7, the Real Estate costs for the nuclear business in 2011 were $31.7M, and increased to $96.2M in 2012. At Exh F3-1-1 page 8, it states that the Real Estate group consists of three departments: Real Estate Services, Facilities and Projects and Business Services.

i. Please provide actual and forecast costs for each of the three Real Estate departments for the period 2010 to 2015.

ii. Why did Real Estate costs of nuclear more than triple in 1 year?

iii. At page 9 of Exh F3-1-1, it states that the Business Services department of the Real Estate function provides “administrative support for staff located at 700 University Avenue, Pickering, and Darlington, as well as other nuclear groups located at certain facilities in Durham Region.” Is the scope of this administrative support different than the scope included in the EB-2010-0008 proceeding? If yes, is the change part of Business Transformation? If the change is part of Business Transformation, please explain how moving to a centre-led organizational model for administrative support “allows best practices to be better shared and integrated across the company.,” as noted in Exh A4-1-1 page 2.

b) Corporate Centre costs, as summarized in Table 1, increased from $22.3M in 2011 to $43.6M in 2012. Please provide actual and forecast costs for sub-functions of Corporate Centre and an explanation for the increased costs.

Response

a) Real Estate Departments

i. The actual and forecast costs for Real Estate Services, Facilities and Projects and Business Services are as follows:
ii. Real Estate costs for nuclear more than triple from 2011 to 2012 due to implementation of a centre-led organization as part of Business Transformation. Staff and work program costs were transferred from generation facilities to Corporate Support groups.

iii. While the scope of administrative support provided by the Business Services department has not changed since the EB-2010-0008 proceeding, a significant number of staff transferred into the department as part of Business Transformation. The transferred staff continue to provide the same administrative services to staff located at OPG’s 700 University, Pickering, Darlington, and other nuclear groups located in Durham. In addition, the department continues to provide support to staff at hydroelectric facilities. Consolidating staff that perform similar functions across OPG has allowed Business Services to standardize administrative support services across OPG. For example, OPG is working on initiatives to optimize and eliminate duplication of records management services through sharing of best practices, standardize the level of administrative support provided to Managers, etc. In addition to sharing best practices, a centre led model provides a scalable and flexible workforce that is able to respond to changing business requirements. See Ex. A4-1-1 Attachment 1 - Key BT initiatives (Business and Administrative Services) for additional details.

b) The requested costs for the sub-functions of the Corporate Centre are provided in the table below.

<table>
<thead>
<tr>
<th>Corporate Centre Sub-Functions:</th>
<th>Actual 2011</th>
<th>Budget$ 2011</th>
<th>Actual 2012</th>
<th>Budget$ 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Relations &amp; Communications</td>
<td>-</td>
<td>-</td>
<td>15.8</td>
<td>-</td>
</tr>
<tr>
<td>Corporate Business Development &amp; Chief Risk Office</td>
<td>1.2</td>
<td>5.4</td>
<td>9.6</td>
<td>5.5</td>
</tr>
<tr>
<td>Law</td>
<td>13.7</td>
<td>10.3</td>
<td>6.9</td>
<td>11.6</td>
</tr>
<tr>
<td>Executive</td>
<td>4.1</td>
<td>6.5</td>
<td>4.6</td>
<td>6.7</td>
</tr>
<tr>
<td>Corporate Secretary</td>
<td>3.0</td>
<td>4.3</td>
<td>2.9</td>
<td>4.3</td>
</tr>
<tr>
<td>Business Transformation</td>
<td>0.3</td>
<td>-</td>
<td>2.6</td>
<td>-</td>
</tr>
<tr>
<td>Strategic Initiatives</td>
<td>-</td>
<td>-</td>
<td>1.2</td>
<td>-</td>
</tr>
</tbody>
</table>

Witness Panel: Corporate Groups, Compensation
Corporate Centre costs increased by $21.3M in 2012 due to the implementation of a centre-led organization model as part of Business Transformation ("BT"). The largest part of the increase was due to the creation of a centre-led Corporate Relations and Communications department. Refer to Ex. A4-1-1 page 7 for a list of major BT related organizational changes.
Board Staff Interrogatory #129

Ref: Exh F3-1-1

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

Commercial Operations and Environment includes the Electricity Sales & Trading function. At page 16 it states, the “Electricity Sales & Trading group co-ordinates the offering of OPG’s generation into the IESO market to maximize OPG’s net revenues by integrating and optimizing the generation portfolio and trading activities.” How will the function of Electricity Sales & Trading change when the amount paid to OPG for generation from the newly prescribed hydroelectric facilities is no longer based on HOEP? How are the changes, if any, reflected in the cost allocation between regulated and unregulated businesses?

Response

OPG does not anticipate any change in the Electricity Sales and Trading function due to the inclusion of newly regulated hydroelectric stations.
Board Staff Interrogatory #130

Ref: Exh F3-1-1

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

The application at pages 6 to 8 summarizes IT benchmarking results for OPG with respect to the Electricity Utility Cost Group Comparator Group data, for the year 2011.

The 2011 results indicate that OPG’s IT costs were within the second quartile for IT spending per employee and within the third quartile for IT spending per GWh. While the actual costs are lower, OPG’s performance with respect to the quartiles is unchanged from 2008 data reported in the EB-2010-0008 proceeding.

How much lower would the 2014-2015 revenue requirement be if IT costs were within the top quartile for IT spending per employee and IT spending per GWh?

Response

Using the 2011 EUCG Comparator Group Data as outlined in Ex. F3-1-1 page 8, the reductions in the 2014-2015 revenue requirement based on IT costs being in the top quartile are as follows:

- IT spending per employee
  - 2014 revenue requirement would be $23.5M lower if IT spending per employee was in the top quartile ($8,200)
  - 2015 revenue requirement would be $21.9M lower if IT spending per employee was in the top quartile ($8,200)

- IT spending per GWh
  - 2014 revenue requirement would be $28.3M lower if IT spending per GWh was in the top quartile ($1,000)
  - 2015 revenue requirement would be $24.4M lower if IT spending per GWh was in the top quartile ($1,000)
Board Staff Interrogatory #131

Ref: Exh F3-1-1

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

The application at pages 14 to 15 summarizes People & Culture benchmarking results for OPG with respect to the Electricity Utility HR Metrics for the year 2012.

The 2012 results indicate that OPG’s HR Expense Factor (total HR expense divided by the number of regular HR employees) was $172k/HR employee. This result is between the median of $155k and bottom quartile of $175k for OPG’s peer group of very large utilities. The 2008 data reported in the EB-2010-0008 proceeding was $120k.

OPG’s HR Employee Ratio improved modestly from 64 in 2009 to 65 in 2012, but the result remains in the bottom quartile.

How much lower would the 2014-2015 revenue requirement be if People & Culture costs were within the top quartile for HR Expense Factor and HR Employee Ratio?

Response

If in 2012 OPG were at the top quartile of all EU-HR benchmarked utilities with respect the HR/FTE Employee ratio and top quartile with respect to the HR Expense Factor for our peer group of very large utilities, total OPG HR expenses, including both regulated and unregulated operations would have been $14.9 M (Cdn) less.

This figure is based on calculations using the definition of HR functions that is used in the Electric Utility benchmarking group, which has been included below.

OPG notes, however, that there are no utilities in the Electric Utility benchmark group who are in the top quartile in both benchmarked categories – HR/FTE Ratio and HR Expense Factor. This is mainly due to the fact that improvements in the HR/FTE ratio are often achieved by outsourcing HR functions, which would reduce the number of HR staff resulting in an increase in HR expenses per remaining HR employee – and therefore, an increase in the HR Expense Factor.

This is demonstrated in the 2012 EU-HR benchmarking data which shows that of all EU-HR benchmarked utilities who achieved top quartile with respect to the HR/FTE Employee ratio, the average HR Expense Factor was $251k/HR Employee – significantly higher than OPG’s HR Expense factor of $172k/HR employee.
EU-HRMG Survey Definition of HR Expenses

Include expenses associated with the groups included in the Regular HR EE. Expenses include the total $ spent by these HR groups during the reporting year. Includes the total internal and external costs incurred by HR: Benefits, Compensation/Total Rewards, Employee Relations, HR Service Center, Labor Relations, Diversity, Recruiting/Staffing, Org & Workforce Development, Corporate and Field HR. Include costs for: salaries, benefits, outsourcing, consulting fees, HR-related legal and court fees and all other external HR expenses. Include overhead and load costs. EXCLUDE: Occupational Health & Safety, Payroll, Technical Training, internal/external costs for contingent/contractual, temporary and seasonal workers, legal actions and settlements.

EU-HRMG Survey Definition of regular HR employees

Regular HR EE includes: Benefits, Compensation/Total Rewards, Diversity, Employee Relations, Labor Relations, HRIS, Staffing & Recruiting (Talent Acquisition), Org & Workforce Development, HR Service Center & HR Admin/Mgt. Excluded from Reg HR EE: Occupational Health & Safety, Payroll, Technical Training, Outsourced, Contingent/Contractors, LTD, Temporary, Interns, Seasonal, Co-ops. Also excluded are any other areas that report into HR, but are not a traditional HR function, for example: Medical, Records Retention, Facilities Management, etc.
Board Staff Interrogatory #132

Ref: Exh F3-1-1

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

OPG filed a Finance Benchmarking report prepared by the Hackett Group in the EB-2010-0008 proceeding. Finance metrics were not provided in the current application.

a) What is “Finance Cost as a Percent of Revenue after Rebates” for the most recent year for which OPG has actual data?

b) What are Finance “FTEs per OPG’s Revenue after Rebates” for the most recent year for which OPG has actual data?

Response

The last Finance benchmarking study was conducted in 2010 based on 2008 data. Finance has not completed a benchmarking study since then as it has been implementing cost reduction and re-structuring initiatives. OPG has calculated the two metrics it reported in EB 2010-0008 using the same methodology, applied to 2012 actual data.

a) OPG’s revenue has declined from approximately $6.0B in 2008 to approximately $4.7B in 2012. The decline in revenue is partly due to lower market prices. Holding prices constant at the 2008 level, “Finance Cost as a Percent of Revenue after Rebates” is 0.75%. Finance Cost as a Percent of the actual 2012 Revenue after Rebates is 0.82% compared to the 2010 study’s result of 0.81%. Market prices have declined significantly and base rates have been held constant since 2008, however Finance has been able to largely offset the impact of declining revenue through headcount reductions.

b) Holding prices constant at the 2008 level, “Finance FTEs per OPG’s Revenue After Rebates” is 39.6, which is close to the 2010 study’s result of 38. If 2012 prices are utilized, Finance FTEs per OPG’s Revenue After Rebates would be 43.4. As stated above, actual revenue has declined significantly since 2008 partly due to lower prices.
Board Staff Interrogatory #133

Ref: Exh F3-1-3

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

Exhibit F3-1-3, as filed on December 5, 2013, summarizes the Regulatory Affairs Department costs. Table 1 provides costs for the period 2010-2015.

The external legal costs are listed separately from the Regulatory Affairs Division costs. Are the external legal costs covered under the Corporate Affairs budget?

Response

External legal costs are covered under the Corporate Centre budget, as part of OPG’s Law Division, as set out in Ex. F3-1-1.
**Board Staff Interrogatory #134**

**Ref:** Exh F3-1-3

**Issue Number:** 6.9  
**Issue:** Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

**Interrogatory**

Exhibit F3-1-3 summarizes the Regulatory Affairs Department costs.

Please complete the following table for all one-time costs related to this cost of service application.

<table>
<thead>
<tr>
<th></th>
<th>Historical Year(s)</th>
<th>2013 Bridge Year</th>
<th>2014 Test Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert Witness costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consultants’ costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental operating expenses associated with staff resources allocated to this application.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental operating expenses associated with other resources allocated to this application. Please identify resources involved.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervenor costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
</table>

**Response**

Please find the requested information below.

Witness Panel: Finance, D&V Accounts, Nuclear Liabilities
Notes for the Table:
(a) For the Historical Years the data is presented for 2010, 2011 and 2012 consistent with Ex. F3-1-3, Table 1.
(b) Expert Witness and Consultants costs are associated with OPG’s rate and deferral & variance account applications (i.e., EB-2010-0008, EB-2013-0321, and EB-2012-0002).
(c) OPG has interpreted the phrase “incremental operating expenses associated with staff resources allocated to this application” to mean expenses incurred by Regulatory Affairs that are beyond the Regulatory Affairs Department’s approved budget. As indicated in the table, no such incremental expenses were allocated to this application.
(d) Incremental operating expenses associated with other resources allocated to this application consist of OEB Annual Assessment & Section 30 expenses and rent for office space at 2300 Yonge Street.

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013 Bridge Year</th>
<th>2014 Test Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert Witness costs</td>
<td>330</td>
<td>1,147</td>
<td>316</td>
<td>570</td>
<td>570</td>
</tr>
<tr>
<td>Legal costs</td>
<td>824</td>
<td>711</td>
<td>250</td>
<td>1,100</td>
<td>1,100</td>
</tr>
<tr>
<td>Consultants’ costs</td>
<td>955</td>
<td>604</td>
<td>627</td>
<td>1,130</td>
<td>1,130</td>
</tr>
<tr>
<td>Incremental operating expenses associated with staff resources allocated to this application.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Incremental operating expenses associated with other resources allocated to this application. Please identify resources involved.</td>
<td>1,190</td>
<td>1,117</td>
<td>974</td>
<td>1,700</td>
<td>1,730</td>
</tr>
<tr>
<td>Intervenor costs</td>
<td>1,554</td>
<td>102</td>
<td>111</td>
<td>2,200</td>
<td>2,200</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$4,852</td>
<td>$3,680</td>
<td>$2,279</td>
<td>$6,700</td>
<td>$6,730</td>
</tr>
</tbody>
</table>
**Board Staff Interrogatory #135**

Ref: Exh F3-3-1 and Exh F3-3-2, Decision of the Court of Appeal for Ontario Docket C55602, C55641, C55633

**Issue Number:** 6.9

**Issue:** Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

**Interrogatory**

These exhibits provide an overview of OPG’s procurement process and provide a listing of purchased services – support services OM&A contracts. Chart 1 at Exh F3-3-2 lists 3 vendors, New Horizons System Solutions (“NHSS”), ARI Financial Services Inc. and Microsoft.

a) The chart at Exh F3-3-2 states that the NHSS procurement process was single source and notes “leveraged renegotiation after October 1, 2009”. Please explain the “leverage renegotiation” and the rationale for this procurement process and how it is consistent with OPG’s procurement process.

b) For every other OM&A expense, indicate whether the procurement process followed was consistent with OPG’s procurement process. If not, please explain why.

c) Please identify every expense that was committed to prior to the test period. Please also provide all of the information that OPG relied on when OPG committed to each of those expenses including the cost that has been committed for each of those expenses in the test years and the associated total cost for each expense. Please provide that information broken down by year, including before and after the test period, where applicable.

**Response**

a) As described in EB-2010-0008 Ex. L-4-26, prior to entering into re-negotiation discussions with NHSS, independent consultants provided OPG with market-based cost savings targets. Cost savings achieved through re-negotiation were greater than these targets and enabled OPG to avoid significant transition costs and service disruption risks. Independent consultants also reviewed the final results of the re-negotiation and confirmed that the benefits articulated in the business case objectives were achieved.

As noted at Ex. F3-3-1, page 2 of this application, OPG’s procurement process allows for a single source process when a competitive process would be impractical. In light of the cost savings realized and given the transition costs and service disruption risks associated with changing suppliers, OPG determined that a competitive process would have been impractical for this contract.
b) Yes, as indicated in Ex. F3-3-1 the procurement process applies across OPG with approval required as per OPG’s Organizational Authority Register.

c) This response is provided with reference to the two exhibits cited in the pre-amble to the question, Ex. F3-3-1 and Ex. F3-3-2. In the context of Ex. F3-3-2, contractually committed payments to contractors meeting the materiality threshold relate to the provision of information technology services by NHSS discussed above. In addition, there are contractual commitments meeting that materiality threshold related to property leases which are directly assigned to Nuclear. Commitments during the test period are shown in the following table.

<table>
<thead>
<tr>
<th>Committed Expenses (SM)</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Technology Services Agreement (NHSS)</td>
<td>98</td>
<td>97</td>
</tr>
<tr>
<td>Property lease arrangements</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

The rationale and information relied upon for the leveraged re-negotiating of OPG’s outsourcing agreement with NHSS is as discussed in a) above and the agreement is described in EB-2010-0008, Ex. F3-1-1, Attachment 1.

Real Estate Services uses a competitive procurement process for large and long-term lease requirements, such as 889 Brock Road and 777 Brock Road. These two leases comprise close to half of the total committed costs for property lease agreements as outlined in the table above. This procurement process includes designing, building, and leasing facilities to meet OPG’s specifications. For other lease requirements, lease terms including rental rates are negotiated by Real Estate Services based on market surveys, market knowledge, and competitive offerings.
Board Staff Interrogatory #136

Ref: Exh F5-5-1

Issue Number: 6.9
Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

**Interrogatory**

OPG’s cost allocation methodology for corporate support services and centrally held costs was reviewed by HSG Group Inc. The report filed by HSG states that a source document for its report was “OPG Revenue and Cost Assignment and Allocation Methodology” draft provided by OPG as of April 18, 2013. Does HSG’s analysis and conclusions differ in any significant way from the OPG document?

**Response**

HSG’s analysis and conclusions do not differ in any significant way from the OPG document.

Refer to Ex. F5-5-1 page 2: “HSG Group recommended changes to the cost drivers selected for several activities. OPG accepted the changes and will implement them in its Business Plan 2014-2016. The effect of these changes in 2014, based on the current business plan, would not be material.”
Board Staff Interrogatory #137

Ref: Exh F5-5-1

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

At page 7 of the HSG report, it states:

Starting in 2012, OPG implemented a Business Transformation, in which employees who had reported to generation Business Segments were transferred to CSA departments. As a result, the total dollars in the CSA department budgets, and in OPG’s cost allocation, increased. However these costs have been directly assigned to the Business Segments that are supported, and the transfer of employees as part of OPG’s Business Transformation did not cause any costs shifts between Business Segments. The increase in costs allocated to a Business Segment in the allocation process was offset by an equal decrease in directly incurred costs. The Business Transformation is discussed further in Section V Part A. A summary of the effect of the Business Transformation on the 2013 Budget for Service Recipients and Service Providers is presented in Exhibit C. [emphasis added]

Please explain how the data in Exhibit C demonstrate that the increase in costs allocated was offset by an equal decrease in directly incurred costs. In particular:

a) Please confirm that the data are $thousands and not $millions

b) There is a transfer of $2,048k from Hydro/Thermal Corporate Relations & Communications noted in the bottom table. However there is a transfer in of $20,239k in the upper table.

c) There is a transfer of $12,122k from Hydro/Thermal Corporate Business Development & Risk noted in the bottom table. However there is a transfer in of $16,428k in the upper table.

Response

a) The data provided is in $thousands.

b) The transfer of $2,048k represents the budget amount (for the First Nations & Métis group) originally contained within the Hydro/Thermal Operations budget that was transferred to the Corporate Relations & Communications Department.
The transfer in of $20,239k in the upper tables represents the budget amount of $2,048k transferred from Hydro/Thermal Operations, in addition to amounts transferred from other Support Services functions (e.g., Public Affairs, Employee Communications, Special Advisor, Federal Government Relations).

c) The transfer of $12,122k from Hydro/Thermal Operations to Corporate Business Development & Risk is included in the $16,428k. The $16,428k also includes other amounts transferred into Corporate Business Development & Risk.
**AMPCO Interrogatory #064**

**Ref:** Exhibit F3, Tab 1, Schedule 1

**Issue Number:** 6.9

**Issue:** Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

**Interrogatory**

a) Page 2 – OPG indicates that 61 staff and $14.6 M in OM&A was transferred from Hydro-Thermal business to Support Services in 2012 due to Business Transformation. Table 2 on Page 3 shows $2.7 M in transfers from Regulated Hydroelectric to Support Services. Please explain.

b) Pages 2-3 – OPG provides two tables that show the business transformation transfers in from Nuclear and the business transfers in from Regulated Hydroelectric. Please recast the tables to include a column that show a breakdown of where the 1,064 staff transferred from Nuclear Operations and Nuclear Projects and 61 staff from the Hydro-Thermal Business are allocated to the five business units in Support Services.

c) Page 6 – 2011 Electricity Utility Cost Group (EUCG) data was used by IT to compare OPG against ten North American electric utilities’ IT spending per employee and per GWh. The Table on Page 6 shows 2011 EUCG Comparator Group Data Results.

   i) Please provide the calculation for OPG for each metric.

   ii) Please provide the frequency that OPG IT uses the benchmarking services of EUCG.

   iii) Please provide the most recent results for the two metrics using benchmarking data prior to 2011.

d) Page 6 – OPG indicates it has committed to further IT cost reductions over the 2013-2015 business planning period through a series of cost saving initiatives.

   Does OPG have specific have specific IT cost reduction targets associated with these cost saving initiatives? If yes, please provide.

   Please discuss if OPG has set specific operational goals that link to IT metrics i.e. to improve its IT costs to be within the first quartile for IT spending per employee and per GWh and if so over what period.

e) Page 7 – The chart shows the IT metric results of 8 North American utilities compared to OPG. OPG indicates it used 2011 EUCG data to compare itself against ten North American electric utilities IT spending.
Please explain why the data for 2 companies are not included on the chart.

f) Page 8 – The chart shows the IT metric results of 9 North American utilities compared to OPG. OPG indicates it used 2011 EUCG data to compare itself against ten North American electric utilities IT spending.

Please explain why one company is not included on the chart.

g) Page 8 – Real Estate – OPG indicates OM&A costs are tightly controlled through service area expertise, demand management, effective space and service utilization, economies of scale (as a centralized service provider), outsourcing (to the extent permitted under the collective agreements), competitive procurement and staff reductions.

Real Estate costs (nuclear) increase significantly from 2011 actual to 2012 actual and 2012 actual to 2014 Plan (Table 7 – Exhibit F3, Tab 1, Schedule 1). Please explain in the context of the above statement.

h) Page 9 – Supply Chain costs are included in Business and Administrative Services costs. As shown in Tables 6 and 7 (Exhibit F3, Tab 1, Schedule 1) Supply Chain costs for regulated hydroelectric, newly regulated hydroelectric and nuclear increase significantly based on 2011 actual compared to 2012 actual. Please explain.

i) Page 9 – Supply Chain costs in Table 6 (Exhibit F3, Tab 1, Schedule 1) for newly regulated hydroelectric almost double 2012 actual compared to 2014 plan. Please explain.

j) Page 12- Finance Benchmarking – OPG indicates a number of changes including modified budgeting practices were implemented to ensure financial targets are held at an appropriate level of details in the organization. Please provide OPG’s financial targets.

k) Page 12 – People & Culture – OPG indicates there are two Employee Service Centres (ECS) – one dedicated to Nuclear and one to Non-Nuclear groups to administer the processing of new employee hires, terminations, job changes, organization changes etc.

Please explain the need for two ESCs.

l) Pages 12 to 14 – People & Culture – OPG’s description of People of Culture activities do not directly match the sub-function cost categories provided in Table 8 which differs from how OPG has provided cost data in the other four Support Services Groups. Please link the sub-function cost categories in Table 8 to the work descriptions on Pages 12 to 14.

m) Page 13 – Business Partners, Nuclear, Hydro/Thermal, Corporate – The work functions under this description appear to duplicate the work described under Total Compensation and Solutions Centre related to staffing and hiring and Health, Safety, Employee & Labour Relations related to employee and labour relations. Please explain.
n) Page 15 – Please provide OPG’s total HR expenses and number of regular HR employees for 2012 actual and plan 2014 and 2015.

o) Page 15 – Please provide OPG’s HR FTE Employee ratio calculation for 2012.

p) Page 15 – OPG indicates when it completes the Business Transformation process, improvements in the HR FTE per Employee ratio are anticipated. Please provide additional details on how improvements will be achieved and provide any targets set by OPG.

**Response**

a) The amount of $14.6M transferred from Hydro-Thermal business to Support Services represents the total OM&A costs for Aboriginal Affairs, Water Resources, Supply Chain, Environment and Hydro Development.

The $2.7M represents the portion of the $14.6M allocated to Regulated Hydroelectric – Niagara Plant Group and Saunders GS.

b)

<table>
<thead>
<tr>
<th>Corporate Group</th>
<th>Staff Transferred</th>
<th>Total 2012 OEB Board Approved</th>
<th>Business Transformation Transfers in from Nuclear</th>
<th>(a)+(b) 2012 Board Restated Total</th>
<th>(e)-(c) Change</th>
<th>2012 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business and Administrative Service</td>
<td>697</td>
<td>144.2</td>
<td>119.7</td>
<td>263.9</td>
<td>(26.7)</td>
<td>237.2</td>
</tr>
<tr>
<td>Finance</td>
<td>77</td>
<td>36.0</td>
<td>14.6</td>
<td>50.6</td>
<td>(4.4)</td>
<td>46.2</td>
</tr>
<tr>
<td>People and Culture</td>
<td>282</td>
<td>37.6</td>
<td>58.8</td>
<td>96.4</td>
<td>(6.4)</td>
<td>90.0</td>
</tr>
<tr>
<td>Commercial Operations and Env.</td>
<td>8</td>
<td>20.6</td>
<td>4.9</td>
<td>25.5</td>
<td>(12.8)</td>
<td>12.7</td>
</tr>
<tr>
<td>Corporate Centre</td>
<td>-</td>
<td>13.9</td>
<td>-</td>
<td>13.9</td>
<td>8.4</td>
<td>22.3</td>
</tr>
<tr>
<td>Total</td>
<td>1,064</td>
<td>252.3</td>
<td>198.0</td>
<td>450.3</td>
<td>(41.9)</td>
<td>408.4</td>
</tr>
</tbody>
</table>

* Excludes transfers between Corporate Groups
c) 2011 Electricity Utility Cost Group (“EUCG”) data was used by IT to compare OPG against ten North American electric utilities’ IT spending per employee and per GWh. The Table on Page 6 shows 2011 EUCG Comparator Group Data Results.

i) The calculation for OPG for each metric is as follows:

### 2011

**IT spend per GWh**

\[
\text{OPG IT Spend (M$)} = \frac{\text{OPG IT Spend (CDN$)}}{\text{OPG Generation (GWh)}} = \frac{120.6}{84,700} = 1.424
\]

**2011**

**IT spend per Employee**

\[
\text{OPG IT Spend (M$)} = \frac{\text{OPG IT Spend (CDN$)}}{\text{OPG Total Employee}} = \frac{120.6}{13,100} = 9,968
\]

ii) OPG participates in annual EUCG IT benchmarking.

iii) The most recent results for the two metrics using benchmarking data are as follows:

<table>
<thead>
<tr>
<th>Corporate Group</th>
<th>Staff Transferred</th>
<th>Total 2012 OEB Board Approved</th>
<th>Business Transformation Transfers In from Regulated Hydroelectric</th>
<th>(a)+(b) 2012 Board Restated Total</th>
<th>(e)-(c) Change</th>
<th>2012 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business and Administrative Service</td>
<td>12</td>
<td>9.5</td>
<td>0.6</td>
<td>10.1</td>
<td>(1.8)</td>
<td>8.3</td>
</tr>
<tr>
<td>Finance</td>
<td>-</td>
<td>3.7</td>
<td>-</td>
<td>3.7</td>
<td>(0.5)</td>
<td>3.2</td>
</tr>
<tr>
<td>People and Culture</td>
<td>-</td>
<td>2.3</td>
<td>-</td>
<td>2.3</td>
<td>1.0</td>
<td>3.3</td>
</tr>
<tr>
<td>Commercial Operations and Env.</td>
<td>18</td>
<td>8.7</td>
<td>0.9</td>
<td>9.6</td>
<td>(4.1)</td>
<td>5.5</td>
</tr>
<tr>
<td>Corporate Centre</td>
<td>31</td>
<td>2.1</td>
<td>1.2</td>
<td>3.3</td>
<td>0.9</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>61</strong></td>
<td><strong>26.3</strong></td>
<td><strong>2.7</strong></td>
<td><strong>29.0</strong></td>
<td><strong>(4.5)</strong></td>
<td><strong>24.5</strong></td>
</tr>
</tbody>
</table>

*Excludes transfers within Corporate Groups.*
### 2010 IT spend per GWh

\[ \text{IT spend per GWh (CDN$)} = \frac{\text{OPG IT Spend (M$)}}{\text{OPG Generation (GWh)}} \]

\[ \frac{\$131.3}{88,600} = \$1,482 \]

### 2010 IT spend per Employee

\[ \text{IT spend per Employee (CDN$)} = \frac{\text{OPG IT Spend (M$)}}{\text{OPG Total Employee}} \]

\[ \frac{\$131.3}{12,458} = \$10,540 \]
d) The target for OPG is to achieve second quartile EUCG standing by 2015 for both metrics. Specific operational goals include consolidating two plant work and material management systems (SAP and Asset Suite, previously known as Passport) into one, data and storage management, optimization of end user devices and hardware equipment, and demand management of software licenses and maintenance.

e) There were 10 companies including OPG who participated in the annual EUCG benchmarking. Only one of the companies was excluded because it is a non generation company. The chart shows 9 bars, one of which is OPG and 8 others.

f) There were 10 companies including OPG who participated in the annual EUCG benchmarking.
g) Real Estate costs (nuclear) increased from 2011 actual to 2012 actual due to implementation of a centre-led organization as part of Business Transformation. Staff and associated work program costs were transferred from generation facilities to Real Estate.

Real Estate costs (nuclear) also increased from 2012 actual to 2014 Plan due to economic increases and higher labour burden rates, escalation of operating costs on leases and utilities, and services required for the Darlington Energy Complex.

h) Supply Chain costs for regulated hydroelectric, newly regulated hydroelectric and nuclear increased from 2011 actual compared to 2012 actual due to the implementation of a centre-led organization as part of Business Transformation. Staff and associated work program costs were transferred from generation facilities to Supply Chain.

i) The 2012 actual Supply Chain costs in Table 6 (Ex. F3-1-1) for newly regulated hydroelectric almost doubled compared to 2014 plan due to an increased level of effort required for contract management, quality compliance review, and inspection services.

j) The financial targets are provided in Ex. A2-2-1, Attachment 1 (see page 8 for OM&A targets by business unit). Business units cascade these targets down to departmental levels within their organization. The initiative to reduce the number of budget holders generally limited the number of departments that had control over budgets to groups that have more than 20 full-time employees and more than $5.0M in financial activity.

k) To clarify, there is a single Employee Service Center (“ESC”) Services department reporting to one person within OPG. Within that department, the work has been divided between Nuclear and Non-Nuclear in order to best distribute and manage the workload.

l) The table below links the sub-function cost categories in Table 8 to the work descriptions on pages 12 - 14.

<table>
<thead>
<tr>
<th>Table 8 Cost Categories</th>
<th>Work description on page 12 to 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Site P&amp;C &amp; Employee Safety</td>
<td>Business Partners Hydro &amp; Thermal</td>
</tr>
<tr>
<td>2 Corporate P&amp;C &amp; Employee Safety</td>
<td>Business Partners Corporate</td>
</tr>
<tr>
<td>3 P&amp;C Services</td>
<td>Total Compensation &amp; Solutions Centre</td>
</tr>
<tr>
<td>4 Labour Relations, Safety and Wellness</td>
<td>Health, Safety, Employee &amp; Labour Relations</td>
</tr>
<tr>
<td>5 SVP Office</td>
<td>SVP Office</td>
</tr>
<tr>
<td>6 Leadership &amp; Org Development</td>
<td>Talent Management &amp; Business Change</td>
</tr>
<tr>
<td>7 Training</td>
<td>Learning &amp; Development</td>
</tr>
</tbody>
</table>

m) The Business Partners, Nuclear, Hydro/Thermal, Corporate implement P&C programs and provide site-specific support to line management for more complex matters and sensitive
issues. The HR Shared Service Centre (new name for the Solutions Centre) is responsible for transactional, administrative and process related matters in P&C to more effectively deliver this support to the line. The teams work together to provide a seamless service to clients.

n) The Electric Utility HR Metrics Group (“EU-HR MG”) uses a consistent definition of HR Functions to facilitate benchmarking. Based on these definitions, which are included below, OPG’s total HR expenses for 2012 was US$28,522,658 (C$34,858,667) and OPG’s number of regular HR employees in 2012 was 166.

OPG’s HR expense budget for 2014 and 2015 is not prepared at the level of detail necessary to identify which expenses will fall into the defined EU-HR MG benchmarked functions. Similarly, our budgeted HR headcount for 2014 and 2015 is not at the level of detail necessary to allocate staff counts to the respective benchmarked functions. Therefore, OPG’s planned HR expenses and HR FTE’s for 2014 and 2015, as defined by the EU-HR MG are not available.

**EU-HR MG Survey Definition of HR Expenses**

Include expenses associated with the groups included in the Regular HR EE. Expenses include the total $ spent by these HR groups during the reporting year. Includes the total internal and external costs incurred by HR: Benefits, Compensation/Total Rewards, Employee Relations, HR Service Center, Labor Relations, Diversity, Recruiting/Staffing, Org & Workforce Development, Corporate and Field HR. Include costs for: salaries, benefits, outsourcing, consulting fees, HR-related legal and court fees and all other external HR expenses. Include overhead and load costs. EXCLUDE: Occupational Health & Safety, Payroll, Technical Training, internal/external costs for contingent/contractual, temporary and seasonal workers, legal actions and settlements.

**EU-HR MG Survey Definition of regular HR employees**

Regular HR EE includes: Benefits, Compensation/Total Rewards, Diversity, Employee Relations, Labor Relations, HRIS, Staffing & Recruiting (Talent Acquisition), Org & Workforce Development, HR Service Center & HR Admin/Mgt. Excluded from Reg HR EE: Occupational Health & Safety, Payroll, Technical Training, Outsourced, Contingent/Contractors, LTD, Temporary, Interns, Seasonal, Co-ops. Also excluded are any other areas that report into HR, but are not a traditional HR function, for example: Medical, Records Retention, Facilities Management, etc.

o) The Electric Utility HR Metrics Group (“EU-HR MG”) uses a consistent definition of HR Functions to facilitate benchmarking. The 2012 HR FTE Employee Ratio was calculated using the EU-HR MG definition of Regular HR employees, which is included below. Based on that definition, OPG’s HR FTE ratio calculation for 2012 is as follows:
OPG’s total regular headcount for 2012 / OPG’s total Regular HR employees for 2012 =
10,835/166 = 65.27

p) As part of Business Transformation program, OPG has streamlined the process for how
People & Culture (“P&C”) services are delivered to its internal client groups. These changes
fall into three broad categories:

i) Centralization of functions that were previously dispersed across OPG into People &
Culture to reduce duplication of effort and gain efficiencies. For example, multiple
training organizations were consolidated into a single P&C Learning and Development
group.

ii) Re-engineering and reorganization of work and functions within P&C. For example,
consolidation of transactional, administrative and process-related matters, previously
dispersed across all HR Business Partners, to more efficiently and centrally manage
routine items, allowing Business Partners to focus on more strategic support.

iii) Introducing a revised service delivery model to more effectively deliver services. This
includes changes such as the increased use of outsourcing, where supported by a
business case and / or an agreement with the union in the case of represented work,
and the creation of a centralized Human Resource Service Centre, incorporating
increased self service functionality and central processing of transactional,
administrative and process-related matters.

No HR FTE per Employee ratio target has been set. The 2014 and 2015 P&C Business
Plan is driving efficiency improvements and includes headcount reduction targets. The
ratio will be reassessed once we have an understanding of the results of BT initiatives
on employee numbers across the company.
AMPCO Interrogatory #065

Ref:
Ref 1: Exhibit F3, Tab 1, Schedule 1, Pages 1 to 2
Ref 2: Exhibit F3, Tab 1, Schedule 1, Table 8 & Table 9

Issue Number: 6.9
Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

Preamble: At reference 1, OPG shows $58.8 M in business transformation transfers in 2012 from Nuclear to Support Services People and Culture and $0 M in business transformation transfers from Regulated Hydroelectric to Support Services People and Culture. At reference 2, OPG shows increases in people and culture costs (hydroelectric) from 2011 actual to 2014 plan and (Nuclear) from 2011 actual to 2014 plan.

Please further explain these increases in the context of business transformation.

Response

The increase in People & Culture costs from 2011 actual to 2014 plan was due to the transfer of the Learning and Development function (i.e., Training) from the operational business units to People & Culture as part of Business Transformation, as shown at lines 7 and 15 of Ex. F3-1-1, Table 8, and line 7 of Ex. F3-1-1 Table 9.
AMPCO Interrogatory #066

Ref:
Exhibit F3, Tab 1, Schedule 1, Page 12

Preamble: The evidence indicates that there are generalist People & Culture departments dedicated to the nuclear, hydro-thermal, and corporate business units as well as specialist People & Culture departments that serve all of OPG.

Issue Number: 6.9
Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

a) Please summarize the generalist People & Culture departments and the specialist People & Culture departments and provide the percentage of costs allocated to each.

b) Please discuss specifically how Business Transformation has impacted this Support Services Group.

Response

a) The People & Culture (“P&C”) departments are categorized below:

<table>
<thead>
<tr>
<th>Department</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVP OFFICE</td>
<td>Specialist</td>
</tr>
<tr>
<td>TOTAL REWARDS &amp; SOLUTIONS CTR</td>
<td>Specialist</td>
</tr>
<tr>
<td>SFTY&amp;WELLNESS WITH EMP LBR RELATIONS</td>
<td>Specialist</td>
</tr>
<tr>
<td>BUSINESS PARTNERS NUCLEAR</td>
<td>Generalist</td>
</tr>
<tr>
<td>TALENT MGMT&amp;BUSINESS CHANGE</td>
<td>Specialist</td>
</tr>
<tr>
<td>BUSINESS PRTRS HYDRO/THERMAL</td>
<td>Generalist</td>
</tr>
<tr>
<td>BUSINESS PARTNERS CORPORATE</td>
<td>Generalist</td>
</tr>
</tbody>
</table>

The percentage of costs allocated to People & Culture generalists and People & Culture specialist is approximately 13% and 87%, respectively.

b) All human resource work has been consolidated under the P&C function, eliminating line employees performing human resource work. As an example, the Learning & Development function has consolidated 11 training functions under one executive, allowing for consolidation and standardization across the function.

People & Culture is in the process of introducing the Human Resource Service Centre (“HRSC”) which will bring further consolidation and standardization in dealing with routine process and policies inquiries, personal information requests, allowing for a further reduction in Business Partners. At the same time, the introduction of technology into a solution centre will improve the self serve experience and case tracking to provide for further enhancements and efficiencies.

Witness Panel: Corporate Groups, Compensation
Select functions have been outsourced to service providers in order to deliver better quality service more efficiently (e.g., disability management and pension administration).
AMPCO Interrogatory #067

Ref: Board Staff Interrogatory #6.9-Staff-127

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

Preamble: Board Staff asks that OPG complete a table for corporate support services and provide explanations for the variances, and the trend, if any.

Please add a column to the table to include 2013 actual and include this year in the variance analysis.

Response

Please refer to Ex L-1.0-1 Staff-002.
AMPCO Interrogatory #068

Ref:
Exhibit F3, Tab 1, Schedule 2, Support Services Period-Over-Period Changes

Preamble: The period-over-period changes explanation for 2015 plan versus 2014 plan and 2014 plan versus 2013 budget includes staff reductions across the Support Services groups.

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

a) Please provide a summary of the staff reductions in previously regulated hydroelectric, new regulated hydroelectric and nuclear for 2013 actual, 2014 plan and 2015 plan.

Response

a) Support Services groups have planned staff reductions in 2014 and 2015 that impact regulated operations as follows:

<table>
<thead>
<tr>
<th>Staff Reductions (Headcount)</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear</td>
<td>121</td>
<td>75</td>
</tr>
<tr>
<td>Previously Regulated Hydroelectric</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Newly Regulated Hydroelectric</td>
<td>(15)</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>107</td>
<td>87</td>
</tr>
</tbody>
</table>
AMPCO Interrogatory #069

Ref: Exhibit F3, Tab 1, Schedule 3

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

Preamble: OPG indicates that regulatory costs were higher for 2011 actual vs. 2011 Board Approved because of greater than expected work on consultant studies.

a) Please provide details on the scope of work for the additional consultant study work in 2011.

Response

The greater than expected consultant work during 2011 was a result of the following studies/reports that the OEB directed OPG to complete in its EB-2010-0008 Decision:

- Nuclear Staffing Benchmark Analysis
- Review of Nuclear Fuel Procurement Program
- Compensation Benchmarking Study
- Depreciation Study

Although the OEB also directed OPG to complete a study on Benchmarking of Nuclear Performance, this was conducted internally by nuclear staff.

A consultant was also engaged to prepare OPG’s response to the Board-initiated IRM consultation identified in the Decision.
AMPCO Interrogatory #070

Ref: Exhibit F4, Tab 4, Schedule 1, Page 4

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

Preamble: Nuclear Insurance - OPG indicates the nuclear insurance costs were higher in 2012 primarily as a result of expenditures related to a one-time transaction of OPG becoming a purchasing member of a mutual insurance company, which has been authorized to provide limited nuclear liability insurance capacity in Canada.

a) Please provide the background, significance and value of this transaction.

Response

a) Prior to renewing OPG’s insurance policy in 2013, the Nuclear Insurance Association of Canada (“NIAC”) had been OPG’s sole incumbent insurer for nuclear liability. In 2013, the European Liability Insurance for the Nuclear Industry (“ELINI”) was approved to provide up to $25 million of insurance capacity to its members in Canada. ELINI is a Belgian-based mutual insurance association that provides insurance capacity for nuclear liability risks to members, which are primarily European nuclear operators. ELINI offers lower rates for nuclear liability insurance than NIAC and, to become a member and gain access to benefits of membership, OPG was required to make a one-time payment of $3.8 million. One other Canadian nuclear operator similarly joined ELINI.

This transaction is significant because it serves to lower OPG’s total costs for nuclear liability insurance going forward and introduces new insurance capacity into the Canadian nuclear insurance market.
SEC Interrogatory #123

Ref: F3/1/1p.11, EB-2010-0008 F5/3/2/p.33

Issue Number: 6.9

Issue: Are the corporate costs allocated to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

Please provide a copy of the most recent “World Class Progress Report”.

Response

The most recent “World Class Progress Report” that OPG has is from 2010, and this was filed as part of EB-2010-0008. OPG has not completed a finance benchmarking study since then as it has been focused on implementing cost reduction initiatives including significant finance process and system changes, and re-structuring the finance organization to achieve efficiencies. OPG will determine the appropriate time to complete another finance benchmarking study once these changes have been implemented.
Board Staff Interrogatory #138

Ref: Exh F4-4-1 Table 1

Issue Number: 6.10
Issue: Are the centrally held costs allocated to the regulated hydroelectric business and nuclear business appropriate?

Interrogatory

Relative to 2013, the proposed increase in Nuclear Insurance is 33% and 39% in the test years. Similar to OPG’s previous application (EB-2010-0008), the proposed cost increase is based on an assumption that new legislation will be passed in the test years. The web page referenced in the application notes that the Federal Government “expects” to table proposed legislation. It is Board staff’s understanding that this is about the fifth time the Federal Government has expected to pass such legislation.

a) Why is OPG certain that new legislation will receive Royal Assent this time?
b) Based on the 33% increase in 2014, it appears OPG has assumed legislation will receive Royal Assent in 2014. What specific date has OPG assumed for the purpose of this application?
c) In the Board’s EB-2010-0008 Decision, the Board denied OPG’s proposed cost increase in stating “It is premature to increase nuclear insurance costs because of a bill that is still being debated by the federal government.”¹ In that proceeding, the proposed bill had passed first reading before it failed to receive Royal Assent. In this instance, a bill has not even been proposed. Given the circumstances, why does OPG believe the Board should deviate from its finding in the previous case?

Response

a) OPG is confident that the new legislation will be enacted, as the current circumstances are notably different from the EB-2010-0008 application. In particular, there is a strong commitment from the federal government to a global nuclear liability regime, as evidenced by Canada’s signing of the Convention on Supplementary Compensation for Nuclear Damage (“CSC”) on December 3, 2013. Upon the signing of the CSC, Foreign Affairs, Trade and Development Canada specifically noted in a news release that the federal government “will now take the necessary steps to bring forward domestic legislation that strengthens Canada’s nuclear liability regime and is in line with current international standards.”²

¹ Decision with Reasons (EB-2010-0008), page 96.
² The news release is found at http://www.international.gc.ca/media/state-etat/news-communications/2013/12/03a.aspx?lang=eng
Shortly thereafter, on January 30, 2014, Bill C-22 “An Act respecting Canada’s offshore oil and gas operations, enacting the Nuclear Liability and Compensation Act, repealing the Nuclear Liability Act and making consequential amendments to other Acts” (“Bill C-22”) was introduced for first reading in the House of Commons. The passing of this legislation is required before the CSC can be ratified by Canada.

Further, in addition to modernizing Canada’s nuclear liability regime, Bill C-22 incorporates increases to offshore oil and gas liability limits, enhancing the substance, prominence and time sensitivity of the proposed legislation. OPG believes that combining the offshore oil and gas liability and nuclear liability platforms into a single legislative reform raises the profile of Bill C-22 relative to previous legislative efforts on nuclear liability reform, providing the necessary parliamentary momentum for its passing through the House of Commons. The current majority position of the federal government should facilitate further the successful passing of Bill C-22. In contrast, the federal government was in a minority position at the time of the EB-2010-0008 proceeding.

b) OPG’s application reflects an assumed effective date of January 1, 2014 for the increased premiums, as this was the assumption reflected in the approved 2013 - 2015 Business Plan. The 2013 - 2015 Business Plan also assumed a more gradual phase-in period for a new liability limit, with an initial limit of $250M in 2014 increasing to $350M in 2015. Based on these assumptions, the proposed revenue requirement reflects approximately $6.9M for increased nuclear liability insurance premiums over the test period. In comparison, Bill C-22 reflects a significantly higher initial liability limit of $650M, which translates into an increase in premiums of approximately $9.7M in 2015. OPG is not seeking to recover the resulting test period shortfall of approximately $2.8M between the two forecasts.

c) Refer to a).

---

Board Staff Interrogatory #139

Ref: Exh F4-4-1 Table 1

Issue Number: 6.10

Issue: Are the centrally held costs allocated to the regulated hydroelectric business and nuclear business appropriate?

Interrogatory

The chart below is related to the “Other” category of Centrally Held Costs. The chart includes actual costs from the previous application (2007 – 2009) as well as the actual and proposed costs from the current application. There is a consistent trend of alternating increases and decreases each year. The actual costs also consistently peak at just over $31 million until the bridge year. However, in the test years, there is a deviation from both of those trends. First, instead of alternating increases and decreases, it increases in both of the test years following an increase in 2013 (i.e., 3 straight years of increases). Second, the proposed increase is substantially higher – about $13 million – than the amount it has consistently peaked at.

a) Please explain the deviation from the two trends noted above.

b) Please also provide a table that provides a breakdown of all the different types of costs and associated amounts that are included in the “Other” category for each of the years in the current application (2010-2015).
Response

a) There are no trends to explain, as the costs included in the “Other” centrally-held category, given their nature, do not follow the kinds of patterns that the question suggests. There are unique reasons for each year-over-year change in these costs, including those related solely to the manner in which the costs are grouped or presented.

The actual costs appear lower in 2010 than in 2009 mainly because the 2010 amount includes a reduction to OM&A for Scientific Research and Experimental Development (“SR&ED”) investment tax credits (“ITCs”) of $21.0M, whereas the equivalent 2009 amount of $22.0M was shown in a separate line, rather than as part of the “Other” category, in EB-2010-0008 Ex. F4-4-1, Table 1.

As noted at Ex. F4-4-1, section 7.2, lines 8 - 14, the apparent increase in 2011 over 2010 reflects a change in the presentation of SR&ED ITCs from a reduction to OM&A under Canadian GAAP to a reduction in income tax expense under US GAAP.

As explained at Ex. F4-4-1, section 7.2, lines 16 - 20, the lower costs in 2012 as compared to 2011 and 2012 are primarily a result of the negative fiscal calendar adjustment of $22.8M in 2012. The negative fiscal calendar adjustment was due to the fact that OPG’s 2012 fiscal year was four days longer than the 2012 calendar year, whereas the 2011 and 2013 fiscal years are shorter than the respective calendar years.

As noted at Ex. F4-4-1, section 7.2, lines 24 - 26, the forecast increase in the costs of the “Other” category in 2014 and 2015 reflects additional amounts for business claims, and a labour balancing adjustment between non-pension and OPEB components of the standard labour rates directly charged to business units/support services and such final costs. The adjustment was included as a centrally-held cost, as the alternative of charging this impact directly to the business units for planning purposes would have required a change in the standard labour rates across the company at a stage when the business planning process was significantly advanced.

b) Confidential Attachment 1 provides the requested breakdown.
Board Staff Interrogatory #140

Ref: Exh F4-4-1 (Table 2 and Table 3), F4-3-1 (Attachment 6)

Issue Number: 6.10

Issue: Are the centrally held costs allocated to the regulated hydroelectric business and nuclear business appropriate?

Interrogatory

Table 2 and Table 3 provide a breakdown of the Centrally Held Costs for the Previously and Newly Regulated Hydroelectric groups. From 2010 to 2015, the percentage increase in the allocation of those costs is about 5-fold higher for the Newly Regulated Hydroelectric group at 156.3% compared to 32.7% for Previously Regulated Hydroelectric. The application notes that Pension and OPEB-related costs comprise the majority of the Centrally Held Costs and the primary driver of the increase in those costs is the discount rate which would have the same impact on both groups. The other driver that impacts Pension and OPEB costs is the number of FTEs and the table in F4-3-1 shows a declining trend for both groups. Another component of Centrally Held Costs where there is a notable divergence in the trend between the two hydroelectric groups is “Other” costs – from 2010 to 2015, Previously Regulated increases by $1 million while Newly Regulated increases by $7.2 million, with all of the increase in the latter occurring in the bridge and test years.

Please explain why the increase in the allocation of these two components of Centrally Held Costs is significantly higher for the Newly Regulated group.

Response

There is no divergence in the trend with respect to pension and OPEB costs between the previously and newly regulated hydroelectric facilities. Based on information at line 1 of each of Ex. F4-4-1, Tables 2 and 3, these costs are approximately four times higher in 2015 than in 2010 for both sets of facilities. The costs attributed to the newly regulated hydroelectric facilities are higher than those attributed to the previously regulated facilities and, as such, the absolute dollar value of the increase is also higher. The higher amount of costs attributed to these facilities reflects a higher number of OPG staff associated with these plants. For example, this is apparent from a review of Ex. F1-2-1, Table 4, which shows that the number of newly regulated hydroelectric FTEs is at least 60% - 70% higher than that of the previously regulated hydroelectric facilities.

The “Other” costs for the newly regulated hydroelectric facilities are higher over the 2013 - 2015 period compared to 2012 mainly due to amounts related to the settlement of business claims, which are directly attributable to the newly regulated hydroelectric facilities.

Pension/OPEB costs: Previously Regulated Hydro: $15.7M (2015) / $3.9M = 4.0 times increase, Newly Regulated Hydro: $27.5M (2015) / $6.5M (2010) = 4.2 times increase

Witness Panel: Finance, D&V Accounts, Nuclear Liabilities
AMPCO Interrogatory #071

Ref: F4-T4-S1 Table 4

Issue Number: 6.10
Issue: Are the centrally held costs allocated to the regulated hydroelectric business and nuclear business appropriate?

Interrogatory

Please provide a breakdown of the “Other” Centrally help costs that contribute to $27.8M in 2014 and $32.3M in 2015.

Response

Confidential Attachment 1 provides the requested breakdown.
AMPCO Interrogatory #072

Ref: Exhibit F4-T4-S1 Page 28

Issue Number: 6.10

Issue: Are the centrally held costs allocated to the regulated hydroelectric business and nuclear business appropriate?

Interrogatory

Preamble: The annual ONFA guarantee fee is the amount payable by OPG to the Province of Ontario pursuant to the ONFA. In Exchange for the fee, the Province of Ontario supports financial guarantees to the Canadian Nuclear Safety Commission by providing a guarantee relating to OPG’s nuclear decommissioning and waste management liabilities and nuclear segregated funds pursuant to the ONFA. The fee is calculated as 0.5 percent of the amount guaranteed, which is currently $1,551M, and is directly assigned to the nuclear facilities.

Page 12 Clause 62


“The Commission is satisfied that the financial guarantee submitted by OPG is acceptable. The Commission therefore accepts the financial guarantee, provided by Ontario Power Generation Inc., for the future decommissioning of its Class I facilities located in Ontario, consisting of the proposed ONFA Funds and NFWA Trust in the amount of $12,686 M and, the Guarantee by the Province of Ontario in the amount of $1,535 M”

a) According to the CNSC, the Guarantee by the Province is $1,535M. Please explain why OPG is stating a Financial Guarantee of $1,551M? Please explain variation.

Response

The final Provincial Guarantee in the executed “Provincial Guarantee Agreement between CNSC and the Province of Ontario Effective January 1, 2013” is $1,551M. The amount was revised from the $1,535M in the 2012 Documentary Information Summary submitted to CNSC in September 2012 based on a more accurate projection of the nuclear segregated funds balance when the Provincial Guarantee Agreement was finalized in December 2012.
AMPCO Interrogatory #073

Ref:
F4-T4-S1 Table 4

Issue Number: 6.10
Issue: Are the centrally held costs allocated to the regulated hydroelectric business and nuclear business appropriate?

Interrogatory

The application discusses a significant increase in IESO non-energy Charges, primarily due to the substantial increase in the Global Adjustment.

a. For the periods 2010-2015, please provide a table summarizing IESO non-energy costs and kWh consumed for the regulated Nuclear Facility and previously regulated Hydroelectric (not including the Newly regulated facilities)

Response

IESO non-energy charge costs for nuclear assets over the period 2010 to 2015 are shown in Ex. F4-4-1, Table 4. IESO non-energy charge costs for the previously regulated assets are shown in Ex. F4-4-1, Table 2.

The table below shows actual (2010 to 2012) and forecast (2013 to 2015) grid withdrawals at nuclear and previously regulated facilities in kWh. Grid withdrawals are explained in detail in EB-2010-0008 Ex. L-02-021 and Ex. L-01-088.

<table>
<thead>
<tr>
<th>Year</th>
<th>Nuclear</th>
<th>Previously Regulated Hydroelectric</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>933,299,404</td>
<td>243,248,844</td>
</tr>
<tr>
<td>2011</td>
<td>751,156,437</td>
<td>208,071,277</td>
</tr>
<tr>
<td>2012</td>
<td>762,805,618</td>
<td>230,023,967</td>
</tr>
<tr>
<td>2013</td>
<td>826,049,128</td>
<td>173,816,349</td>
</tr>
<tr>
<td>2014</td>
<td>795,000,000</td>
<td>248,000,000</td>
</tr>
<tr>
<td>2015</td>
<td>795,000,000</td>
<td>248,000,000</td>
</tr>
</tbody>
</table>
OPG is subject to the Nuclear Liability Act (Canada), which governs civil liability for nuclear damage in Canada. Proposed changes to this legislation, expected to be tabled late in 2013, will result in an increase to OPG's risk management costs which are centrally-held and, in turn, directly assigned to Nuclear...

**Issue Number: 6.10**

**Issue:** Are the centrally held costs allocated to the regulated hydroelectric business and nuclear business appropriate?

**Interrogatory**

a) What would be the impact of the passage of the proposed legislation on OPG's centrally held risk management cost amounts and/ or those directly assigned to nuclear in the 2014 and 2015 test years?

**Response**

Refer to Ex. L-6.10-1 Staff-138.
Board Staff Interrogatory #141

Ref: Exh F4-1-1 page 4

Issue Number: 6.11
Issue: Is the proposed test period depreciation expense appropriate?

Interrogatory
Please provide a detailed overview of OPG’s asset retirement accounting policies and procedures (including treatment of gross asset, accumulated depreciation, salvage, cost of removal and determination of gains and losses).

Response
The requested detailed overview is provided below in relation to retirement transactions, the treatment of salvage, and removal costs.

Retirement of Assets
Retirement refers to the removal of an asset from service. OPG retires assets when they are replaced by another asset or no longer have a future benefit.

Asset owners within business units, with the assistance from site controllers, identify retirements to OPG’s Asset Accounting group, including a description of the asset to be retired. Asset Accounting reviews this information in order to identify the appropriate asset class and asset number in the fixed asset sub-ledger. Where a retired asset is clearly identifiable, Asset Accounting adjusts the specific asset record in the sub-ledger by removing the amounts from associated fixed asset capital and accumulated depreciation balances. As discussed in Ex. F4-1-1, section 3.1, gains or losses resulting from all retirements are charged in full to the income statement in the period the retirements occur.

If the original cost of the retired asset is not separately determinable in the asset records, it may be estimated for purposes of the retirement transaction, on the basis of replacement cost. Associated accumulated depreciation may be estimated proportionately.

Treatment of Salvage
Estimated salvage value is typically determined based on the re-sale value of an asset including the value of scrap materials. Salvage values are assumed to be nil if they are not significant in relation to the book value of the asset. Where the salvage value is significant in relation to the book value, depreciation is calculated on the basis of the original cost of the asset net of the estimated salvage value.

Currently, assets of the prescribed facilities are not assumed to have significant salvage values. This reflects inherent uncertainties associated with salvaging the existing nuclear facilities, given potential contamination, and the hydroelectric facilities, given their long service lives.
OPG’s Investment Recovery group handles the sale of surplus assets and scrap materials. They are notified of an asset retirement by the business units. Upon sale of the asset or related scrap materials, Investment Recovery forwards information about the sales transaction to Asset Accounting. Typically, Asset Accounting records the gain or loss on the sale (i.e., the difference between the net book value and sales proceeds) in removing the fixed asset capital and accumulated depreciation amounts for the retired asset from the sub-ledger. The full amount of the gain or loss, net of the expenses associated with the sale and salvage activities, is reported as part of Other Income/Loss in OPG’s consolidated financial statements.

Removal Costs
There are two main types of removal costs. The first type are costs incurred during the repair, maintenance or retirement of an existing asset for such purposes as dismantling (including disassembling a component to gain access to a subcomponent to be repaired or replaced), crating, tearing down, shipping, and reinstallation of equipment previously in service. In accordance with generally accepted accounting principles and as noted in Ex. D4-1-1, page 2, line 3, these costs are charged to OM&A expenses as incurred. As noted in Ex. F4-1-1, page 4, line 28 to page 5, line 7, prior to 2011, these removal costs were expensed as part of depreciation and amortization expenses.

The second type of removal costs are those incurred to discharge an obligation to decommission or dismantle an asset at the end of its estimated useful life. In accordance with generally accepted accounting principles, these costs are typically recognized when the asset is in service, as part of an asset retirement obligation (liability), with a corresponding capitalized asset retirement cost. The asset retirement cost forms part of the total capitalized cost of the asset and is therefore depreciated over its estimated service life. Expenditures incurred for removal activities for which an asset retirement obligation was previously set up are charged against the liability, rather than the income statement.
Board Staff Interrogatory #142

Ref: Exh. F4-1-1 and Ref: Exh. F5-3-1

Issue Number: 6.11
Issue: Is the proposed test period depreciation expense appropriate?

Interrogatory

Please provide all reports, memorandums and recommendations of the Depreciation Review Committee ("DRC") for the regulated business in 2013 and 2014 including documents or meeting minutes of OPG’s Approvals Committee approving the recommendations of the DRC.

Response

The following documents are attached:

• 2013 Depreciation Review Committee Asset Selection and Planning memorandum (Attachment 1)
• 2013 Depreciation Review Committee Recommendations – Regulated Business memorandum (Attachment 2)
• Summary highlights of the Approvals Committee meeting held on December 13, 2013 (Attachment 3)

OPG notes that, due to a word processing error, Attachment 3 is titled “DRC committee – summary highlights”. The meeting was that of the OPG Approvals Committee and should have been titled “Approvals Committee – summary highlights”.

Witness Panel: Finance, D&V Accounts, Nuclear Liabilities
Ontario Power Generation Inc.
2013 Depreciation Review Committee Plan and Asset Selection

You are requested to agree to the review approach for each line of business, including agreeing that the overall review process remains reasonable and appropriate.

Summary of Scope Recommendations

a) A new independent depreciation study will be undertaken in 2013 for consideration of the 2013 DRC. Where appropriate, the previous study conducted on the basis of December 31, 2010 asset balances and service lives may be refreshed based on December 31, 2012 information.

b) The DRC process is to be the same as that used during the 2010 internal asset review as part of the 2010 DRC process.

c) Business Units (“BU”) are expected to focus on asset class lives as part of the 2013 DRC process; their work may be reviewed by the independent consultant in developing his assessment in a report that would be presented to the 2013 DRC.

d) The general timeline is to have the internal reviews completed by Q3 2013, followed by an external consultant review to be completed by Q4 2013.

1. Objectives

In summary, the primary planning objective is to ensure a DRC process that works towards obtaining an appropriate level of assurance to support station and asset service lives by engaging appropriate resources in 2013.

The DRC reviews the service lives of all major facilities and a selection of asset classes, with the general objective of reviewing all significant asset classes over a five year period, as this has been noted to be as a reasonable and procedurally sound practice by the independent consultant (Gannett Fleming) who reviewed OPG’s average service life assumptions in 2011.

The DRC’s recommendations are used to calculate the depreciation expense that is reflected in OPG’s financial statements, business plan, and rate applications filed with the Ontario Energy Board (“OEB”). Therefore, it is critical to have appropriate support for the DRC process from the lines of business.

The 2013 DRC plan and asset selection requires the approval of the Approvals Committee comprised of Ontario Power Generation Inc.’s (“OPG” or the “Company”) senior executives. Implementation of DRC recommendations will take place on final approval of these recommendations by the Approvals Committee.
Ontario Power Generation Inc.
2013 Depreciation Review Committee Plan and Asset Selection

2. **Background**

The following average nuclear station end-of-life (“EOL”) dates are being used effective December 31, 2012:

<table>
<thead>
<tr>
<th>Station</th>
<th>End-of-Life Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darlington</td>
<td>December 31, 2051</td>
</tr>
<tr>
<td>Pickering A</td>
<td>December 31, 2020</td>
</tr>
<tr>
<td>Pickering B</td>
<td>April 30, 2020</td>
</tr>
<tr>
<td>Bruce A</td>
<td>December 31, 2048</td>
</tr>
<tr>
<td>Bruce B</td>
<td>December 31, 2019</td>
</tr>
</tbody>
</table>

The end-of-life dates for the Pickering units were changed, effective December 31, 2012, based on the high confidence lives resulting from the fuel channel life management study. The life of the Darlington station was extended following the 2009 DRC process to December 31, 2051 from December 31, 2019, based on the decision to proceed with the definition phase of the refurbishment work.

The DRC will continue to monitor for indications about the refurbishment of Bruce Units 3 and 4 and for any announcement of changes to Bruce Power’s plans for the Bruce B units.

In 2011, all major hydroelectric asset classes and a selection of asset classes for nuclear were reviewed as of the end of 2010 by an external consultant; the results of the review were adopted by OPG through the 2011 DRC process. The consultant recommended changes to three hydroelectric asset classes, which had a minimal impact on depreciation expense.

Asset class reviews are conducted by technical staff at each Business Unit who assess the condition of the major assets in each class and determine whether the current life of each class is appropriate.

The supporting technical information resulting from the above process may be expected to be reviewed by an external consultant to be engaged in 2013 to conduct an independent study of OPG’s asset services lives.

3. **Principles for Station End-of-Life and Asset Class Analysis:**

For financial statement purposes, changes to existing station service lives require a high degree of confidence when station service lives are being extended. Indicators of a high degree of confidence are as follows:

- External indicators such as shareholder directive
- Explicit board approval to proceed with a plant life extension e.g. refurbishment investment decision
- OPG Board approved business plan coupled with assurance that there is not a further assessment trigger that is ultimately required to demonstrate high confidence, e.g. OPG approved business plan to proceed with plant life extension but the ultimate extension is contingent on a successful technical assessment.
- OPG’s external auditors must be satisfied with the underlying support for the recommendations to change service lives.

a) For nuclear asset classes, depreciation is based on the lower of the asset class service life or the station life, which is an average of the end-of-life dates for each unit.
Ontario Power Generation Inc.
2013 Depreciation Review Committee Plan and Asset Selection

b) Review all significant asset classes over a five year period through internal and/or independent external reviews. External reviews are to be performed approximately every five years with the objective of providing the OPG’s management with independent assurance that service life estimates are reasonable.

4. Scope

a. Review of Station Service Lives

- Following the principles outlined in part a) of the previous section, nuclear station asset lives will be revisited to confirm whether any recent developments would warrant changes to these asset lives. Specifically:

For Prescribed Nuclear (Pickering and Darlington)
- A review of major life limiting components and refurbishment plans will be carried out to determine whether there is a need for any adjustments to the current end-of-life assumptions. For example, any changes to the refurbishment schedule for Darlington, to the predicted lives of the fuel channels post-refurbishment or to the operational plans for post-refurbishment, could impact the post-refurbishment ends-of-life predictions for these units. Also, any changes to the expected fuel channel lives, or operational plans for the Pickering units could impact the predicted ends-of-life of these units.

Bruce A & B

The plan is to review and assess sources of information, which may include OPG’s past operating experience and knowledge of the assets, public information available from Bruce Power and Ontario Power Authority and also to seek confirmation from Bruce Power on both their operational and refurbishment plans for the units in order to assess whether any adjustments to the predicted ends-of-life for these units is required.

b. Review of asset class lives

- Start with the completed templates from work in 2010 for assets at Dec 31, 2009
- Assess condition of the major assets in each class and determine whether the current average life of each class is appropriate
- This would primarily be done by updating the documentation in summary templates and including a recommendation on the life of each class that has been reviewed
- The asset class review should consider, where appropriate, the impact of the December 31, 2012 changes in the average service lives for the Pickering units. This is consistent with the recommendation in the 2011 Gannett Fleming report that a renewed period of five-year review cycles for major nuclear asset classes commence following the assessment of the fuel channel lives.

c. Asset class review

- Start with the completed templates from work in 2010 for assets at Dec 31, 2009.
- Assess whether the major types of assets included in the asset class are appropriate or whether a change to the composition of the asset class is required. This would include reviewing classes for any significant components in terms of impact on operations that could have a different life.
Select asset classes for review:

**Prescribed Nuclear**

It is recommended to commence an asset class review starting in 2013. The target is to complete the reviews of the selected asset classed by Q3 2013. Corporate Accounting will work with established BU / line contacts to scope out the extent of coverage of asset class reviews for 2013 and, possibly, 2014.

A list of classes targeted for this year’s review, is attached in Appendix A. The list is based on targeting high dollar asset classes first as well as any assets identified by BU / line contacts, based on operational knowledge. (It is estimated that approximately 10 classes in each of Hydro and Nuclear comprise up to about 70 percent of the total regulated assets (asset base includes asset retirement costs)).

**Hydroelectric**

In general, the primary sources of evidence will include lifecycle planning data, site condition assessment reports and benchmark data that may be already available.

A proposed list of classes based on higher dollar values is attached, as Appendix A.

**Thermal**

The impact of recent coal closure announcements for the end of 2013 has already been implemented. Any new information that could impact station lives will be considered and a recommendation made for the DRC report.

5. **DRC Recommendations**

Written DRC recommendations will be produced upon consideration of the results of the above review process, based on the criteria identified in Section 3 above.
Ontario Power Generation Inc.
2013 Depreciation Review Committee Plan and Asset Selection

6. Structure

The DRC includes representatives from the lines of business with specific knowledge of major fixed assets, Regulatory Affairs, and others that have experience in planning and finance.

The committee is chaired by Dennis Dodo – Vice President, Shared Financial Services.

The Approvals Committee is responsible for approving the DRC approach, including asset selection, and consists of the following senior executives:

- Frank Chiarotto - Senior Vice President, Hydro Thermal Operations
- Wayne Robbins - Chief Nuclear Officer
- Bruce Boland - Senior Vice President, Commercial Operations and Environment
- Donn Hanbridge - Chief Financial Officer

The table below lists the members of the DRC:

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vice President, Shared Financial Services</td>
<td>Dennis Dodo</td>
</tr>
<tr>
<td>Vice President, Business Planning &amp; Reporting</td>
<td>John Mauti</td>
</tr>
<tr>
<td>Director, Controllership Hydro Thermal Finance</td>
<td>Jay Scrinko</td>
</tr>
<tr>
<td>Vice President, Nuclear Finance</td>
<td>Carla Carmichael</td>
</tr>
<tr>
<td>Director, Ontario Regulatory Affairs</td>
<td>Randy Pugh</td>
</tr>
<tr>
<td>Director, Business Planning &amp; Performance Reporting</td>
<td>Alex Kogan</td>
</tr>
<tr>
<td>Director, Asset Planning &amp; Integration</td>
<td>Stephen Rogers</td>
</tr>
<tr>
<td>Senior Manager, Corporate Accounting</td>
<td>Dave Bell</td>
</tr>
<tr>
<td>Director, External Reporting &amp; Accounting Policy</td>
<td>Alec Cheng</td>
</tr>
</tbody>
</table>
## Appendix A:
### Proposed 2013 Asset Class Review:
#### Nuclear:

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Action</th>
<th>Potential Contact(s)</th>
<th>Dec 31/12 NBV</th>
</tr>
</thead>
<tbody>
<tr>
<td>15200000 Nuclear Buildings &amp; Structures</td>
<td>Review service life</td>
<td>D. Zerkee</td>
<td>205M</td>
</tr>
<tr>
<td>15340000 Nuclear Process Systems</td>
<td>Potential disaggregation Review service life</td>
<td>D. Zerkee for disaggregation P. Spekkens for technical review</td>
<td>166M</td>
</tr>
<tr>
<td>15600000 Instrumentation &amp; Control</td>
<td>Review service life</td>
<td>D. Zerkee R. Hohendorf (technical)</td>
<td>167M</td>
</tr>
<tr>
<td>15411000 Turbines &amp; Auxiliaries</td>
<td>Review service life</td>
<td>D. Zerkee TBD</td>
<td>2</td>
</tr>
<tr>
<td>15421000 Generator Rotors, Stators &amp; Auxiliary Systems</td>
<td>Review service life</td>
<td>D. Zerkee TBD</td>
<td>15</td>
</tr>
<tr>
<td>15561000 AC Standby Power</td>
<td>Review service life</td>
<td>D. Zerkee TBD</td>
<td>46</td>
</tr>
<tr>
<td>15711000 Circulating Water</td>
<td>Review service life</td>
<td>D. Zerkee TBD</td>
<td>6</td>
</tr>
<tr>
<td>15720000 Common Service Systems</td>
<td>Potential disaggregation</td>
<td>D. Zerkee</td>
<td>94</td>
</tr>
</tbody>
</table>

**Total** 701

701/5,000 = 14%
### Hydro:

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Action</th>
<th>Potential Contact(s)</th>
<th>Dec 31/12 NBV</th>
</tr>
</thead>
<tbody>
<tr>
<td>10101 Excavation</td>
<td>Review</td>
<td>Robbi Sohi</td>
<td>1,219</td>
</tr>
<tr>
<td>10200 Sub Structure &amp; Superstructures Class</td>
<td>Review</td>
<td>Robbi Sohi</td>
<td>784</td>
</tr>
<tr>
<td>10312 Dams Class</td>
<td>Review</td>
<td>Robbi Sohi</td>
<td>336</td>
</tr>
<tr>
<td>10301 Linings Class</td>
<td>Review</td>
<td>Robbi Sohi</td>
<td>220</td>
</tr>
<tr>
<td>10318 Gates &amp; Operating Mechanism</td>
<td>Review</td>
<td>Robbi Sohi</td>
<td>144</td>
</tr>
<tr>
<td>101000 Land</td>
<td>Consider breaking Fencing out Separately, as this is a growing portion of the Class</td>
<td>Robbi Sohi</td>
<td>23M</td>
</tr>
</tbody>
</table>

**TOTAL:** 2,726

% coverage estimated: 2,726/5,000 = 55%
2013 Depreciation Review Committee Recommendations – Regulated Business

PURPOSE

This memorandum seeks approval for recommendations resulting from the 2013 Depreciation Review Committee ("DRC") review of the average asset service lives for the prescribed nuclear facilities, the previously regulated hydroelectric facilities, and the 48 hydroelectric stations prescribed effective July 1, 2014 ("newly regulated hydroelectric facilities") pursuant to an amendment to Ontario Regulation 53/05 made in November 2013. The memorandum also seeks approval of recommendations of average service lives for the Bruce A and Bruce B nuclear stations.

BACKGROUND

The DRC is convened annually to review the service lives for depreciation purposes of OPG’s major facilities and a selection of asset classes of those facilities with the general objective of reviewing all significant asset classes over a five year period. The focus of the work of the 2013 DRC was on obtaining an appropriate level of assurance over the average service lives of a selection of hydroelectric and nuclear asset classes, as well as the service lives of OPG’s nuclear stations.

Additionally, in 2013, Gannett Fleming ULC ("GF"), an external consultant, was engaged to perform an independent study to review the estimated average asset class lives and station service lives for the property, plant and equipment ("PP&E"), including intangible assets, of the prescribed facilities (including the newly regulated hydroelectric facilities), based on in-service balances as at December 31, 2012. Corporate PP&E directly assigned to the prescribed facilities and included in rate base and depreciation and amortization expense for these facilities were included in the scope of the study. GF reviewed the 2013 DRC work as part of their study. GF provided their findings in a separate report ("2013 GF Report") that has been filed as part of an update to OPG’s Ontario Energy Board evidence submission in its current application for new payment amounts (EB-2013-0321). The recommendations of the DRC contained in this memorandum with respect to the prescribed facilities reflect GF’s recommendations and conclusions.

The prescribed facilities are:

- Sir Adam Beck I and II Hydroelectric Generating Stations;
- Sir Adam Beck Pump Generating Station;
- DeCew Falls I and II Hydroelectric Generating Stations;
- R.H. Saunders Hydroelectric Generating Station;
- Pickering Nuclear Generating Station;
- Darlington Nuclear Generating Station; and
- Newly regulated hydroelectric facilities.

SCOPE OF 2013 DRC REVIEW

The DRC’s scope included a review of a selection of nuclear and hydroelectric asset classes, selected mainly based on their relatively large net book values as at December 31, 2012 and operational knowledge. The review focused on the following main areas:
2013 Depreciation Review Committee Recommendations – Regulated Business

- **Asset class review** – to review the assessments conducted by the business units on the longevity of assets within the class in order to determine the appropriateness of the depreciation period assigned. The review included noting any significant components within an asset class that should be disaggregated into a separate new or existing asset class; and

- **Nuclear station service lives review** – to assess whether there is any new information pertaining to nuclear station lives that would warrant changes based on the principle of high confidence.

The main sources of information considered by DRC in developing recommendations relating to asset classes included:

- reviews conducted primarily by technical staff at each of the nuclear and hydroelectric generating business units,
- results of the 2013 GF depreciation study,
- information obtained from past DRC reviews, and
- industry benchmarking.

Excluding asset retirement costs, asset classes making up approximately 64% of the in-service net book value of the assets of the regulated business (as at December 31, 2012) were reviewed by the 2013 DRC.

**SUMMARY OF RECOMMENDATIONS**

**Asset Class Review**

The DRC determined that, with the modifications listed below, the currently approved average service life estimates for all reviewed asset classes remain appropriate. These recommendations were reviewed with and endorsed by business and technical staff responsible for overseeing the nuclear and hydroelectric assets, and reflect the recommendations in the 2013 GF Report.

**Hydroelectric:**

- Hydroelectric head gates, stoplogs and operating mechanisms – asset class average service life to be changed from the currently approved 50 years to 55 years, effective January 1, 2014;
- Hydroelectric fencing – establish a new asset class with a 25-year average service life to separate fencing from other asset classes; and
- Hydroelectric roofing – establish a new asset class with a 30-year average service life to separate roofing from other asset classes.

The estimated impact of the above change on the annual depreciation expense is a reduction of approximately $1M. Further details of the rationale for the changes are found in Appendix 1 of the 2013 GF Report.
2013 Depreciation Review Committee Recommendations – Regulated Business

Nuclear:

- Large circulating water motors – establish a new asset class with a 30-year average service life to separate large motors (i.e., greater than 200 Hp) from other asset classes;
- Nuclear roofing – establish a new asset class with a 25-year average service life to separate roofing from other asset classes; and
- Turbine generator controls – reclassify turbine generator control equipment into the existing Instrumentation and Control class with a 15-year average service life from the existing Turbines and Auxiliary Equipment class with a 55-year average service life.

The above changes will have a minimal annual depreciation impact due to the minimal carrying values associated with these assets. Further details of the rationale for the changes are found in Appendix 1 of the 2013 GF Report.

Additionally, for ease of future average service life reviews, the DRC is recommending a disaggregation of the Nuclear Process Systems asset class into several asset classes, by Level 2 System Classification Index, due to its large size. The new asset classes will retain the same average service life of 55 years as the Nuclear Process Systems class. The 2013 GF Report supports this recommendation.

Nuclear Station Service Lives Review

Pickering Station

As noted in OPG’s 2012 DRC recommendations, in Q4 2012, the DRC received confirmation of high confidence that Pickering Units 5-8 could be operated until at least 247,000 effective full power hours (“EFPH”) based primarily on the results of the Fuel Channel Life Management (“FCLM”) project. This led to the approved recommendation of the following end-of-life dates for depreciation purposes for Pickering Units 5-8:

- Unit 5: Q1 2020
- Unit 6: Q2 2019
- Unit 7: Q4 2020
- Unit 8: Q4 2020

The above resulted in a revised average station end-of-life date, for depreciation purposes, for Pickering Units 5-8 of April 30, 2020. Based on the 2012 DRC recommendations, the average station end-of-life date for each of Pickering Units 1 and 4 for depreciation purposes was adjusted to December 31, 2020, in order to align with the end-of-life date of the last two units of Pickering 5-8. There have been no major changes to OPG’s operational plans for the Pickering units or other developments to warrant a change to these end-of-life estimates based on the principle of high confidence. There remains high confidence that Pickering Units 5-8 can be operated until at least 247,000 EFPH.

Therefore, the DRC is recommending that the average station end-of-life dates for depreciation purposes for Pickering Units 1 and 4 and Pickering Units 5-8 remain unchanged at December 31, 2020 and April 30, 2020, respectively.
2013 Depreciation Review Committee Recommendations – Regulated Business

Darlington Station

As part of a prior DRC review, the average station end-of-life date for Darlington was established as December 31, 2051, consistent with the OPG Board of Directors approval of management’s recommendation to proceed with the definition phase of the Darlington refurbishment and the concurrence with this approval by OPG’s Shareholder. The approval and concurrence, as well as technical and other assessments, provided support that the Darlington refurbishment would be executed and the units returned to service. The recommendation remains unchanged.

Bruce A:

Bruce Units 1 and 2

As noted in OPG’s 2012 DRC recommendations, refurbishment work on Bruce A Units 1 and 2 was completed and both units were returned to service in the latter half of 2012. Therefore, based on an assumed nominal operating life of 30 calendar years for the replaced fuel channels, these units would be expected to reach their ends-of-life in approximately 2042. The recommended depreciation lives for Bruce Units 1 and 2 remain unchanged in this 2013 DRC review.

Bruce Units 3 and 4

Bruce A Units 3 and 4 are currently operating with their original fuel channels. OPG assumes a post-refurbishment end-of-life date for these units, for depreciation purposes. The key evidence which OPG relies upon in assuming “post-refurbishment dates” for the service lives for depreciation purposes of the Bruce A units has been positive obligations on Bruce Power to refurbish Bruce Units 3 and 4 under the original Bruce Power Refurbishment Implementation Agreement (BPRIA), signed in October 2005, and the subsequent amendments to the BPRIA. As noted in the 2012 DRC recommendations, publicly available information supported the position that Bruce Power’s intent was to operate these units into the early 2020s at which time the units were assumed by OPG to be refurbished and returned to service by nominally 2024, and operated for an additional 30 years. The 2012 DRC, therefore, recommended a revised end-of-life date of December 31, 2054 for these units.

On December 3, 2013, the Ontario Government issued a revised version of the Long Term Energy Plan (LTEP) first issued in 2010. This plan, known as LTEP II, provided new information about the potential timing of refurbishments on Bruce Units 3 and 4, i.e. in 2019 to 2022 and in 2016 to 2020 for Bruce Units 3 and 4, respectively. Given the potential timing indicated in LTEP II, applying a nominal 30 years of post-refurbishment life would result in revised depreciation lives for Bruce Units 3 and 4 to 2052 and 2050 respectively. The DRC does not recommend adopting these revised unit lives at this time.

This recommendation is primarily based on the uncertainty which currently surrounds the refurbishment schedule for these units. OPG expects further details to be revealed in future which would facilitate a more informed decision on the timing of refurbishments for Bruce Units 3 and 4. OPG notes that there are several conditions in the LTEP II related to refurbishment of Ontario’s fleet of nuclear units, including these statements: “Final commitments on subsequent refurbishments will take into account the performance of the initial refurbishments with respect to budget and schedule by establishing appropriate off-ramps. The nuclear refurbishment sequence …… will be implemented subject to processes designed to minimize risk to ratepayers and to government. For example, appropriate off-ramps will be
In summary, the 2013 DRC review concludes that the average station end-of-life date for depreciation purposes for the Bruce A station should remain at December 31, 2048.

**Bruce B:**

As noted in OPG’s 2012 DRC recommendations, a change to the end-of-life date for depreciation purposes from December 31, 2014 for the Bruce B station to December 31, 2019 was recommended and adopted. This change was based on the substantial completion of the FCLM project’s work, based on which OPG had concluded, similar to OPG’s conclusion for Pickering Units 5 - 8, that there was now high confidence that the condition of the fuel channels for each of the four units at Bruce B should allow these units to operate until approximately 2020.

Bruce Power has publicly indicated, through press releases and other public documents such as Executive Speeches, that it is their intention to refurbish and continue to operate all of the Bruce B units for approximately another 30 years and those public pronouncements have increased during 2013. In addition, the publication of the LTEP II by the Ontario Government on December 3, 2013, includes an indicative schedule for refurbishing the four Bruce B units in the period 2022 to 2031, following the refurbishment of Bruce A Units 3 and 4.

The DRC does not recommend any changes to the depreciation lives of the Bruce B stations at this time. This recommendation is made primarily because, to OPG’s knowledge, no formal agreements are in place between Bruce Power and the Ontario Power Authority to refurbish these units. Also, for similar reasons provided above under the Bruce A Units 3 and 4 discussion, the schedule for refurbishment of the Bruce B units provided in the LTEP II document is uncertain at this time and many conditions would need to be met (including contracts being negotiated and let) before firm commitments could be established to carry out these refurbishments.

In summary, the DRC recommends that the average station end-of-life date for depreciation purposes for the Bruce B remain at December 31, 2019.
2013 Depreciation Review Committee Recommendations – Regulated Business

DRC MEMBERS AND APPROVALS COMMITTEE

The DRC includes representatives from the operating business units as well as representatives having experience in finance and accounting, investment planning, and rate regulation.

The Approvals Committee is responsible for approving the DRC recommendations and is comprised of:

- Mike Martelli, Senior Vice President, Hydro Thermal Operations
- Glenn Jager, Chief Nuclear Officer
- Bruce Boland, Senior Vice President, Commercial Operations and Environment
- Robin Heard, Interim Senior Vice President and Chief Financial Officer

The DRC is comprised of the following members:

- Dennis Dodo, Vice President, Shared Financial Services
- John Mauti, Vice President, Business Planning and Reporting
- Jay Scrinko, Vice President, Hydro Thermal Operations Finance
- Carla Carmichael, Vice President, Nuclear Finance
- Randy Pugh, Director, Ontario Regulatory Affairs
- Alex Kogan, Director, Business Planning and Performance Reporting
- Stephen Rogers, Director, Asset Planning and Integration
- Alec Cheng, Director, External Reporting and Accounting Policy
- Dave Bell, Senior Manager, Accounting and Reporting
1. Agenda

To obtain approval from Approvals Committee (Mike Martelli, SVP Hydro Thermal Operations; Glenn Jager, Chief Nuclear Office; Bruce Boland; SVP, Commercial Operations and Environment; Robin Heard, Interim Senior VP and Chief Financial Officer) for 2013 DRC recommendations pertaining to:

a. Asset condition review results
b. Station lives

2. Key findings and recommendations accepted pertaining to the following asset classes in Regulated Business:

a. Nuclear:

Nuclear process systems
- The asset class contains a large number of dissimilar assets/systems and includes major life limiting components.
- Going forward, disaggregate Nuclear Process Systems into more reasonably sized portions based on Level 2 SCI. (This will not impact depreciation)
- Going forward, create a new asset class for large electric motors with a life of 30 years.

Nuclear Buildings and Structures
- Disaggregate the roofs from the rest of Nuclear Buildings and Structures with an asset class life of 25 years, consistent with design life in the Darlington Stations Roofs Replacement project and industry benchmarks

Turbines and Auxiliaries
- Disaggregate turbovisory instrumentation and controls into existing Instrumentation and Controls class

Circulating water
- Take the CCW pumps out of the Circulating Water asset class (larger size greater than 200Hp) and put them in the new proposed asset class with a service life of 30 years. The rest of the class retains the current service life.

b. Hydro:

- Hydroelectric head gates, stoplogs and operating mechanisms move to 50 yrs from 55 yrs. (Service life assessments made primarily on the basis of technical review, current asset condition, results from ongoing Plant facility condition assessment, and industry review.)
• Recommendation to disaggregate fencing from the Lands asset class to reflect an appropriate service life of 25 years for Fencing.
• Hydroelectric roofing – disaggregate roofing to a separate class with a 30 year average service life.

3. Discussions Regarding Station Lives:

Overall, the recommendation to maintain station lives at the currently approved dates based on the prior year’s 2012 DRC recommendations was accepted, until such time as further information becomes available.

Pickering:

• There was general agreement that the recommendation that no changes be made to the Pickering units’ service lives be accepted.

Darlington:

• While there was general agreement to maintain the current assumption that Darlington station lives be based on an assumption that all of the units would be refurbished, resulting in a station end of life of December 2051, there was some discussion and a request to document the differences between the Darlington (and Bruce A Units assumptions) and those being used for Bruce B Units. Bruce B (Units 5 – 8) are the only units of those at Darlington, Bruce A and Bruce B, where OPG continues to assume pre-refurbishment lives for the purposes of depreciation. It was pointed out that the primary factors OPG relies upon to assess whether an assumption of refurbishment was warranted are the existence of a contract with the OPA to refurbish the units (the case for Bruce A) or explicit Board of Directors and/or Shareholder approval of a plan to refurbish the units.

• The following table documents the essential differences between the Bruce B status and the Darlington units regarding the potential for refurbishment:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Darlington</th>
<th>Bruce A</th>
<th>Bruce B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publicly announced intention to refurbish</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Board of Director’s Approval to Refurbish</td>
<td>Yes</td>
<td>Unsure - likely conditional on an acceptable update to the contract with the OPA</td>
<td>Unsure</td>
</tr>
<tr>
<td>Government’s Approval to Refurbish</td>
<td>Yes (Feb 2010); Conditional (LTEP II, Dec 2013)</td>
<td>Implicit because of the existence of a contract to refurbish</td>
<td>Unsure – only an indicative schedule published in the LTEP II</td>
</tr>
<tr>
<td>Contract with OPA to refurbish?</td>
<td>No (not applicable)</td>
<td>Yes</td>
<td>Not to OPG’s knowledge</td>
</tr>
<tr>
<td>OPA reviewed and endorsed economic case?</td>
<td>Yes (in 2010 and 2012)</td>
<td>Unsure, although LTEP II conditionally endorses proceeding with refurbishment of Units 3 &amp; 4</td>
<td>Unsure, although LTEP II conditionally endorses proceeding with refurbishment of all units</td>
</tr>
<tr>
<td>Factor</td>
<td>Darlington</td>
<td>Bruce A</td>
<td>Bruce B</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>----------------------------------------------------</td>
<td>---------------------------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>Cost of refurbishment and energy cost publicly announced?</td>
<td>• Yes, range estimates provided</td>
<td>• High level indications of cost of refurbishment only;</td>
<td>• Very high level indication of cost of refurbishment only;</td>
</tr>
<tr>
<td>Actively prosecuting Definition Phase activities</td>
<td>• Yes; several contracts developed and issued for definition phase work; contractors engaged</td>
<td>• Bruce 1 &amp; 2 complete; OPG believes that some long lead material already ordered for Bruce Units 3 &amp; 4</td>
<td>• Not to OPG’s knowledge</td>
</tr>
<tr>
<td>Environmental Assessment approval?</td>
<td>• Yes</td>
<td>• Yes</td>
<td>• Not to OPG’s knowledge</td>
</tr>
<tr>
<td>Project Mgmt organization in place</td>
<td>• Yes</td>
<td>• Units 1 &amp; 2 complete; Unsure for Units 3 &amp; 4</td>
<td>• Not to OPG’s knowledge</td>
</tr>
<tr>
<td>Some facilities to enable refurbishment already in place</td>
<td>• Yes</td>
<td>• Units 1 &amp; 2 complete; Unsure for Units 3 &amp; 4</td>
<td>• Not to OPG’s knowledge</td>
</tr>
</tbody>
</table>

Bruce A:

- There was general agreement, given the above discussion, that there is sufficient evidence to continue to assume post refurbishment lives for Bruce A units, as per previous DRC recommendations, subject to greater clarity being achieved around the refurbishment schedule for the Bruce 3 & 4 units, there was also consensus that the indicative schedule published in the LTEP II document on December 3, 2013 was not sufficient evidence to change the average service life for the Bruce A units, and also that the impact to depreciation expense was likely not material.

Bruce B:

- There was general agreement, given the above discussion, that there is insufficient evidence to change to post-refurbishment lives for the Bruce B units, as per previous DRC recommendations. The key factor which OPG will depend upon will be an announced contract between Bruce Power and the OPA to refurbish the Bruce B units, at which time this recommendation will be revisited.
Board Staff Interrogatory #143

Ref: Exh. F5-3-1

Issue Number: 6.11
Issue: Is the proposed test period depreciation expense appropriate?

Interrogatory

OPG publications and several announcements by OPG’s senior officials have indicated that the new tunnel at Niagara Falls will provide electricity service for at least 100 years. On March 21, 2013 OPG issued a News release entitled, “Water Now Flowing Through Newly Completed Niagara Tunnel Project will generate 100 plus years of renewable electricity.” Please see below two web links on the subject of the tunnel’s service life. Consequently, does OPG agree that the new tunnel should have a useful life of more than 100 years? If no, please explain.

http://www.renewableenergyworld.com/rea/news/article/2013/04/niagara-tunnel-completion-important-piece-for-ontarios-hydroelectric-power-supply

Response

No. While it is possible that the tunnel’s actual service life will exceed the current estimate, OPG believes that the estimates contained in its evidence are the most reasonable figures to use for depreciation purposes as confirmed by Gannett Fleming (Ex. F5-3-1) and as explained further in OPG’s response to Ex. L-6.12-1 Staff-161. As noted by Board staff in that interrogatory, the Niagara Tunnel Project (“NTP”) includes the investments in tunneling which have an estimated average service life of 100 years and investments in the tunnel lining which have an estimated average service life of 90 years. Thus the estimated life for depreciation purposes of the tunnel as a whole is over 95 years. To simplify public communications, OPG used 100 years.
Board Staff Interrogatory #144

Ref: Exh. N1-1-1 Chart 1 and Exh. F4-1-1

Issue Number: 6.11
Issue: Is the proposed test period depreciation expense appropriate?

Interrogatory

Chart 1 shows a change to depreciation and amortization of $9M for the test period due to changes arising from OPG’s 2014 - 2016 Business Plan.

a) Please explain the reasons for the increase in depreciation expense.

b) Please confirm that OPG is not seeking recovery of this incremental amount and thus there is no need to update applicable tables and amounts for depreciation and amortization including tables 1 and 2 (at Exh. F4-1-1) in the application.

Response

a) Depreciation expense in OPG’s 2014-2016 Business Plan is $9M higher in the test period than the pre-filed evidence primarily due to higher forecast capital in-service additions in 2014 and 2015.

b) Confirmed.
GEC Interrogatory #011

Ref: Ex. F5-3-1

Issue Number: 6.11
Issue: Is the proposed test period depreciation expense appropriate?

Interrogatory

The LTEP document speaks of off ramps for the Darlington refurbishment. Using illustrative examples, please indicate the impact on depreciation if off ramps are exercised at various stages.

Response

The LTEP document (page 29) acknowledges that Darlington and Bruce plan to begin refurbishing one unit each in 2016. Final commitments on subsequent refurbishments will take into account the performance of the initial refurbishments with respect to budget and schedule by establishing appropriate off-ramps. The application of an off-ramp would clearly not occur until well after the completion of the 2014 - 2015 test period. It is therefore not relevant in the context of EB-2013-0321.
GEC Interrogatory #012

Ref:

Issue Number: 6.11

Issue: Is the proposed test period depreciation expense appropriate?

Interrogatory

The LTEP speaks of a possible early shutdown of Pickering. Please indicate the impact on depreciation expense if such an event should occur using illustrative dates.

Response

An early shut down of Pickering would increase depreciation expense as the remaining book value of the units would be depreciated over a shorter period. This is not expected to impact the test period as the Depreciation Review Committee (“DRC”) would need to have high confidence to recommend a change in the Pickering station service life. The 2013 DRC Report provided at Ex L-6.11-1 Staff-142, Attachment 2, page 3 recommended no change to Pickering station service lives in 2014. The 2014 DRC Report will contain any recommendations impacting 2015. The circumstances identified in the LTEP are not expected to come to fruition in 2014; therefore the DRC would not have sufficient confidence to recommend a change to Pickering Station service life for 2015.

Early shut-down of Pickering would likely result in a change in the nuclear asset retirement obligation and, consequently, asset retirement costs, which, in turn, would also impact depreciation expense over the shorter remaining life of the units. However, the circumstances that would be considered a triggering event pursuant to the ONFA are similarly not expected to come to fruition during the test period.
Board Staff Interrogatory #145

Ref: Exh. F5-3-1 Background

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Gannett Fleming states, “OPG continues to depreciate its regulated assets using a straight line method of depreciation, with the depreciation rates being calculated based on the Average Life Group – Whole Life Procedure.”

a) Please define Average Life Group - Whole Life Procedure by its separate components.

b) Please explain how the Average Life Group – Whole Life Procedure is applied to determine asset service lives and depreciation.

c) Please indicate whether the Average Life Group procedure is applied to the average life on a broad group, vintage year group, equal life group or other group basis to the asset classes. If varying procedures apply, please provide the asset classes to which these procedures are applied and explain the rationale for their use.

d) Is the Average Life Group – Whole Life Procedure applied to nuclear or hydroelectric generating stations? If not, please identify the applicable procedure.

e) Please identify other depreciation procedures used by other regulated power utilities and please explain why they were not recommended for use in the case of OPG.

Response

a) The term “Average Life Group – Whole Life Procedure” is more fully stated as “Average Life Group Procedure – Whole Life Technique”. While also explained below, this approach is defined at p. I-8 of the Gannett Fleming review (Ex. F5-3-1) as cited by Board Staff in Ex. L-6.12-1 Staff-147.

Under the Average Life Group Procedure, which is also known as the Broad Group Procedure, one average service life estimate is applied to all assets and vintages within the asset class. For example, the Gannett Fleming assessment of the average service lives of OPG’s regulated assets dated November 29, 2013 (“the 2013 review”) recommended that an average service life estimate of 55 years be used in calculating depreciation rates for all assets in OPG’s asset class 10318000 – Hydroelectric Gates, Stoplogs and Operating Mechanisms. (Ex. F5-3-1, page III-2)
The Whole Life Technique calculates depreciation on the basis of the entire life of an asset or group of assets, and makes no provision for accumulated depreciation true-ups or adjustments within the depreciation rate. For example, the application of the Whole Life Technique in the circumstances of an asset class with an estimated 10-year average service life estimate would result in an annual depreciation rate of 10% (100% of investment/10 years) being applied to the total original cost of investment of the asset class.

b) The application of the Average Life Group Procedure and Whole Life Technique are described in part a).

The Average Life Group Procedure and Whole Life Technique are part of the approach to determining depreciation rates and depreciation expense, not the basis of establishing asset service lives themselves. In the example provided in the response to part a), the use of the Average Life Group Procedure – Whole Life Technique approach results in a 10% annual depreciation rate. However, the 10-year service life estimate reflected in this depreciation rate would have been determined independently from how this estimate is reflected in the calculation of the depreciation rate.

c) As noted in part a), the Average Life Group Procedure is also known as the Broad Group Procedure and is applied by OPG using asset classes. The average life is therefore applied on a broad group basis and is done consistently across all asset groups. Assets are grouped into asset classes on the basis of similar operating and service life characteristics.

d) The Average Life Group Procedure and Whole Life Technique are applied to both OPG's nuclear and hydroelectric asset classes.

e) Gannett Fleming informed OPG that the Average Life Group Procedure is the most commonly depreciation procedure used by North American utilities and that the Equal Life Group Procedure is also used by a number of North American Utilities. Ex. L-6.12-1 Staff-147 b) discusses why Gannett Fleming does not recommend the Equal Life Group Procedure for OPG.
Board Staff Interrogatory #146

Ref: Exh. F5-3-1 Background

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Gannett Fleming states, “The Average Life Group – Whole Life procedure has been used by OPG for a number of years and has previously been approved by the OEB.” [Emphasis added]

a) Please provide the references to previous proceedings where OPG discussed the specific issue of “Average Life Group – Whole Life procedure” as the basis upon which OPG uses to determine its depreciation and sought the Board approval of this depreciation procedure.

b) Please provide the references in previous proceedings where the Board has explicitly approved the “Average Life Group – Whole Life procedure” for OPG.

Response

a) OPG referred to the ‘group depreciation method’ in EB-2007-0905 in Ex. F3-2-1, page 2. OPG’s approach was considered as part of an independent review prepared by Gannett Fleming Inc., who concluded that OPG’s current practices result in “a reasonable and appropriate amount of depreciation expense” (EB-2007-0905, Ex. F4-2-1). OPG has continued to use this approach which, as noted by Gannett Fleming, reflects a straight line method of depreciation with rates “calculated based on the Average Life Group – Whole Life Procedure” (Ex. F5-3-1 Background). The approach has not changed. Gannett Fleming has simply provided a more fulsome description of how the approach is applied as explained in Ex. L-6.12-1 Staff-45.

b) In the EB-2010-0008 Decision, the Board stated in section 6.4 (page 97) that it was “satisfied with OPG’s approach for the test period”. Regulators typically do not approve each component of an approach to determining an item of expense or revenue.
Board Staff Interrogatory #147

Ref: Exh. F5-3-1 Depreciation Policy Ref: Exh. F4-1-1 Attachment 1 and Ref: Exh. F5-3-1

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Gannett Fleming states, “The use of the Average Life Group - Whole Life Procedure applies the same annual accrual rate to all vintages of plant, which is calculated by dividing 100% by the average service life estimate. As such, a common life estimate is applied to each of the asset vintages, and each of the assets within each vintage. This procedure is widely used by a number of regulated electric utilities throughout North America, and results in a reasonable recovery of capital investment.” (Emphasis added)

Another procedure used is the Equal Life Group, which essentially segregates assets into groups of assets with the same life expectancy and plant-life statistics is derived from the group’s estimated survivor curve.

a) Please describe the difference between the equal life group procedure and the average service life procedure.

b) Does Gannet Fleming believe that the average service life procedure provides a better matching of depreciation than the equal life method? Please explain.

c) Has Gannet Fleming recommended the equal life method in other depreciation studies it has conducted for other regulated utilities, and if so, please provide the reasons for this recommendation?

d) Did Gannett Fleming quantify annual depreciation under the equal life group procedure and the average service life procedure, and if so, what is the difference?

e) For depreciation purposes, please indicate whether regulated electric utilities in North America use the single unit (as opposed to the group) method for materially large readily identifiable assets, such as, nuclear stations or hydroelectric dams, and if so, to what extent is it used?

Response

a) The reference to “average service life procedure” in the question is assumed to be to the Average Life Group (“ALG”) Procedure (also known as the Broad Group Procedure) used by OPG.
In the ALG Procedure, the rate of annual depreciation is based on the average life of a property group, and this rate is applied to all assets in the group. Therefore, using this procedure, depreciation is based on the average service life of a group of assets.

In the Equal Life Group (“ELG”) Procedure, the property group is subdivided according to the age each group will have attained upon retirement. That is, each ELG includes that portion of the property which experiences the service life of that specific group. The relative size of each ELG is determined from the property group’s life dispersion curve. The depreciation for the property group is the summation of the depreciation based on the service life of each ELG.

b) It is the view of Gannett Fleming that the ELG Procedure provides a superior match of the consumption of service values of the assets to the depreciation expense, in the circumstances where sufficient information exists to prepare mortality studies with the selection of retirement dispersion curves (Iowa curves), and where the original vintage of the investment is known.

Gannett Fleming noted in their reviews of OPG’s asset service lives that these are not OPG’s circumstances, as follows:

In the specific circumstances of the OPG average service life estimation, the volume of historic retirement transactions available to be analyzed is not sufficient to undertake a detailed study of retirement history. As such, a retirement rate analysis was not completed by Gannett Fleming. However, all of the remaining life estimate tools were available and were used to develop appropriate average service life estimates. (Ex. F5-3-1, p. II-11 and Ex. F4-1-1, Att. 1, p. II-9)

Gannett Fleming provided a similar assessment in their review of OPG’s depreciation review process dated March 1, 2007, noting the following:

[...] a number of OPG’s generation assets, which may normally lend themselves to statistical retirement analysis, are not studied using statistical methods by OPG due, in large part, to the fact that these assets have been re-valued for financial and regulatory reporting purposes as at April 1, 1999 (the date on which OPG was formed and effectively purchased the assets from the former Ontario Hydro). As such, much of the original cost and retirement history that would be required in order to perform a statistical retirement analysis would need to be re-created. Even in the circumstances that this data could be re-created, the development of this data would be cost prohibitive, and, in the view of Gannett Fleming, would not provide sufficient additional benefit to warrant the cost associated with its development. (EB-2007-0905, Ex. F4-2-1, p. II-7)

Gannett Fleming is also of the view that a review of depreciation procedures should consider the historical practices of the regulatory jurisdiction and practices of the utility. A number of utilities regulated by the OEB, including Enbridge Gas Distribution and Union...
Gas, and utilities in a number of other North American jurisdictions use the ALG Procedure. OPG has used this procedure since its inception and, in Gannett Fleming’s view, given the considerations cited above, it is appropriate for OPG to continue doing so. Gannett Fleming is not aware of any specific regulatory, operational or legislative reason to recommend a change to OPG’s procedure at this time.

c) Yes, in regulatory jurisdictions where the use of the ELG Procedure is accepted, and in the circumstances where available datasets support the use of the ELG Procedure, Gannett Fleming encourages the use of this procedure, as it provides a superior match of the consumption of service values of the assets to the depreciation expense.

d) No.

e) As noted in Ex. L-6.12-1 Staff-145 e), the ALG and ELG Procedures are the most commonly used procedures by North American utilities. Gannett Fleming informed OPG that the Individual Unit Procedure is virtually not used by U.S. utilities and is not commonly used by Canadian utilities.
Board Staff Interrogatory #148

Ref: Exh. F5-3-1 Depreciation Policy Ref: Exh. F4-1-1 Attachment 1 and Ref: Exh. F5-3-1

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

In theory, with respect to the vintage group and equal life group, there will be no asset retirement dispersion, if all assets are retired at exactly the same average service life. However, this is not reality.

The retirement dispersion of assets is generally as follows:

- Half will retire before the average service life
- A portion will retire at the around the average service life
- The reminder will retire longer

a) Did Gannett Fleming use empirical data including Iowa curves (or other curves) to determine the need for any changes to the service lives of OPG fixed assets?
b) Please provide a detailed summary of the empirical data, Iowa curves (or other curves), the best fit service-life, and analysis used in the two depreciation studies.

Response

a) No, as discussed further in the response to Ex. L-6.12-1 Staff-147 b).
b) As retirement dispersion curves were not recommended in these reviews, empirical historic retirement data was not collected. As Iowa Curves were not used, a best fit analysis was not completed.
Board Staff Interrogatory #149

Ref: Exh. F4-1-1 Attachment I and Exh. F5-3-1

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

In its EB-2010-0008 Decision with Reasons, the Board directed OPG to file an independent depreciation study at the next [payment order] proceeding. The Board also stated that such a study provides assurance to the Board and all parties that the depreciation and amortization expenses, which are significant, are reasonable. In this proceeding, OPG has filed two depreciation studies, covering the prescribed assets for the periods as at December 31, 2010 (“2011 depreciation study”) and as at December 31, 2012 (“2012 depreciation study”).

a) Please provide a summary of changes made to the asset service lives resulting in charges to depreciation and amortization expenses for ratemaking purposes since the last payment order proceeding EB-2010-0008.

b) Please explain why OPG made changes to asset service lives resulting in charges to depreciation and amortization expenses given that OPG was specifically directed by the Board to file an independent depreciation study in its next proceeding which would be subject to the Board’s review and approval before any proposed changes are permitted for ratemaking purposes?

c) Please clarify whether the impact of the changes made to the end of life for Bruce A and B stations resulting in a net decrease in depreciation expense of approximately $35M in 2013, exclusive of the impacts of the December 31, 2012 ARC adjustment, were recorded in the Bruce Lease Variance Account. (Exh F4-1-1 page 8)

Response

a) There have been changes to both station end-of-life dates and asset class service lives, for depreciation purposes, since EB-2010-0008. These changes were made pursuant to recommendations by OPG’s Depreciation Review Committee and include changes recommended by Gannett Fleming in the 2011 depreciation study. The changes to nuclear station end-of-life dates, for depreciation purposes, are summarized at Ex. F4-1-1, section 3.3. The changes to the nuclear station end-of-life dates were also discussed in EB-2012-0002. The changes to asset class service lives pursuant to the 2011 depreciation study are as outlined in Ex. L-6.12-1 Staff-153.

b) OPG makes changes to the asset service lives when it has better information with appropriate confidence, in order to ensure that the depreciation expense reflected in its

Witness Panel: Finance, D&V Accounts, Nuclear Liabilities
financial statements prepared in accordance with USGAAP and, by extension, the forecast financial results in the business plan are fairly stated. To that end, as discussed in Ex. F4-1-1 page 5 and noted in Ex. L-6.11-1 Staff-142, Attachment 1, OPG regularly convenes a cross-functional internal Depreciation Review Committee (“DRC”) that examines service life estimates. Recommendations of the DRC are subject to approval by the Approvals Committee, which comprises OPG’s senior executives. Approved service life changes are implemented in OPG’s financial records and business plan on a timely basis. As noted in Ex. F4-1-1, page 5, lines 25 - 27, “OPG's DRC review process was found by Gannett Fleming to be procedurally sound and meeting generally accepted regulatory objectives regarding depreciation.”

The OEB’s direction in EB-2010-0008 did not instruct OPG not to make any changes to asset service lives until the OEB has reviewed the changes recommended by the studies in the next proceeding. As noted above, the results of the 2011 depreciation study were incorporated into the 2011 DRC recommendations which were accepted by the Approvals Committee and incorporated into OPG’s 2013 - 2015 Business Plan accordingly. As OPG has filed its Application on the basis of the 2013 - 2015 Business Plan, it could not have reflected the results of the 2012 depreciation study as it was not completed until November 2013. These results are also not reflected in the Impact Statement (Ex. N1-1-1), as OPG only updated evidence for material changes, as explained in that exhibit. As shown in Ex. L-6.12-1 Staff-156 a), the net annual impact on depreciation expense of the changes resulting from the 2012 depreciation study is a decrease of $0.2M, which is not material.

c) Confirmed.
Board Staff Interrogatory #150

Ref: Exh. F4-1-1 Attachment I, page I-6

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Gannett Fleming also notes that through the process of implementing “Internal Financial Reporting Standards (“IFRS”), OPG reviewed its listing of accounts in order to comply with the componentization requirements of the International Accounting Standard No. 16. (IAS 16) OPG determined that no changes to the accounts were required.

a) Please provide the documentary evidence including reports and analysis showing that OPG determined that no changes to the accounts were required for the componentization requirements under IAS 16.

b) Please provide the documentary evidence showing that OPG’s Approvals Committee, senior management or external auditors reviewed and concurred with this conclusion that OPG’s componentization was in compliance with IAS 16.

Response

OPG declines to provide the information requested.

OPG’s application to adopt USGAAP for regulatory accounting, reporting and ratemaking purposes was accepted by the OEB in EB-2012-0002. OPG’s current application is prepared on the basis of USGAAP based information. OPG’s analysis and related approvals with respect to the compliance of its current accounts with a different accounting standard is not relevant to OPG’s Application.
**Board Staff Interrogatory #151**

Ref: Exh F5-3-1  Review of Accounting Policies

**Issue Number:** 6.12

**Issue:** Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

**Interrogatory**

2012 Depreciation Study states: “Gannett Fleming also notes that any amount of cost of removal (that is not associated with the retirement of an asset for which an Asset Retirement Obligation [“ARO”] is established) is charged directly to the income statement in the year of the transaction. Both the recording of gains and losses to income and the charging of cost of removal to income is in accordance with the provisions of US GAAP. As previously noted in the 2011 Depreciation Study (page II-7), while these are not the traditional practices of regulated utilities, Gannett Fleming believes that the nature of the large plant components and small amount of retirement transactions make this policy viable and reasonable for OPG.”

a) For assets grouped (excluding assets with AROs) for purposes of the depreciation provision, please identify and indicate the traditional practices of regulated utilities in Canada and the United States of America for any amount of cost of removal.

b) Please provide the reasons for OPG’s departure from the traditional practices of regulated utilities.

c) Did OPG adopt this accounting change in 2011 due to its intent at the time to adopt IFRS?

d) Why did OPG not seek prior authorization of the Board for this accounting change for ratemaking purposes?

e) How are gains and losses treated for ratemaking purposes and what amounts are included in the test period by year?

f) What is the cost of removal treatment for Asset Retirement Obligations?

g) Is the change in accounting policy applicable to group assets, higher valued units or both?

**Response**

a) The traditional rate making treatment for removal costs incurred for existing assets without asset retirement obligations (“ARO”) is to include a negative salvage value percentage as a component of depreciation rates, by dividing the expected cost to remove the asset by the original installed cost of an asset. Therefore, estimated removal costs are recovered over the life of the asset through depreciation expense for rate making purposes.
The accounting treatment of non-ARO removal costs is generally to expense the costs in the period incurred. This is because non-ARO removal costs do not have future benefits and are not accrued. The regulatory treatment of recognizing negative salvage values in depreciation expense is not allowed for accounting purposes under USGAAP.

In accordance with Financial Accounting Standards Board ASC 980, *Regulated Operations*, regulated utilities would account for the above timing mismatch between rate-making and accounting with respect to non-ARO removal costs by recognizing a regulatory liability for amounts recovered prior to the costs being incurred. The regulatory liability would be reduced as the removal costs are incurred.

b) Refer to part c) regarding OPG’s approach with respect to gains and losses on retirement.

OPG has not departed from the typical accounting treatment of non-ARO removal costs in accordance with USGAAP, as OPG expenses these costs as incurred. The excerpt cited in the question refers to the rate making treatment of the costs. OPG effectively recovers the non-ARO removal costs on a “pay as you go” basis. While this is not the most widely used practice, Gannett Fleming informed OPG that a number of North American utilities recover removal costs on this basis and, as noted in the cited excerpt, found that this approach is reasonable for OPG.

Specifically, the negative salvage value rate-making treatment would not be applicable to OPG’s nuclear assets, as they are already subject to ARO accounting. And this treatment has not been implemented for OPG’s hydroelectric assets because the removal costs cannot be reasonably estimated at this time, given their long service lives (as noted in Note 8 to OPG’s 2012 audited consolidated financial statements at Ex. A2-1-1, Attachment 1, page 106).

Furthermore, even if an assumed amount of removal costs for the hydroelectric assets was used, the use of negative salvage value in depreciation rates would require OPG to calculate different rates for regulated and unregulated assets of the same hydroelectric asset class (as OPG cannot apply ASC 980 to its unregulated operations). This would require OPG to maintain two different depreciation accounting processes, including periodic reviews of asset service lives. Given the relatively low amounts of removal costs currently being incurred by OPG with respect to its hydroelectric assets and their mostly long lives, the additional effort required to implement the negative salvage value approach is not warranted.

c) OPG did not change its accounting treatment of removal costs. This treatment was previously described in EB-2007-0905 Ex. F3-2-1, page 2, lines 13 - 19 and EB-2010-0008, Ex. F4-1-1, page 2, line 26 to page 3, line 2.

As noted at Ex. F4-1-1, pp. 4 - 5, only the presentation of removal costs has changed, as they were previously reported as part of depreciation expense, whereas they are now reported as part of OM&A. In both instances, the costs are expensed as incurred.
OPG's adoption in 2011 of the approach of charging all retirement gains and losses to the income statement as incurred was informed by a desire to simplify internal processes, in conjunction with adopting IFRS. The new approach is simpler because OPG is no longer required to assess whether the gains and losses should be charged to the income statement due to their premature nature, or whether they should continue to be embedded in accumulated depreciation. This assessment was required as part of OPG’s previous approach, as discussed in Ex. F4-1-1, page 4, lines 7 - 13.\(^1\) Specifically, under the previous approach, OPG charged to the income statement the full amount of the gain or loss in the year incurred, if it was determined that it resulted from a premature retirement, (i.e., the asset was being retired significantly in advance of the end of the asset class life).

As noted in the preamble to the question, OPG’s simplified approach with respect to retirements has been found by Gannett Fleming to be reasonable in OPG’s circumstances, and is also in accordance with USGAAP. As noted at Ex. F4 -1-1, page 4, lines 15 - 16 the majority of OPG’s retirements were premature retirements and therefore were already immediately being charged to the income statement.

d) Refer to Ex. L-1.3-1 Staff-006 c).

e) OPG’s rate-making treatment of gains and losses on retirement is the same as OPG’s accounting treatment of such gains and losses. As in EB-2007-0905 and EB-2010-0008, a forecast of the full amount of gains and losses on retirement expected to be charged to the income statement in the test period is included in the proposed revenue requirement, as these gains and losses are included in OPG’s business plans, like any other expense.

As shown at Ex. F4-1-1, Table 1, line 4 for the previously regulated hydroelectric assets and line 10 for the newly regulated hydroelectric assets, and Ex F4-1-1, Table 2, line 6 for the nuclear assets, the total forecast amount of gains and losses is an expense of $6.7M in 2014 and $7.0M in 2015. The above amounts would have been included in the 2014 - 2015 revenue requirement under OPG’s previous approach to the treatment of the gains and losses, as they would have been considered to be associated with premature retirements. As such, OPG’s change in approach effectively does not impact the 2014,- 2015 revenue requirement.

f) A description of accounting for OPG’s nuclear asset retirement obligation can be found in EB-2010-0008, Ex. C2-1-2, section 3.1.

g) The change in the treatment of gains and losses on retirement is applicable to all assets.

\(^1\) Both the new and old approach to retirements is made possible by the fact that, where possible, OPG tracks individual assets within each asset class (as noted in L-6.12-1 Staff-158).
Board Staff Interrogatory #152

Ref: Exh. F4-1-1 and Ref: Exh. F5-3-1

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Please confirm whether or not OPG’s Approvals Committee or senior management has accepted and adopted all the recommendations of Gannet Fleming in its two depreciation studies for 2011 and 2012 including the specific recommendation that OPG should conduct an independent depreciation study every five years.

Response

Confirmed.
Board Staff Interrogatory #153

Ref: Exh. F4-1-1 Attachment 1 page I-6

Issue Number: 6.12
Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

As described in the Results section of this report, Gannett Fleming recommends changes to the average service life estimates for three accounts as follows:

- Account 10400 – Hydroelectric – Turbines and Governors – from the currently approved 75 years to 70 years;
- Account 10210 – Hydroelectric – Service and Equipment Buildings – from the currently approved 50 years to 55 years;

a) For the above-noted accounts, please provide the NBV (including gross plant and accumulated depreciation), the previous average service life estimate, the previous annual depreciation expense, the new annual depreciation expense and the net change.
b) Did Gannett Fleming use empirical data including Iowa curves to determine the need for these changes? If so, please provide the information. If not, please explain.

Response

a) The requested information is presented below using December 31, 2013 data ($M):

<table>
<thead>
<tr>
<th>HYDROELECTRIC¹,²</th>
<th>Asset Class</th>
<th>Gross Plant</th>
<th>Accumulated Depreciation</th>
<th>Net Book Value</th>
<th>Previous Average Service Life (years)</th>
<th>Estimated Previous Annual Depreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>10400000</td>
<td>322.0</td>
<td>(106.0)</td>
<td>216.0</td>
<td>75</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>10210000</td>
<td>128.8</td>
<td>(28.7)</td>
<td>100.0</td>
<td>50</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td>10720000</td>
<td>4.6</td>
<td>(2.4)</td>
<td>2.2</td>
<td>30</td>
<td>0.9</td>
</tr>
</tbody>
</table>

¹,² Includes Iowa Curves
**New Average Service Life (years)**

<table>
<thead>
<tr>
<th></th>
<th>70</th>
<th>55</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Estimated New Annual Depreciation</strong></td>
<td>9.1</td>
<td>2.1</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Net Change</strong></td>
<td>0.6</td>
<td>(0.2)</td>
<td>0.6</td>
</tr>
</tbody>
</table>

1. Numbers may not calculate due to rounding
2. Includes newly regulated hydroelectric assets

**b)** The process followed by Gannett Fleming in assessing the average service lives of OPG’s regulated assets is described in the Gannett Fleming report dated December 16, 2011 ("2011 review") and provided at Ex. F4-1-1, Attachment 1, starting at page II-3. As described in the response to Ex. L-06.12-1 Staff-147 b), Gannett Fleming did not select or recommend retirement dispersion curves in either the 2011 review or the similar review in the report dated November 29, 2013 and provided in Ex. F5-3-1. As such, a retirement rate analysis was not prepared, and empirical historic retirement data was not collected.

The factors specifically related to the recommendations with respect to each of the three referenced accounts are detailed in the Appendix to the 2011 review (Ex. F4-1-1, Attachment 1, pp. A-1 - A-4).
Board Staff Interrogatory #154

Ref: Exh. F5-3-1 Depreciation Policy

Issue Number: 6.12
Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Gannett Fleming states, “Depreciation related to the nuclear asset classes continues to be based on the lesser of the generation station life or asset class life.

a) Please clarify the difference between generation station life and asset class life.

b) Please explain how this depreciation method of lesser of the generation station life or asset class life is applied in relation to OPG’s nuclear stations.

Response

a) Nuclear generation station life represents the estimated average operating life of the station, for depreciation purposes, based on an estimated end-of-life date. As explained at Ex. F4-1-1, page 3, this date is established taking into account an assessment of the remaining life of life-limiting components of the station, such as fuel channels.

Asset class life represents the estimated life, for depreciation purposes, of a particular type of asset, such as buildings and structures, which are a component of the station. Nuclear asset class lives can extend beyond the nuclear station end-of-life dates.

c) Where the application of a particular nuclear asset class results in an asset being depreciated over a period that extends beyond the average expected operating life of the station to which it relates, the depreciation period is capped by the estimated station end-of-life date. Where the application of a particular asset class life does not extend the depreciation period beyond that date, the asset is depreciated over the asset class life.
Board Staff Interrogatory #155

Ref: Exh. F5-3-1 Depreciation Policy

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Gannett Fleming states, “Given that the major operating components at the Darlington plant are expected to be refurbished in the near future, Gannett Fleming finds that the December 31, 2051 date continues to be reasonable, as recommended in the 2012 DRC review. Please provide the reference to this recommendation in the 2012 DRC review.

Response

The report on 2012 DRC recommendations can be found in EB-2012-0002, Ex. L-2-2 AMPCO-06, Attachment 1. The referenced recommendation with respect to the Darlington station is found at page 3 (recommendation 3) of the memorandum of the Depreciation Review Committee for Regulated Business dated December 2012, under the heading “Recommendations for Prescribed Nuclear Facilities.”
Board Staff Interrogatory #156

Ref: Exh. F5-3-1 Attachment I Part I

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Gannett Fleming recommended six changes to the average service life estimates, as follows:

- Account 10318000 – Hydroelectric – Gates, Stoplogs and Operating Mechanisms – Change average service life estimate from the currently approved 50 years to 55 years;
- New Account – Hydroelectric – Roofing – Create a new plant account with an average service life estimate of 30 years;
- New Account – Hydroelectric – Fencing – Create a new plant account with an average service life estimate of 25 years;
- New Account – Nuclear – Roofing – Create a new plant account with an average service life estimate of 25 years;
- New Account – Nuclear – Large Circulating Water Motors (greater than 200Hp) – Create a new plant account with an average service life estimate of 30 years; and
- Reclassification of assets for nuclear turbine generator controls from existing Account 15411100 – Turbines and Auxiliaries with a 55-year average service life to existing Account 15600000 – Nuclear – Instrumentation and Control with a 15-year average service life.

a) For the above-noted accounts, please provide the NBV (including gross plant and accumulated depreciation), the previous average service life estimate, the previous annual depreciation expense, the new annual depreciation expense and the net change.

b) Did Gannett Fleming use empirical data including Iowa curves to determine the need for these changes? If so, please provide the information. If not, please explain.

Response

a) The requested information is presented below using December 31, 2013 data ($M).
<table>
<thead>
<tr>
<th>Asset Class</th>
<th>10318000</th>
<th>New Account</th>
<th>New Account</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Hydroelectric – Gates, Stoplogs &amp; Operating Mechanisms</td>
<td>Hydroelectric – Roofing</td>
<td>Hydroelectric – Fencing</td>
</tr>
<tr>
<td>Gross Plant</td>
<td>489.3</td>
<td>18.1</td>
<td>4.1</td>
</tr>
<tr>
<td>Accumulated Depreciation</td>
<td>(113.3)</td>
<td>(5.0)</td>
<td>(0.2)</td>
</tr>
<tr>
<td>Net Book Value</td>
<td>376.1</td>
<td>13.1</td>
<td>4.0</td>
</tr>
<tr>
<td>Previous Average Service Life (years)</td>
<td>50</td>
<td>50 to 100</td>
<td>100</td>
</tr>
<tr>
<td>Estimated Previous Annual Depreciation</td>
<td>9.5</td>
<td>0.4</td>
<td>0.0</td>
</tr>
<tr>
<td>New Average Service Life (years)</td>
<td>55</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>Estimated New Annual Depreciation</td>
<td>8.7</td>
<td>0.8</td>
<td>0.2</td>
</tr>
<tr>
<td>Net Change</td>
<td>(0.9)</td>
<td>0.4</td>
<td>0.1</td>
</tr>
</tbody>
</table>
### NUCLEAR

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>New Account</th>
<th>New Account</th>
<th>15411100 (partial)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Nuclear – Large Circulating Water Motors</td>
<td>Nuclear – Roofing</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Nuclear – Roofing</td>
<td>Nuclear – Turbine Generator Controls</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Plant</td>
<td>7.8</td>
<td>0.1</td>
<td>5.2</td>
</tr>
<tr>
<td>Accumulated Depreciation</td>
<td>(0.0)</td>
<td>(0.0)</td>
<td>(3.4)</td>
</tr>
<tr>
<td>Net Book Value</td>
<td>7.8</td>
<td>0.0</td>
<td>1.9</td>
</tr>
<tr>
<td>Previous Average Service Life (years)</td>
<td>55</td>
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<td>Estimated Previous Annual Depreciation</td>
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<td>New Average Service Life (years)</td>
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<td>Net Change</td>
<td>0.1</td>
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</tr>
</tbody>
</table>

1 Numbers may not calculate due to rounding
2 Includes newly regulated hydroelectric assets
3 Amounts represent estimates as at December 31, 2013. Final amounts are to be determined upon completion of the detailed processing of asset class life changes in the fixed asset sub-ledger in 2014.

b) The process followed by Gannett Fleming in assessing the average service lives of OPG’s regulated assets is described in the Gannett Fleming report dated November 29, 2013 (“2013 review”) and provided at Ex. F5-3-1, starting at page II-3. As described in the response to Ex. L-6.12-1 Staff-147 b), Gannett Fleming did not select or recommend retirement dispersion curves in either the 2012 review or the similar review in the report dated December 16, 2011 and provided at Ex. F4-1-1, Attachment 1. As such, a retirement rate analysis was not prepared, and empirical historic retirement data was not collected.

The factors specifically related to the recommendations with respect to each of the six referenced accounts are detailed in the Appendix to the 2013 review, at pp. A1-2 - A1-8.
Board Staff Interrogatory #157

Ref: Exh. F5-3-1 Schedule 1A and Schedule 1B

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Please provide the account descriptions including the nature of the costs that are recorded in each of the accounts listed in the schedules.

Response

Attachment 1 and 2 provide the account descriptions including the nature of the costs recorded in each of the asset class accounts listed in Ex. F5-3-1- Schedule 1A and 1B, respectively.
### Account Descriptions of Hydroelectric Asset Classes

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Account Class Title and Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10200000</td>
<td>HYDROELECTRIC - SUBSTRUCTURES AND SUPERSTRUCTURES</td>
</tr>
<tr>
<td></td>
<td>Concrete, masonry, brick, metal clad (aluminum) - Substructures and control works superstructures of powerhouse including excavating, piling, shoring, bridging, backfilling, finish and unfinished floor on which superstructure stands and fixtures permanently built in. Outside unit covers for generators.</td>
</tr>
<tr>
<td>10101000</td>
<td>HYDROELECTRIC - EXCAVATION, DREDGING, RIPRAPPING AND GROUTING</td>
</tr>
<tr>
<td></td>
<td>Excavation (not included in other asset classes), dredging, riprapping and grouting of canals, tunnels, shafts, tailraces, dams, reservoirs, river improvement and dredging.</td>
</tr>
<tr>
<td>10312000</td>
<td>HYDROELECTRIC - DAMS - CONCRETE</td>
</tr>
<tr>
<td></td>
<td>Concrete dams including excavation and embedded parts for control equipment.</td>
</tr>
<tr>
<td>10318000</td>
<td>HYDROELECTRIC - GATES, STOPLOGS AND OPERATING MECHANISMS</td>
</tr>
<tr>
<td></td>
<td>Gates, stoplogs and operating mechanisms (also emergency gates) - Includes installed cost of gates and operating mechanism but not the checks, gains or embedded parts, the costs of which are included in the cost of the structure.</td>
</tr>
<tr>
<td>10306000</td>
<td>HYDROELECTRIC - SURGETANK, PIPELINE, CONDUIT, PENSTOCK</td>
</tr>
<tr>
<td></td>
<td>Surgetank, pipeline, conduit, penstock - Includes excavation, supports, anchors and embedded parts, timber housing and heating equipment.</td>
</tr>
<tr>
<td>10400000</td>
<td>HYDROELECTRIC - TURBINES AND GOVERNORS</td>
</tr>
<tr>
<td></td>
<td>Turbines and governors, hydraulic valves and hydraulic cording and measuring equipment - Includes main and service turbines and those used both as turbines and pumps.</td>
</tr>
<tr>
<td>10501000</td>
<td>HYDROELECTRIC - MAIN ROTATIONAL ELECTRICAL EQUIPMENT - LESS WINDINGS</td>
</tr>
<tr>
<td></td>
<td>Main rotational electrical equipment - all costs except the stator and rotor windings of generators, exciters, synchronous condensers, frequency converters which all belong in asset class 10500000.</td>
</tr>
<tr>
<td>10301000</td>
<td>HYDROELECTRIC - LINING OF TUNNELS AND PERMANENT SHAFTS</td>
</tr>
<tr>
<td></td>
<td>Lining of tunnels and permanent shafts – concrete or steel lining only, excavation and grouting belong in asset class 10101000.</td>
</tr>
<tr>
<td>10510000</td>
<td>HYDROELECTRIC - MAIN POWER AND STATION SERVICE - TRANSMISSION</td>
</tr>
<tr>
<td></td>
<td>Main power and station service – transformers including installation.</td>
</tr>
<tr>
<td>10500000</td>
<td>HYDROELECTRIC - MAIN ROTATIONAL ELECTRICAL EQUIPMENT - WINDINGS</td>
</tr>
<tr>
<td></td>
<td>Main rotating electrical equipment - windings - stator and rotor windings only of generators, exciters, synchronous condensers, frequency converters.</td>
</tr>
<tr>
<td>10311000</td>
<td>HYDROELECTRIC - DAMS - EARTH AND ROCKFILL</td>
</tr>
<tr>
<td></td>
<td>Dams - earth and rockfill includes excavation but not riprap which belongs in asset class 10101000.</td>
</tr>
<tr>
<td>10405000</td>
<td>HYDROELECTRIC - TURBINE RUNNERS</td>
</tr>
<tr>
<td></td>
<td>Turbine runners</td>
</tr>
<tr>
<td>10210000</td>
<td>HYDROELECTRIC - SERVICE AND EQUIPMENT BUILDINGS</td>
</tr>
<tr>
<td></td>
<td>Service and Equipment Buildings – Complete excavation, building and costs of services including concrete lining but excludes excavation of access tunnels and shafts which belongs in asset class 10101000.</td>
</tr>
<tr>
<td>10502000</td>
<td>HYDROELECTRIC - BUS, SWITCHING AND POWER CABLE</td>
</tr>
<tr>
<td></td>
<td>Bus, switching and power cable - switchgear, instrument transformers and busses operated at generator voltage and power service cable at greater than 600V and less than 115kV (excludes control boards and switch-boards which belong in asset class 10504000).</td>
</tr>
<tr>
<td>10300000</td>
<td>HYDROELECTRIC - CANAL, FOREBAY, RETAINING WALL LINING</td>
</tr>
<tr>
<td></td>
<td>Canal, forebay, retaining wall lining and tailraces - Linings of concrete, steel piling, and timber piling only. Excavation, riprap, and grouting costs belong in asset class 10101000.</td>
</tr>
<tr>
<td>10504000</td>
<td>HYDROELECTRIC - CONTROL BOARDS AND SWITCHBOARDS</td>
</tr>
<tr>
<td></td>
<td>Control boards and switchboards – Includes boards for control instrumentation meters, exciters, relays, terminal racks and connectors.</td>
</tr>
</tbody>
</table>

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Filed: 2014-03-19
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Exhibit L
Tab 6.12
Schedule 1 Staff-157
Attachment 1
<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Account Class Title and Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10700000</td>
<td>HYDROELECTRIC - AUXILIARY SYSTEMS</td>
</tr>
<tr>
<td></td>
<td>Auxiliary Systems -</td>
</tr>
<tr>
<td></td>
<td>LIGHTING INSTALLATION - Lighting transformers, outdoor lighting fixtures, control panels, wiring from lighting control panels, and wiring from lighting outlets to isolated control panels for structures other than those charged to asset class 10210000.</td>
</tr>
<tr>
<td></td>
<td>HEATING - Central heating equipment up to exterior entrance of buildings - includes excavation ducts, pipes, valves, pumps and cost of heating equipment for buildings other than those charged to asset class 10210000.</td>
</tr>
<tr>
<td></td>
<td>VENTILATING EQUIPMENT - Ducts, ventilators, fans, filters, air-conditioning equipment, etc. for buildings other than those charged to 10210000.</td>
</tr>
<tr>
<td></td>
<td>COMPRessed AIR SYSTEMS - Including compressors, drives, piping, valves, tanks, control gear, etc.</td>
</tr>
<tr>
<td></td>
<td>WATER SYSTEMS - Pumps, wells, screens, filters, chlorinators, flow indicators, piping and fittings, tanks, water cooling equipment.</td>
</tr>
<tr>
<td></td>
<td>COLONY WATER SYSTEMS - Excavation, backfilling, hydrants, chlorinators, filters, wells, pumps, water towers, piping and fittings from source of supply up to exterior of colony buildings.</td>
</tr>
<tr>
<td></td>
<td>DRAINAGE AND SERVICE DEWATERING PUMPS - Pumps complete with drives installed in fixed locations, also foundations if not included in buildings.</td>
</tr>
<tr>
<td></td>
<td>OUTDOOR SANITATION AND DRAINAGE - Excavation, disposal beds and tile, septic tanks, backfilling, and plumbing from building to septic tank and chlorinators.</td>
</tr>
<tr>
<td></td>
<td>OIL AND GREASING SYSTEMS - Includes piping, valves, pumps, filters, storage, tanks, centrifuges, etc.</td>
</tr>
<tr>
<td></td>
<td>DISTRIBUTION SYSTEM - Poles, crossarms, guys, insulators, insulator pins, conductor, distribution, transformers, service connections, meters, street lighting and electric supply to operators colony, service buildings, remote control works, and receptacles for block heaters.</td>
</tr>
<tr>
<td></td>
<td>AUXILIARY POWER EQUIPMENT - Diesel or gas generating sets for auxiliary emergency power.</td>
</tr>
<tr>
<td></td>
<td>FIXED TOOLS - Lathes, drills, shapers, etc permanently located at stations.</td>
</tr>
<tr>
<td></td>
<td>SERVICE DEWATERING PUMPS - Pumps including drive when not permanently installed in fixed location.</td>
</tr>
<tr>
<td>10302000</td>
<td>HYDROELECTRIC - SPILLWAYS, SLUICES, FLUMES</td>
</tr>
<tr>
<td></td>
<td>Spillways, sluices, flumes - concrete steel, timber - Includes excavation, supports, checks for control equipment, trash booms, embedded parts, anchors, chains, etc for slides, trash chutes, fishways, ice chutes.</td>
</tr>
<tr>
<td>10100000</td>
<td>HYDROELECTRIC - LAND</td>
</tr>
<tr>
<td></td>
<td>Purchase price of land, including all site-preparation costs to bring it to required condition e.g. property survey, legal expenses (tree trimming rights, land or other damage claims), site improvement such as grading, drainage, clearing, landscaping, boundary fencing, retaining walls. Also includes permanent roads (owned) and related costs e.g. excavating culverts, ditching, grading, surfacing, etc.</td>
</tr>
<tr>
<td>10709000</td>
<td>HYDROELECTRIC - OWNED BRIDGES, RAILWAY TRACK, WHARVES</td>
</tr>
<tr>
<td></td>
<td>Owned bridges, railway track, wharves, docks and piers. Related excavation, grading and right-of-way costs belong in asset class 10100000.</td>
</tr>
<tr>
<td>10505000</td>
<td>HYDROELECTRIC - STATION SERVICE ELECTRICAL EQUIPMENT</td>
</tr>
<tr>
<td></td>
<td>Station service electrical equipment - Includes equipment, conduit, control and service cable and grounding material (600V and below), cable pans and racks, concrete trenches, underground duct system and tunnels for cables and piping, as well as batteries (125-250V).</td>
</tr>
<tr>
<td>10601000</td>
<td>HYDROELECTRIC - MECHANICAL EQUIPMENT - CRANES AND FOLLOWERS</td>
</tr>
<tr>
<td></td>
<td>Mechanical equipment - Cranes and followers, hoists and followers, monorail hoists, winches, elevators and transfer trucks. Complete installation including rails.</td>
</tr>
<tr>
<td>10205000</td>
<td>HYDROELECTRIC - OUTDOOR STRUCTURES</td>
</tr>
<tr>
<td></td>
<td>Outdoor structures including steel and timber and concrete footings and foundations, structures erected at powerhouses, control works, intake works, headworks, gatehouses, transformation, switching, timber or wood pole structures for transformation or switching.</td>
</tr>
<tr>
<td>10710000</td>
<td>HYDROELECTRIC - FIRE PROTECTION SYSTEMS</td>
</tr>
<tr>
<td></td>
<td>Fire fighting equipment - CO₂ vapour or water pressure, extinguishing systems, pipes, valves, sprinklers, hydrants, nozzles, fire hose, tanks, containers, fire pumps, deluge systems, fire alarm systems.</td>
</tr>
<tr>
<td>10503000</td>
<td>HYDROELECTRIC - HIGH VOLTAGE SWITCHING</td>
</tr>
<tr>
<td></td>
<td>High voltage switching - Switching equipment (excluding cable) on high voltage side (115kV to 500 kV, inclusive) of the main transformers and which is located at transformer or switchgear structures. Includes disconnecting switches potential devices lighting arresters, protective gaps, strain and rigid busses including insulators and connectors.</td>
</tr>
<tr>
<td>10503100</td>
<td>HYDROELECTRIC - REVENUE METERING - HIGH VOLTAGE SWITCHING, CONTROL BOARDS AND SWITCHBOARDS</td>
</tr>
<tr>
<td></td>
<td>Revenue metering - High voltage switching and control boards and switchboards.</td>
</tr>
<tr>
<td>10311000</td>
<td>HYDROELECTRIC - DAMS - TIMBER CRIB</td>
</tr>
<tr>
<td></td>
<td>Dams - Timber and timber crib rock filled - Includes excavation but not riprap which belongs in asset class 10101000.</td>
</tr>
<tr>
<td>16210000</td>
<td>ADMINISTRATION AND SERVICE BUILDINGS - PERMANENT BLDGS. ROADS AND SITE IMPROVEMENT</td>
</tr>
<tr>
<td></td>
<td>Administration and Service Buildings - Permanent buildings, roads, site improvement, auxiliary structures, hoists, skips and elevators.</td>
</tr>
<tr>
<td>10991000</td>
<td>HYDROELECTRIC - MAJOR SPARES</td>
</tr>
<tr>
<td></td>
<td>Various material and/or equipment costing $200K or more for each unit which are expected to be usable for more than one year, or spare parts that can be used in connection with an item of a Property, Plant and Equipment.</td>
</tr>
<tr>
<td>10315000</td>
<td>HYDROELECTRIC - STEEL RACKS</td>
</tr>
<tr>
<td></td>
<td>Steel Racks - Embedded parts to be included with structures where racks are installed.</td>
</tr>
<tr>
<td>Asset Class</td>
<td>Account Class Title and Description</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------</td>
</tr>
</tbody>
</table>
| 10302100   | HYDROELECTRIC - PUBLIC SAFETY/WARNING BOOMS  
All public safety/warning booms - Floating boom either upstream or downstream of a facility where the primary function is to act as a barrier to the public. |
| 16550000   | ADMINISTRATION AND SERVICE BUILDINGS - LAN CABLE  
Administration and Service Buildings - LAN cable. |
| 10531000   | HYDROELECTRIC - CIRCUIT BREAKERS  
Circuit Breakers - Equipment and installation costs. |
| 10720000   | HYDROELECTRIC - SECURITY SYSTEMS  
Electronic Security Systems |
| 16100000   | ADMINISTRATION AND SERVICE BUILDINGS - LAND  
Administration and Service Buildings - Land - Purchase price and acquisition costs. |
| 16560100   | ADMINISTRATION AND SERVICE BUILDINGS - ADMINISTRATIVE SYSTEMS SOFTWARE  
Administration and Service Buildings - Administrative system software. |
| 16230000   | ADMINISTRATION AND SERVICE BUILDINGS - FRAME & METAL  
Administration and Service Buildings - frame and metal clad - Including excavation, substructure or foundation and all fixtures permanently attached to and made part of building and which cannot be removed there-from without cutting into the walls, ceilings or floors or without in some way impairing the building. Together with heating, drainage and sewage systems; electrical work, plumbing, ventilating and air conditioning systems, lighting fixtures, and fire protection systems. |
| 18400000   | COMMUNICATIONS - POWER LINE EQUIPMENT  
Communications power line carrier equipment, central station equipment line coupling equipment, telephone carrier and signaling equipment, telemetering, and load control equipment. |
| 18460000   | COMMUNICATIONS - DATA ACQ. EQUIP., HUMAN MACHINE INTERFACE EQUIPMENT  
Communications data acquisition equipment and human machine interface equipment. |
| 18630000   | COMMUNICATIONS - OPTICAL WIRE  
Communications optical wire - Fibre optics wire including mounting hardware. |
| 16551000   | ADMINISTRATION AND SERVICE BUILDINGS - LAN ELECTRICAL CONNECTING DEVICES  
Administration and Service Buildings - LAN electronic connecting devices (excludes end user equipment). |
| 18633000   | COMMUNICATIONS - OPTICAL WIRE - REVENUE METERING  
Communications - optical wire - revenue metering. |
| 18540000   | COMMUNICATIONS - ADMINISTRATIVE TELEPHONE EQUIPMENT  
Communications administrative telecommunications equipment. |
| 18600000   | COMMUNICATIONS - WOOD POLE, COMMUNICATION CABLE APPARATUS AND BOOTHS  
Communications - wood pole line, communication cable apparatus and booths - Including poles, hardware, overhead conductor, crossarms, underground and aerial cable, duct and manholes, messenger and hardware, neutralizing transformers including foundations and installation costs, telephone instruments and air dry cable pressurizing units. |
| 18530000   | COMMUNICATIONS - TIMBER AND STEEL STRUCTURES  
Communications - timber and steel structures and footings - wood poles, tower steel, masts for aerials and antenna, aircraft obstruction markings, lighting. |
| 18100000   | COMMUNICATIONS - LAND  
Communications - land and site improvements - purchase price and acquisition costs of land. Fencing cutting and trimming rights, crossing rights, roads, improvements, landscaping, clearing, overbuilding. |
| 16630000   | ADMINISTRATION AND SERVICE BUILDINGS - SYSTEMS & EQUIPMENT  
Administration and Service Buildings - Building Systems & Equipment – Includes heating, ventilating and air conditioning equipment, hot water and hot air furnaces, steam boilers, stokers, ash and coal handling equipment, gasoline pumps, fire fighting equipment, sanitation and drainage systems, water supply compressor air, weight scales, and oil supply. |
| 18200000   | COMMUNICATIONS - BUILDINGS  
Communications - Buildings - Including heating ventilation and cooling systems. |
| 18500000   | COMMUNICATIONS - RADIO EQUIPMENT  
Communications - radio equipment. |
| MINOR FIXED ASSETS | Any material and/or equipment that is portable, expected to be usable for more than one year, operates on its own and the individual acquisition value is greater than $25K per unit. |

NEW HYDROELECTRIC - NIAGARA FALLS - NEW TUNNEL LINING  
Lining material of the new Niagara Tunnel. |

NEW HYDROELECTRIC - BUILDINGS - ROOFING  
Roofing of hydroelectric buildings and structures. |

NEW HYDROELECTRIC - FENCING  
Site parameter fencing at hydroelectric facilities.
### Account Descriptions of Nuclear Asset Classes

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Account Class Title and Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15200000</td>
<td>NUCLEAR - BUILDINGS AND STRUCTURES</td>
</tr>
<tr>
<td></td>
<td>Buildings and Structures - Buildings, fueling ducts, feeder cabinets, vacuum building, auxiliary yard, auxiliary yard structures, and sewage lagoons.</td>
</tr>
<tr>
<td>15340000</td>
<td>NUCLEAR - PROCESS SYSTEMS²</td>
</tr>
<tr>
<td></td>
<td>Process Systems - Heavy water upgrader, moderator system excluding heat exchangers, primary heat transport system excluding the boilers; fuel handling systems excluding irradiated fuel bays, boiler steam and water systems, shielding, negative pressure containment system, heavy water management; Pickering unit 5-8 and Darlington standby cooling system heat exchangers.</td>
</tr>
<tr>
<td>15600000</td>
<td>NUCLEAR - INSTRUMENTATION AND CONTROL</td>
</tr>
<tr>
<td></td>
<td>Instrumentation and Control - Computer control equipment, reactor measuring devices, reactor control, protective systems, and nuclear turbine generator controls.</td>
</tr>
<tr>
<td>15701000</td>
<td>NUCLEAR - SERVICE WATER AND FIRE PROTECTION SYSTEM</td>
</tr>
<tr>
<td></td>
<td>Service Water and Fire Protection Systems – Low pressure service water open, recirculated cooling water, power house upper level service water supply, auxiliary service water, chilled water, screen wash, domestic water, emergency service water and fire protection systems.</td>
</tr>
<tr>
<td>15720000</td>
<td>NUCLEAR - COMMON SERVICE SYSTEMS</td>
</tr>
<tr>
<td></td>
<td>Common Service Systems - Includes heat and ventilating system, air conditioning system, compressed air gas and vacuum system, fuel management and oil services, decontamination system and laundry facilities, materials handling, drainage and sewage System. Air compressors in the above systems belong in asset class 15720000.</td>
</tr>
<tr>
<td>15121000</td>
<td>NUCLEAR - ELECTRONIC SITE SECURITY SYSTEM</td>
</tr>
<tr>
<td></td>
<td>Electronic Site Security System – Electronic components of nuclear site security system assets.</td>
</tr>
<tr>
<td>15120000</td>
<td>NUCLEAR - YARD FACILITIES</td>
</tr>
<tr>
<td></td>
<td>Yard Facilities - Roads, bridges, culverts, parking facilities, railway spurs switches and ballast, security fencing and guardhouses. Electronic components of nuclear site security system assets belong in asset class 15120000.</td>
</tr>
<tr>
<td>15450000</td>
<td>NUCLEAR - CONDENSER TUBING</td>
</tr>
<tr>
<td></td>
<td>Nuclear - Condenser Tubing at Pickering.</td>
</tr>
<tr>
<td>15561000</td>
<td>NUCLEAR - AC STANDBY POWER - P5-8 and DG</td>
</tr>
<tr>
<td></td>
<td>Nuclear - AC Standby Power for Pickering units 5-8 and Darlington - Includes combustion turbine generator.</td>
</tr>
<tr>
<td>15361000</td>
<td>NUCLEAR - IRRADIATED FUEL BAYS - P5-8 and DG</td>
</tr>
<tr>
<td></td>
<td>Nuclear - Irradiated Fuel Bays at for Pickering units 5-8 and Darlington.</td>
</tr>
<tr>
<td>15550000</td>
<td>NUCLEAR - REACTOR BUILDING CABLING - P1&amp;4 and BG</td>
</tr>
<tr>
<td></td>
<td>Reactor Building Cabling for Pickering units 1 &amp; 4 and Bruce - Includes cable, terminations insulated supports and barriers for installations in containment structures.</td>
</tr>
<tr>
<td>16310000</td>
<td>ADMINISTRATION AND SERVICE BUILDINGS - NUCLEAR TRAINING SIMULATORS</td>
</tr>
<tr>
<td></td>
<td>Administration and Service Buildings - Nuclear training simulators.</td>
</tr>
<tr>
<td>15991000</td>
<td>NUCLEAR - MAJOR / STRATEGIC SPARES</td>
</tr>
<tr>
<td></td>
<td>Various material and/or equipment costing $200K or more for each unit which are expected to be usable for more than one year, or spare parts that can be connected in a familiar manner with an item of a Property, Plant and Equipment.</td>
</tr>
<tr>
<td>15341100</td>
<td>NUCLEAR - MODERATOR HEAT EXCHANGERS - PICKERING</td>
</tr>
<tr>
<td></td>
<td>Nuclear - Moderator heat exchangers - Pickering.</td>
</tr>
<tr>
<td>16560100</td>
<td>ADMINISTRATION AND SERVICE BUILDINGS - INTANGIBLES ADMINISTRATION SYSTEM SOFTWARE</td>
</tr>
<tr>
<td></td>
<td>Administration and Service Buildings - Administrative system software.</td>
</tr>
<tr>
<td>15510000</td>
<td>NUCLEAR - STATION SERVICE MAIN TRANSFORMERS AND AC POWER DISTRIBUTION SYSTEMS - P1&amp;4 and BG</td>
</tr>
<tr>
<td></td>
<td>Station Service Main Transformers and AC Power Distribution Systems for Pickering units 1 &amp; 4 and Bruce – Station service transformation and AC power distribution system, such as medium and low voltage switchgear bus duct, transformers and motor control.</td>
</tr>
<tr>
<td>15460000</td>
<td>NUCLEAR - AUXILIARY SYSTEMS - P1&amp;4 and BG²</td>
</tr>
<tr>
<td></td>
<td>Auxiliary Systems for Pickering units 1 &amp; 4 and Bruce – Includes boiler feedwater and condensate systems, including air extraction system, steam by-pass systems, condensate make-up system, and feed cycle auxiliary system (excludes tubing).</td>
</tr>
<tr>
<td>15500000</td>
<td>NUCLEAR - MAIN POWER OUTPUT SYSTEM</td>
</tr>
<tr>
<td></td>
<td>Main Power Output System - Generator power output system, generator step-up transformer, and high voltage switching facilities.</td>
</tr>
<tr>
<td>15421000</td>
<td>NUCLEAR - GENERATOR ROTORS, STATORS AND AUXILIARY SYSTEMS - P5-8 and DG</td>
</tr>
<tr>
<td></td>
<td>Nuclear - Generator Rotors, Stators and Auxiliary Systems for Pickering units 5-8 and Darlington - Includes generator rotors, stators, cooling systems, seal oil systems and synchronous condenser equipment but excludes generator windings and exciters which belong in asset class 15430000.</td>
</tr>
<tr>
<td>15560000</td>
<td>NUCLEAR - AC STANDBY POWER - P1&amp;4 and BG</td>
</tr>
<tr>
<td></td>
<td>AC Standby Power for Pickering units 1 &amp; 4 and Bruce - Combustion turbine generator units and associated equipment in nuclear stations.</td>
</tr>
<tr>
<td>Asset Class</td>
<td>Account Class Title and Description</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>15710000</td>
<td>NUCLEAR - WATER TREATMENT PLANT</td>
</tr>
<tr>
<td></td>
<td>Water Treatment Plant - Clarifying, filtering, demineralizing, resin regeneration chemical feed, sampling and neutralizing sump systems.</td>
</tr>
<tr>
<td>15352100</td>
<td>NUCLEAR - SHUTDOWN COOLING SYSTEM HEAT EXCHANGERS - DARLINGTON</td>
</tr>
<tr>
<td></td>
<td>Nuclear - Shutdown Cooling System Heat Exchangers at Darlington.</td>
</tr>
<tr>
<td>16540000</td>
<td>ADMINISTRATION AND SERVICE BUILDINGS - ADMINISTRATIVE TELECOM EQUIPMENT</td>
</tr>
<tr>
<td></td>
<td>Administration and Service Buildings - Administrative telecom equipment.</td>
</tr>
<tr>
<td>15330000</td>
<td>NUCLEAR - REACTIVITY CONTROL UNITS</td>
</tr>
<tr>
<td></td>
<td>Reactivity Control Units - Complete reactivity control units.</td>
</tr>
<tr>
<td>15461000</td>
<td>NUCLEAR - AUXILIARY SYSTEMS - P5-8 and DG</td>
</tr>
<tr>
<td></td>
<td>Auxiliary Systems for Pickering units 5-8 and Darlington - Boiler feedwater and condensate systems, including air extraction system, steam by-pass systems, condensate make-up system, and feed cycle auxiliary system, but excluding tubing.</td>
</tr>
<tr>
<td>15711000</td>
<td>NUCLEAR - CIRCULATING WATER - P5-8 and DG²</td>
</tr>
<tr>
<td></td>
<td>Circulating Water for Pickering units 5-8 and Darlington - Pumping, vacuum priming, frazil ice protection, trash removal and screen wash systems.</td>
</tr>
<tr>
<td>16210000</td>
<td>ADMINISTRATION AND SERVICE BUILDINGS - PERMANENT BUILDINGS, ROADS AND SITE IMPROVEMENTS</td>
</tr>
<tr>
<td></td>
<td>Administration and Service Buildings - Permanent Buildings, roads, site improvement, auxiliary structures, hoists, skips and elevators.</td>
</tr>
<tr>
<td>15501000</td>
<td>NUCLEAR - REVENUE METERING - MAIN POWER OUTPUT, INSTRUMENTATION AND CONTROL - PICK/DARL</td>
</tr>
<tr>
<td></td>
<td>Revenue Metering - Main power output and instrumentation and control at Pickering/Darlington.</td>
</tr>
<tr>
<td>15990000</td>
<td>NUCLEAR - ALTERNATE SPARES</td>
</tr>
<tr>
<td></td>
<td>Various spares including temperature scanners, electric motors for actuators, retaining rings for exciter rotor, mechanical debris filters, etc.</td>
</tr>
<tr>
<td>15300000</td>
<td>NUCLEAR - REACTOR VESSELS</td>
</tr>
<tr>
<td></td>
<td>Nuclear - Reactor Vessels for Pickering units 1 &amp; 4 and Bruce - Reactor excluding the fuel channel assemblies, calandria tube assemblies and the reactivity control units.</td>
</tr>
<tr>
<td>16211000</td>
<td>ADMINISTRATION AND SERVICE BUILDINGS - BUILDINGS - LEASED</td>
</tr>
<tr>
<td></td>
<td>Administration and Service Buildings - Buildings - Leased - Lease hold improvements.</td>
</tr>
<tr>
<td>15700000</td>
<td>NUCLEAR - CIRCULATING WATER - P1&amp;4 and BG</td>
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<tr>
<td></td>
<td>Circulating Water for Pickering units 1 &amp; 4 and Bruce - Pumping, vacuum priming, frazil ice protection, trash removal and screen wash systems.</td>
</tr>
<tr>
<td>16630000</td>
<td>ADMINISTRATION AND SERVICE BUILDINGS - BUILDING SYSTEMS AND EQUIPMENT</td>
</tr>
<tr>
<td></td>
<td>Administration and Service Buildings - Building Systems &amp; Equipment – Includes heating, ventilating and air conditioning equipment, hot water and hot air furnaces, steam boilers, stokers, ash and coal handling equipment, gasoline pumps, fire fighting equipment, sanitation and drainage systems, water supply compressor air, weight scales, and oil supply.</td>
</tr>
<tr>
<td>15370000</td>
<td>NUCLEAR - TRITIUM REMOVAL FACILITY</td>
</tr>
<tr>
<td></td>
<td>Tritium Removal Facility at Darlington.</td>
</tr>
<tr>
<td>15411000</td>
<td>NUCLEAR - TURBINES, AUXILIARY EQUIPMENT, STEAM REHEATER TUBE - P5-8 and DG</td>
</tr>
<tr>
<td></td>
<td>Turbines, Auxiliary Equipment, Steam Reheater Tube for Pickering units 5-8 and Darlington - Turbine, lubricating oil system, oil purification system, exhaust hood, spray governing system.</td>
</tr>
<tr>
<td>15531000</td>
<td>NUCLEAR - BUILDING ELECTRICAL SERVICE SUPPLIES - P5-8 and DG</td>
</tr>
<tr>
<td></td>
<td>Building Electrical Services Supply for Pickering units 5-8 and Darlington - Cost of lighting, receptacles and cabling to them.</td>
</tr>
<tr>
<td>15352000</td>
<td>NUCLEAR - SHUTDOWN COOLING SYSTEM HEAT EXCHANGERS - PICKERING</td>
</tr>
<tr>
<td></td>
<td>Shutdown Cooling System Heat Exchangers at Pickering.</td>
</tr>
<tr>
<td>16550000</td>
<td>ADMINISTRATION AND SERVICE BUILDINGS - LAN CABLE</td>
</tr>
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<td>Administration and Service Buildings - LAN cable.</td>
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<tr>
<td>18500000</td>
<td>COMMUNICATIONS - RADIO EQUIPMENT</td>
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<tr>
<td></td>
<td>Communications - Radio Equipment.</td>
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<tr>
<td>16230000</td>
<td>ADMINISTRATION AND SERVICE BUILDINGS - BUILDINGS - FRAME AND METAL CLAD</td>
</tr>
<tr>
<td></td>
<td>Administration and Service Buildings - Buildings - Frame &amp; Metal Clad - Including excavation, substructure or foundation and all fixtures permanently attached to and made part of building and which cannot be removed there-from without cutting into the walls, ceilings or floors or in some way impairing the building. Together with heating, drainage and sewage systems; electrical work, plumbing, ventilating and air conditioning systems, lighting fixtures, fire protection systems, but excluding the cost of heating plant; furnaces, boilers, stokers, ash and coal handling equipment, oil burners, air conditioners which belong in asset class 16630000.</td>
</tr>
<tr>
<td>15510000</td>
<td>NUCLEAR - STATION SERVICE MAIN TRANSFORMERS AND AC POWER DISTRIBUTION SYSTEMS - P5-8 and DG</td>
</tr>
<tr>
<td></td>
<td>Station Service Main Transformers and AC Power Distribution Systems for Pickering units 5-8 and Darlington - Station service transformation and AC power distribution system, such as medium and low voltage switchgear bus duct, transformers and motor control.</td>
</tr>
<tr>
<td>15541000</td>
<td>NUCLEAR - ELECTRICAL AUXILIARY SYSTEM - P5-8 and DG</td>
</tr>
<tr>
<td></td>
<td>Electrical Auxiliary System for Pickering units 5-8 and Darlington - Cable, Cable support systems (such as cable tray, conduits) grounding, as well as control and metering for electrical power systems.</td>
</tr>
<tr>
<td>Asset Class</td>
<td>Account Class Title and Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>15400000</td>
<td><strong>NUCLEAR - TURBINES, AUXILIARY EQUIPMENT, STEAM REHEATER TUBE - P1&amp;4 and BG</strong></td>
</tr>
<tr>
<td></td>
<td>Turbines, Auxiliary Equipment, Steam Reheater Tube for Pickering units 1 &amp; 4 and Bruce - Includes turbine, lubricating oil system, oil purification system, exhaust hood spray system, gland seal system, turbovisory equipment and governing</td>
</tr>
<tr>
<td>16311000</td>
<td><strong>ADMINISTRATION AND SERVICE BUILDINGS - NUCLEAR SIMULATORS - DESIGN UPGRADES</strong></td>
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<tr>
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<td>Administration and Service Buildings - Design upgrades to nuclear training simulators.</td>
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<tr>
<td>15360000</td>
<td><strong>NUCLEAR - IRRADIATED FUEL BAYS - P1&amp;4 and BG</strong></td>
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<td></td>
<td>Irradiated fuel bays for Pickering units 1 &amp; 4 and Bruce.</td>
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<tr>
<td>15311000</td>
<td><strong>NUCLEAR - FUEL CHANNEL ASSEMBLIES - PICKERING</strong></td>
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<tr>
<td></td>
<td>Fuel Channel Assemblies at Pickering – Pressure tubes made of zirconium-niobium alloy and associated fittings, shields and couplings.</td>
</tr>
<tr>
<td>15430000</td>
<td><strong>NUCLEAR - EXCITERS</strong></td>
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<tr>
<td></td>
<td>Nuclear - Exciters - Solid state.</td>
</tr>
<tr>
<td>18633000</td>
<td><strong>COMMUNICATIONS - OPTICAL WIRE - REVENUE METERING</strong></td>
</tr>
<tr>
<td></td>
<td>Communications - optical wire - revenue metering.</td>
</tr>
<tr>
<td>18460000</td>
<td><strong>COMMUNICATIONS - DATA ACQ. EQUIP., HUMAN MACHINE INTERFACE EQUIPMENT</strong></td>
</tr>
<tr>
<td></td>
<td>Communications data acquisition equipment and human machine interface equipment.</td>
</tr>
<tr>
<td>18630000</td>
<td><strong>COMMUNICATIONS - OPTICAL WIRE</strong></td>
</tr>
<tr>
<td></td>
<td>Communications optical wire - Fibre optics wire including mounting hardware.</td>
</tr>
<tr>
<td>MINOR FIXED ASSETS - SERVICE EQUIPMENT</td>
<td>Service equipment that is portable, expected to be usable for more than one year, operates on its own and the individual acquisition value is greater than $25K per unit.</td>
</tr>
<tr>
<td>MINOR FIXED ASSETS - OTHER</td>
<td>Any material and/or equipment (other than service equipment) that is portable, expected to be usable for more than one year, operates on its own and the individual acquisition value is greater than $25K per unit.</td>
</tr>
<tr>
<td>NEW</td>
<td><strong>NUCLEAR - ROOFING</strong></td>
</tr>
<tr>
<td></td>
<td>Roofing of nuclear buildings and structures.</td>
</tr>
<tr>
<td>NEW</td>
<td><strong>NUCLEAR - LARGE CIRCULATING WATER MOTORS - OVER 200 HP</strong></td>
</tr>
<tr>
<td></td>
<td>Large Circulating Water Motors - Large electric motors of more than 200 horsepower with operating voltages between 2kV and 15kV used for critical operations and safety systems.</td>
</tr>
</tbody>
</table>

**Notes:**

1. Pursuant to the 2013 OPG Approvals Committee's meeting minutes presented as Attachment 3 to Ex. L-6.11-1-Staff 142, this account will be disaggregated into separate, new plant accounts for major types of systems which would have the same average service life of 55 years.

2. The asset class title provided to Gannett Fleming and reflected in Ex. F5-3-1, Schedule 1B contained typographical errors. The correct title is provided herein.
Board Staff Interrogatory #158

Ref: Exh. F5-3-1 Schedule 1A and Schedule 1B

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

For each of the accounts listed in the schedules, please list the names of related sub-ledgers accounts (or sub-accounts or major asset components) and provide the net book value of each sub-ledger account.

Response

OPG establishes and reviews estimated average service lives of its assets at the asset class level. This was also the level of detail used by Gannett Fleming in performing their assessment of depreciation rates for OPG’s regulated assets (Ex. F5-3-1 and Ex. F4-1-1 Attachment 1). Further sub-accounts in OPG’s fixed asset sub-ledger beyond those provided in the referenced schedules are individual asset records. OPG estimates there are some 9,000 asset records for the prescribed facilities.

The individual asset records are tracked through a unique asset number and a non-standardized description. The descriptions may include the name or nature of the specific asset, a project name or number, references to a facility or another asset, or some combination thereof.

Given the large volume of the records and the non-standardized descriptions, it is impracticable to provide the requested information in a meaningful way.

Additional descriptions of the types of asset items that may be included in each class are provided in Ex. L-6.12-1 Staff-157, Attachment 1.
Board Staff Interrogatory #159

Ref: Exh. F4-1-1 Attachment I and Exh. F5-3-1

Issue Number: 6.12
Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Please indicate whether other nuclear operators in North America use the individual “unit method” for end of life estimate rather than the “group method” for nuclear units within nuclear stations. If so, what is the basis for OPG’s use of the group method for nuclear units?

Response

OPG has used a single, average end-of-life date for each nuclear station since its formation, following the practice of Ontario Hydro. This approach has been reflected in OPG’s audited consolidated financial statements prepared in accordance with generally accepted accounting principles. Gannett Fleming informed OPG that a site based end-of-life date that encompasses all of the units within a station is used by almost all nuclear operators in Canada and the United States.
Board Staff Interrogatory #160

Ref: Exh. F5-3-1 Appendix re Detailed Discussion Related To Niagara Tunnel Lining and D1-2-1 pages 66 to 96

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Gannet Fleming states: “The investment in this account relates to the lining material of the Niagara Tunnel that was placed into service in the first quarter of 2013. The 2011 Depreciation Study conducted by Gannett Fleming and internal OPG depreciation reviews have recommended a life estimate of 75 years for the linings associated with the two original tunnels at Niagara Falls. This estimated service life for existing OPG tunnel linings of 75 years is consistent with industry practice.”

a) What are the in-service dates for the two original tunnels at Niagara Falls?

b) Please provide a summary of the project information for the two original tunnels at Niagara Falls including the specifications, the lining and estimated useful live.

c) What are the key technological and structural differences between the two original tunnels and the new tunnel at Niagara Falls? Please address the following items in the response in the context of the evidence provided in D1-2-1 pages 66 to 96 for the new tunnel at Niagara Falls: the tunnel lining system, tunnel structures, geological formation, and the major construction components including tunnel construction or boring machine, invert membrane and concrete, arch membrane and concrete, profile restoration and liner grouting.

d) What is the current operating state of the two original tunnels at Niagara Falls?

e) Are the two original tunnels at Niagara Falls expected to be in service for more than 75 years? If not, please provide empirical data and evidence to support this conclusion.

f) Please provide the gross plant asset value and accumulated depreciation of the two original tunnels at Niagara Falls.

g) Is it technologically feasible to refurbish the two existing tunnels and has OPG made this assessment?

h) Is it economically feasible to refurbish the two existing tunnels and has OPG made this assessment?

Response

Witness Panel: Hydro / Energy Markets
a) The construction of the two original tunnels (SAB2 tunnels) were completed in 1954 and the tunnels were placed in-service in 1955.

b) Each of the SAB2 tunnels at Niagara Falls was designed to carry 565 cubic metres of water per second. The SAB2 tunnels are located 75 metre apart (centre to centre). Tunnel 1 follows the outer course and is 8,707 metres long, and Tunnel 2 follows the inner course and is 8,323 m long. Both tunnels were excavated to 15.55 m diameter and lined with 0.86 m to 0.91 m of concrete, and have a finished diameter of 13.72 m. The depth of SAB2 tunnels varies between 90 m near the intake and 60 m near to the outlet. The tunnels surface west of the buried St. David’s Gorge.

c) The SAB2 tunnels were constructed through different geological strata than the Niagara Tunnel Project (“NTP”) and do not cross St. David’s Gorge. Drilling and blasting was used for the excavation of SAB2 tunnels. There were five common shafts constructed to remove debris and supply construction material. In contrast, the NTP was constructed from the outlet using a tunnel boring machine. The construction technology used for SAB2 tunnels was labour intensive, approximately 7,600 persons were working at peak whereas in the case of NTP at peak only approximately 580 persons were working at site. The SAB2 tunnels were blasted through the rock in two stages with the top 9.00 m excavated and supported with steel ribs before the bottom 6.55 m was excavated. The construction of SAB2 tunnels involved placing steel-arch ribs and cast-in-place concrete liner of 0.91 m thickness. The NTP was excavated by a 14.44 m diameter tunnel boring machine (“TBM”) with steel ribs, rock bolts and shotcrete installed behind the TBM cutter head to support the tunnel crown. The impermeable waterproof membrane, 0.60 m concrete liner and two grouting operations completed the NTP lining. The SAB2 tunnels alignment was selected to avoid potential problems with the porous, water and gas bearing Lockport dolomites. The SAB2 tunnels are located below the dense and impervious 15 to 18 m thick Rochester shale, and the Irondequoit limestone immediately below the Rochester shale hosts the tunnels’ roof. The Grimsby sandstone hosted the invert of the SAB2 tunnels. There was no impermeable waterproof membrane used for either invert or arch lining of the SAB2 tunnels. The permanent concrete lining and grouting operations completed the SAB2 tunnels and filled any overbreak that occurred during excavation.

d) The SAB2 tunnels are operating as designed with no significant changes in water flow capability over almost 60 years of the original in-service date. Visual inspections were performed in 1987 using manned submarine equipped with remotely operated vehicle at the tunnel intakes. The inspection was limited to only 915 m in Tunnel 1 from the intake and 560 m in Tunnel 2. Overall the structure was sound with some local scours of the lining surface but no visible spalling or cracking in both tunnels. The sump for dewatering pumps intake in Tunnel 1 located 655 m from the intake was completely filled with cobbles. The dewatering sump Tunnel 2 was clear of debris.

e) Yes. The SAB2 tunnel linings are being depreciated to 2074 on the basis of the 75-year estimated service life used for depreciation purposes at the time that OPG was established in 1999.
f) OPG’s gross plant asset value of SAB2 tunnels is approximately $1,056M, of which approximately $269M relates to the tunnel linings and the accumulated depreciation is approximately $172M, of which approximately $53M relates to the tunnel linings, as of December 31, 2013.

g) OPG has not evaluated the technological feasibility of refurbishing the SAB2 tunnels.

h) OPG has not evaluated the economic feasibility of refurbishing the SAB2 tunnels.
Board Staff Interrogatory #161

Ref: Exh. F5-3-1 Appendix re Detailed Discussion Related To Niagara Tunnel Lining

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Gannet Fleming states: “Based on its review of the NTP, it is the view of Gannett Fleming that the tunnel excavation investment would have a similar life of 100 years as expected for the existing two Niagara tunnels and other hydroelectric excavation. However, Gannett Fleming’s review also specifically noted that the NTP tunnel lining material installation procedures, were specifically designed and the tunnel was specifically constructed for a service life of 90 years. In fact, the 90-year design life was a specific requirement of the NTP to be considered by contractors working on this project.”

a) Why did OPG pick 90-year design life at the onset of this project? Were other number of years assessed, and if so, why they were not chosen?

b) Could 90 years service life be predetermined with any precision in terms of technical design capabilities and structure soundness of the tunnel?

c) What empirical data and evidence does OPG have to support that the tunnel lining would last 90 years, as opposed to 125 years?

d) What is the probability that the pattern of wear and tear of the tunnel would result in an end of life which would be more than 90 years given that advanced technology was used including tunnel construction boring machine, invert membrane and concrete, arch membrane and concrete, profile restoration and liner grouting lining, etc. The tunnel was reinforced with a combination of steel ribs, wire mesh, rock bolts and concrete that varied with the actual rock conditions encountered along the tunnel route, and finally, a waterproof membrane was applied and the final concrete liner was constructed.

e) Have there been any tunnels built worldwide that used a similar design, technology and lining, and if so, what were the expected service lives for these?

f) Please provide reports, studies, memos, letters and presentations which relate to the review, analysis and recommendations for the service life of the new tunnel.
Response

a) OPG selected a 90 year design life based on engineering judgement that this design life is achievable and is reasonable for this project. Alternative design life durations were not considered.

b) No. The 90 year is the design life specified in the DBA that formed the basis on which the tunnel was designed and constructed. OPG does not have empirical data and evidence to support a tunnel lining life of longer than 90 years.

c) See response to part b) above.

d) OPG has not established the probability that the pattern of wear and tear of the tunnel would result in an end of life beyond 90 years.

e) OPG is not aware of any comparable tunnels using a similar design, technology, and lining.

f) In addition to the Gannett Fleming Report provided in the evidence (Ex. F5-3-1) and the 2012 Depreciation Review Committee Report previously provided in EB-2012-0002 (Ex. L-2-2 AMPCO-06, Attachment 1), the following documents relate to the established service life for the NTP:


   II. Attachment 2 - Appendix 1.1(vv) Owner’s Mandatory Requirements, Section 1.5, Design Life, August 2005 [Note this is an excerpt from the DBA, the whole of which is provided as Ex. D1-2-1, Attachment 6]

   III. Attachment 3 – Owner’s Request for Information and Response – 90 Year Tunnel Service Life, March 2007
NIAGARA TUNNEL FACILITY PROJECT

Diversion Tunnel Design Report

25.05.2007
<table>
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<th>Rev.</th>
<th>Date</th>
<th>Issue, Modification</th>
<th>Prepared</th>
<th>Checked</th>
<th>Approved</th>
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<td>02</td>
<td>25.05.2007</td>
<td>For 100% Design</td>
<td>T.M.</td>
<td>F.S.</td>
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<td>01</td>
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<td>00</td>
<td>03.04.2006</td>
<td>For Review of Design Basis</td>
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<td>F.S.</td>
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8  QA/QC REQUIREMENTS  

9  VARIATIONS FROM AGREEMENT  

Appendices  

Appendix 1: Geotechnical Input Parameters and Resulting Rock Mass Parameters  
Appendix 2: Relevant Calculation Cross Sections
1 GENERAL

1.1 Introduction

Ontario Power Generation Inc. (OPG) is constructing the Niagara Tunnel Facility Project to bring water from the Niagara River to an existing storage reservoir. It is planned to use the tunnel facility to transfer 500 m$^3$/s of water to the reservoir. The operational time of the facility will be 90 years. The tunnel will have the facility of closure for emergency and for repairs. Also dewatering of the tunnel will be feasible to facilitate maintenance.

The key elements of the project are:

- Intake Structure and Channel
  approx. 200 m long
  approx. 20 m wide
  up to 30 m deep

- Delivery Tunnel
  approx. 10.4 km long
  approx. 12.6 m internal diameter

- Outlet Structure and Canal
  approx. 400 m long
  approx. 20 m wide
  up to 35 m deep

1.2 Scope

The design basis document covers primarily design aspects regarding, civil design, structural design and construction methodology of the Diversion Tunnel.

The following aspects of design and construction shall be covered with this document:

- layout of works
- structural design
- codes and standards
- durability
- compliance with OMR
- sequencing of the Work
- construction techniques
- equipment and material
- instrumentation and monitoring
2 BASIC DATA

2.1 Datum

Vertical Control is based on Geodetic Surveys of Canada (GSC), Fifth Edition (1983), vertical datum. Hence all elevations referred to in the design are based on GSC 83 datum.

Horizontal control on drawings is a Universal Transverse Mercator (UTM) projection based on the NAD 83 datum.

2.2 Water Levels

The design water levels for the Diversion Tunnel are situated at the Intake and at the Cross-Over to the PGS-Canal. The Elevation is measured in [m] GSC 1983 Datum.

<table>
<thead>
<tr>
<th>Design Water Levels</th>
<th>Elevation [m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIP (Intake)</td>
<td>Cross-Over (Outlet)</td>
</tr>
<tr>
<td>Energy emergency minimum</td>
<td>170.58</td>
</tr>
<tr>
<td>Normal minimum</td>
<td>170.74</td>
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<tr>
<td>Normal mean</td>
<td>171.19</td>
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<tr>
<td>Normal maximum</td>
<td>171.65</td>
</tr>
<tr>
<td>Flood allowance maximum</td>
<td>171.80</td>
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<td>200-yr flood</td>
<td>172.11</td>
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<tr>
<td>Probable maximum flood</td>
<td>173.17</td>
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<tr>
<td>Top of surge shaft</td>
<td>180.00</td>
</tr>
</tbody>
</table>

The top of the surge shaft is situated above the elevation calculated by the transient flow analysis for closure of gates (R-NAW130- 02700 – 0002 Hydraulic Design for Unsteady Flow Conditions).
2.3 Geologic and Hydrologic Conditions

The Diversion Tunnel is situated in the Queenston Formation over the majority of its length. The tunnel however penetrates all the upper Formations when descending under the buried St. David's Gorge and rising again to where the Intake Structure is located. The Queenston Formation is moderately hard and dense shale. It is sensitive to the abrasive action of site traffic and flowing water and it swells with the presence of fresh water due to a change of the chloride concentration in the rock > 2%. The formations above the Queenston consist of very hard and dense to moderately hard and dense rock depending on the sandstone content of each formation.

Very little groundwater is predicted throughout most of the tunnel drive. Water is to be expected along the primary bedding planes separating the formations. Significant quantities of groundwater are to be expected in the last few hundred meters of rising tunnel grade in the Lockport Formation under the Niagara River only. The Rochester Formation however acts as an aquitard.

All formations are highly acidic, with pure groundwater containing up to 296 000 mg/l of chlorides and up to 1 600 mg/l of sulphates (ref. to Design Build Agreement, Appendix 5.4, Table 6.13).

Measurements in boreholes indicate an average of 70 000 mg/l of chlorides and 1200 mg/l of sulphates in the ground water for the first 3.5 km and last 5.5 km of tunnel. The section between approx. km 2.5 and km 5.5 indicates much lower chloride (5 600 mg/l) and sulphate (6 mg/l) concentrations in the ground water (ref. to Design Build Agreement, Appendix 1.1(r), Document I921/PR-00-3001/Rev.1, Appendix 3.1).

3 REFERENCE DOCUMENTS

3.1 Drawings

- NAW130-D0V-29230 – 0016 Diversion Tunnel, Geotechnical Longitudinal Section
- NAW130-D0V-29230 – 0017 Diversion Tunnel, Typical Cross Sections and Detail
- NAW130-D0V-29230 – 0018 Diversion Tunnel, Rock Support Types 1 and 2
- NAW130-D0V-29230 – 0019 Diversion Tunnel, Rock Support Types 3 and 4
- NAW130-D0V-29230 – 0020 Diversion Tunnel, Rock Support Types 5 and 6
- NAW130-D0V-29230 – 0022 Diversion Tunnel, Geotechnical Measurements, Tunnel
NAW130-D0V-29230 – 0023 Diversion Tunnel, Geotechnical Measurements, Surface and Subsurface

NAW130-D0V-29230 – 0024 Diversion Tunnel, Final Lining and Waterproofing Sections

NAW130-D0V-29230 – 0025 Diversion Tunnel, Final Lining Single Layer Waterproofing Membrane Details, Part 1

NAW130-D0V-29230 – 0026 Diversion Tunnel, Final Lining Single Layer Waterproofing Membrane Details, Part 2

NAW130-D0V-29230 – 0027 Diversion Tunnel, Final Lining Dual Layer Waterproofing Membrane Details, Part 1

NAW130-D0V-29230 – 0028 Diversion Tunnel, Final Lining Dual Layer Waterproofing Membrane Details, Part 2

NAW130-D0V-29230 – 0029 Diversion Tunnel, Tunnel Piezometers, Sections and Details

3.2 Reports

R-NAW130- 20102 – 0004 Alignment and Grade

R-NAW130- 02700 – 0001 Hydraulic Design for Steady Flow Conditions

R-NAW130- 02700 – 0002 Hydraulic Design for Unsteady Flow Conditions

R-NAW130- 29230 – 0008 Diversion Tunnel, Derivation of Rock Squeeze

R-NAW130- 29230 – 0010 Grout Tunnel, Design Report

R-NAW130- 29270 – 0002 Dewatering System, Design Report

R-NAW130- 83000 – 0001 Specification of Shotcrete

R-NAW130- 83000 – 0002 Specification of Final Lining Concrete

R-NAW130- 10120 – 0041 Geotechnical Investigation of the Buried St. David’s Gorge

3.3 Codes and Standards

CSA A23.1-04 Concrete materials and methods of concrete constructions

CSA A23.2-04 Concrete testing
3.4 Guidelines

[1] Ontario General Contractors Association, Ready Mixed Concrete Association
Best Practices Guidelines for Concrete construction (Revision 1, December 2005)

[2] Reinforcing Steel Institute of Canada

3.5 Relevant OMR Sections

Sections 8.3 and 8.4 of Appendix 1.1 (vv) – Owners Mandatory Requirements.

4 STRUCTURE ARRANGEMENT

4.1 Layout and Dimensions

The horizontal distance along the tunnel, which is associated with the length of the Diversion Tunnel amounts to 10.370 km. To accommodate the transfer of 500 m$^3$/s of water, an internal tunnel diameter of 12.6 m to 12.8 m diameter is required (R-NAW130-02700 – 0001 - Hydraulic Design for Steady Flow Conditions). Along the tunnel alignment, which is allocated in the small corridor provided by the OMR, the two existing Diversion Tunnels 1 and 2 have to be crossed underneath. The tunnel also crosses under the ancient Toronto Power Station, which features an eighty metre deep turbine pit. The cover to the closest structure (i.e. existing Diversion Tunnel No. 2) is 24 m. Also the buried St. David’s Gorge is to be crossed with sufficient rock cover to ensure safe tunnel excavation. Geotechnical borehole investigations of the bottom of the buried gorge indicate that at least a rock cover of 10 m is to be expected. Uncertainties associated with rock cover in vicinity of Borehole GB1 as indicated in R-NAW130-10120 – 0041 Geotechnical Investigation of the Buried St. David’s Gorge will be further investigated before the TBM passes this location with additional boreholes from the ground surface or from the tunnel.
The alignment follows the concept alignment in principle (R-NAW130-20102 -0004 - Alignment and Grade). It is moved 15 m away from underneath the existing Delivery Tunnel No. 1, to facilitate the drilling of the borehole for tunnel piezometers or other purposes. Below the buried St. David’s Gorge, the alignment is slightly relocated to the north-west to gain maximum rock cover, which is predicted close to the location of geotechnical borehole SD-8. Horizontal and vertical curvature is arranged such to maintain a min. 1000 m radius for to facilitate muck transportation by conveyor belt systems.

The tunnel axis is approximately 135 m below ground surface at the deep point. The inclination of fall and raise of the grade of the facility is arranged at 7.82 % grade near the outlet and 7.15% grade at the intake respectively. The central section of the tunnel is at near horizontal grade of 0.1 %.

4.2 Arrangement Requirements and Constraints

The tunnel traverses the rock formations Lockport, DeCew, Rochester, Irondequoit, Reynales, Neahga, Thorold, Grimsby, Power Glen and Whirlpool. Over the majority of its length however it is located in the Queenston shale.

The Diversion Tunnel will be lined with an initial support consisting of steel wire mesh, steel ribs, rock dowels and shotcrete, which is installed at short distance to the excavation face. A final lining of unreinforced concrete is installed independent of and far behind the excavation. The invert concrete pour is leading the pour of concrete in the top section by a few hundred meters of tunnel length. It is anticipated to arrange the entire installation of the final lining, while the TBM excavation is still ongoing.

The final lining is separated from the initial lining by a waterproofing membrane system. The waterproofing membrane system will prevent an outflow of fresh water from the tunnel into the rock. Also the diffusion of chloride ions will be inhibited to avoid swelling induced by a 2% reduction of the chloride content in the rock mass.

The final lining is prestressed by the injection of interface grout between the lining and the rock. The load bearing capacity of the rock mass shall such be mobilized to carry the operational water pressure inside the tunnel.

A dewatering structure consisting of 5 shafts of 750 mm diameter is situated near the eastern rim of the buried St. David’s Gorge.

At two locations piezometer holes are drilled to monitor the water pressure in the tunnel.
5 FUNCTIONAL REQUIREMENTS

5.1 Purpose of Elements

The Diversion Tunnel consists of

(a) initial shotcrete lining – depending on the excavation and support type applicable for a particular section of tunnel, steel wire mesh, steel ribs, rock dowels and shotcrete are installed for temporary support of ground within adequate time after excavation. The initial lining will act as a temporary rock support until the final lining is in place, after which time all permanent loads will be taken by the final liner.

(b) final cast in place concrete lining – which will be capable of accepting all permanent loads.

(c) waterproofing membrane system – which prevents seepage between inside and outside of the Diversion Tunnel and acts as a suitable corrosion protection for the final lining. The diffusion of chlorides is limited by the waterproofing membrane to such an extent that the reduction in chloride ion concentration in the rock is not great enough to initiate rock swelling over the operational time of the tunnel facility.

(d) grouting system – consisting of cavity grouting (to fill voids in the rock mass), contact grouting (to fill voids in the final lining concrete) and interface grouting, which is designed to prestress the final concrete lining and the surrounding rock such, that no reinforcement of the final concrete lining is required to sustain the internal water pressure.

Hence the final tunnel lining is designed to be watertight and that the highly corrosive environment which exists along the tunnel alignment, does not affect the lining concrete.

Where the dewatering system shafts penetrate the tunnel lining, the cast in place concrete will be reinforced with steel. Design issues regarding the dewatering shafts and this transition in particular will be discussed in a separate document (R-NAW130-29270-0002 Dewatering System, Design Report)

5.2 Materials and Material Selection

5.2.1 Initial Lining

Six different support types are specified in the design depending on ground conditions prevailing in the tunnel. The type of material and the location of installation is specified for each support type. In general the steel ribs are H-beams or steel channels as specified in the drawings according to chapter 3.1. Steel wire mesh is defined according to [2] in chapter 3.4 and used to protect personnel from rock loosening and for rock loads.
developed by spalling. Rock dowels with a defined breaking load of 100 kN to 240 kN will be used for fixing the steel ribs, which are not installed full round. They also support slabbing and spalling. Mechanical Swellex Dowels or equivalent Resin Grouted Dowels, Cement Grouted SN Rock Dowels or a combination of resin grouting and cement grouting is used. Shotcrete is in general applied by the wet method as specified in (R-NAW130-83000 – 0001, Specification of Shotcrete) and designed to resist invert heave and all other short term design loads which may develop until the final lining is in place.

5.2.2 Waterproofing Membrane System

The waterproofing membrane is designed to act as an impermeable layer between initial and final lining and to sustain all pressures and strains throughout the specified design life of 90 years. The waterproofing membrane system is consisting of

- regulating shotcrete where necessary
- membrane-backed geotextile fleece
- waterproofing membrane (dual layer system, if required)

Shotcrete smoothens corners and edges and prevents damage of the waterproofing membrane during placement, concreting and the specified design life. The regulating shotcrete has the same material properties as the structural shotcrete and is applied to smoothen the surface and to cover all steel parts protruding from the initial lining where necessary.

The geotextile fleece protects the waterproofing membrane from being damaged by the initial lining shotcrete. The geotextile fleece consists of woven fabric material which is compatible with the waterproofing membrane material. It is backed by a thin plastic membrane on the surface facing the initial lining shotcrete, which facilitates the flow of interface grout. The geotextile fleece material is fixed on the shotcrete with plastic discs and nails in the invert of the tunnel and by the Velcro ® System in the tunnel crown and sidewalls.

The actual waterproofing membrane consists of FPO material (Flexible Poly-Olefin), which is a durable and dense synthetic material. The membrane material has to meet high standards regarding the resistance to chloride ion diffusion. Purpose defined testing has to prove that the selected material performs successfully. The membrane is delivered in approximately 2 m wide sheets, which are welded by double seems. The welds are tested by applying increased air pressure between the seams.

The dual layer membrane system (one layer is manufactured with dimples) is tested “full face” by application of vacuum between the two membrane layers. The single layer membrane system is fitted with a signal layer to ease detection of damage.
FPO membranes are commonly used as barriers for sewage ponds and waste depots to control the diffusion of undesirable substances. The waterproofing membrane for the tunnel has to ensure that the contact of acidic ground water with the final lining concrete and the diffusion of chloride ions from the rock mass into the tunnel are prevented over long-term.

The thickness of the waterproofing membrane will be

- 3 mm for single layer membrane systems
- 2 mm + 1.5 mm for dual layer membrane systems

The grouting hoses used for interface grouting consist of HDPE material. They will be installed in one piece to avoid imperfections induced by connections for extensions. Every 3.6 m to 3.8 m length of tunnel (depending on the size waterproofing membrane sheets) one grouting ring is installed with outlet valves spacing 3 m at centres. Each outlet valve is covered with a sleeve. To avoid dislocation of the sleeve, sleeves are tightened to the grout hose. The grouting hose-membrane intersections will be prefabricated form-pieces.

5.2.3 Final Lining

The final lining consists of cast in place concrete which is not reinforced with steel except at the location of the dewatering shafts and at the transitions to the Intake and Outlet Structures. The final lining is 500 mm to 600 mm thick and compressed by interface grouting at adequate pressures to mobilize the load bearing capacity of the rock mass surrounding the tunnel for to sustain internal water pressures.

Ordinary Portland Cement is specified for the manufacture of final lining concrete, since particular resistance against aggressive water is not required due to the presence of the waterproofing membrane.

5.2.4 Contact Grouting

The tunnel final lining sits on the sidewalls of the invert concrete while exerting the gravitational load of self weight to the lower parts of the excavated tunnel. While the tunnel final lining is bedded smoothly to the surface of the initial lining in the tunnel invert, a gap remains in the tunnel roof between the initial and the final lining.

Contact grouting is to be carried out after concreting of the final lining is finished. The aim is to close all voids, cracks joints and inconsistencies in the final lining concrete resulting from the concreting operation and to provide a tight interface between rock mass, initial lining and final lining. Cement grout consisting of Ordinary Portland Cement compatible to the final lining concrete shall be used for contact grouting.
5.2.5 Interface Grouting

The Diversion Tunnel lining is finally prestressed by systematic interface grouting applied between the initial lining and the waterproofing membrane system. The unreinforced final lining concrete shall be enabled to transfer the operational water pressure to the surrounding rock mass without the development of tension cracks.

The interface grouting system consists of

- HDPE grouting hoses of approx. 1 inch diameter (Di = 19 mm)
- Metal fittings with rubber seals for fixation of packers for grouting
- Prefabricated membrane sleeves of FPO material for traversing the waterproofing membrane
- Valves covered with rubber sleeves, which are fixed in place
- Grout blocking rings consisting of Geotextile Fleece layers fixed on the shotcrete surface around the tunnel circumference

5.2.6 Material Properties

Shotcrete: Characteristic compressive strength: $f_{ck} = 25$ MPa (cylinder H:D = 1) at 28 days and compressive strength: $f_c = 6$ MPa (cylinder H:D = 1) after 24 hours.

Final lining concrete: Specified compressive strength $f'_c = 38$ MPa (cylinder H:D = 2) at 90 days and water/binder ratio w/c $< 0.5$.

Wire mesh: Steel grade 400 MPa as well as material for synthetic reinforcement (fibres, geo-grid etc.).

Rock dowels, steel channels and steel beams as specified in the construction design.

5.3 Durability Design Aspects

5.3.1 Service Life and Constraints

During the specified operational time of 90 years of the Niagara Tunnel Facility no outage shall occur. The design for the Diversion Tunnel has to consider

- acid and sulphate attack from an unfavourable environment
- the abrasive action of water, ice and debris
- high internal and external pressures from ground and water
5.3.2 Design and Construction for 90 Years Service Life

In vision of the extraordinary challenge to meet the specified requirements for a service life of 90 years, the following design aspects have been determined to serve the purpose:

- The initial rock support is timely separated from final lining erection, which improves the quality of the final structure in total.

- Separation of the final lining from the aggressive (sulphate containing) environment by a waterproofing membrane system. The waterproofing system is vacuum tested to ensure reliable performance. In addition any exchange of water or chloride between inside and outside of the tunnel is inhibited to prevent swelling of the rock.

- The use of high quality concrete for the final lining, which is designed to minimize temperature and shrinkage cracking, has a smooth surface from utilisation of a steel formwork and features high resistance against the abrasive action of water, ice and debris.

- Tight connection between final structure and the surrounding rock mass to mobilize the load bearing capacity of the rock to contribute to the support of high internal and external pressures from ground and water during the 90 year operation requirement. By no means shall be allowed that rocks and debris is washed out and voids behind the lining are created. The tight connection between ground and lining and to a large extent impermeability of the rock mass is achieved by application of cavity grouting where required, contact grouting and interface grouting.

- Prestressing of the final lining to create a compressed concrete support ring, which is able to sustain internal waterpressure without steel reinforcement being required. The risk of corrosion for structural reinforcement within the 90 years design life is such eliminated. The prestressing of the tunnel with interface grouting takes the rock mass surrounding the tunnel close to its original stress state and reduces or eliminates adverse time dependent deformations of the rock mass.

The durability of the final liner is further ensured by

- use of national and international standards and guidelines as a design basis for materials and design loads which generally assume a design life of hundred years.

- suppression and limitation of crack development in the final lining by
  - using concrete with limited heat development
  - firm embedment of the final liner into the rock mass as a result of grouting (cavity grouting, contact grouting, interface grouting/liner prestressing)
5.3.3 Comprehensive Durability Testing

The testing of materials will be phased in

- testing by the manufacturer against specified performance criteria (base product quality)
- testing on site against particular application criteria (applied product quality)
- testing of sections of the completed structure or product where required (final product quality).

Hence a high degree of quality assurance will be ensured to achieve the specified product quality required for the 90 years design life of the facility.

Quality Control testing will be covered in a detailed QC plan for each element of work.

6 CONSTRUCTION METHODOLOGY

6.1 Construction Sequence

The Diversion Tunnel will be excavated by a full-face gripper TBM of 14.44 m diameter. The TBM is launched from the construction pit for the Outlet Structure and advances until it breaks through into the “Grout Tunnel”, which is driven starting from the intake by drill and blast methods. The construction of the “Grout Tunnel” will be addressed in a separate report.

Rock support is installed at the TBM between the cutter head and the working platform according to the requirements defined for each individual support type. The support type applicable to geological conditions prevailing in the tunnel is selected by the Geotechnical Engineer on site. An indication for the distribution of support types is given in the design drawings.

Any voids in the rock mass and behind the initial lining shotcrete, will have to be filled with cavity grouting before installation of the final lining commences.

As a result of the tight construction schedule, partitions of the waterproofing system and final lining shall also be installed while excavation is still ongoing. For this purpose a
bridge is installed at significant distance from the TBM excavation. The invert will be poured in standard bays with construction joints every 12.5 m length of tunnel.

The preparation, cleaning of the invert and diversion of water seeping into the tunnel is followed by the installation of grouting hoses, geotextile fleece and waterproofing membrane. The dual layer waterproofing membrane system is to be tested full face by applying vacuum between the two waterproofing membrane layers. Once membrane testing is complete the formwork is installed and the invert bay is poured.

The top section of final lining will be poured with the application of 2 to 3 shutters simultaneously. The sequence of membrane installation and concrete pouring essentially follows the same pattern as the invert concrete production. Intermediate concreting of 12.5 m long sections will be applied.

After the final lining is installed and the concrete has gained sufficient strength, contact grouting and interface grouting will be applied systematically. The grouting process follows a particular sequence and advances in one tunnel direction. Initially every other hose is connected for interface grouting. In a second run the remaining intermediate hoses are grouted where necessary. After interface grouting is completed, the Diversion Tunnel will be flooded.

6.2 Excavation and Support

6.2.1 Tunnel Excavation and Construction

The tunnel will be excavated by means of a TBM starting from the outlet end of the tunnel. The TBM is erected in the Outlet Canal, pushed to the headwall of the construction pit where tunnel boring commences.

The TBM consists of main body, cutter head and grippers. Disks on the rotating cutter head break the rock mass. The forces which develop as a result of forward movement of the TBM are transferred back to the rock mass by grippers. The TBM as such is only approx. 20 m long, however a 100 to 120 m long backup system is required to manage all the logistics for tunnel excavation and support installation.

The broken ground is conveyed in form of loose chips to the TBM backup. The muck is transported out of the tunnel by means of a belt conveyor system. The material supply (i.e. rock dowels, steel ribs, shotcrete, etc.) is accomplished by wheel based vehicles.

At the intake, which will have been excavated by the time, the TBM arrives, the TBM is dismantled when leaving the tunnel and taken out of the construction pit in parts.
6.2.2 Requirements

The requirements for excavation and support are based on the following conditions:

- Safety for working personnel
- Structural stability of excavation and support
- Safety against wedge and block failure
- Stability of the excavation face
- Avoidance of rock mass loosening

Surface effects shall not be registered. The initial lining will not be considered to contribute to support of long-term loads and will be ignored in the design of the final lining.

6.2.3 Support Measures

Rock Dowels:

Rock dowels serve as rock reinforcement through bedding – and shear planes in the rock mass and they improve block stability. The steel wire mesh installed in the tunnel crown for protection is attached with rock dowels.

Fast acting Swellex M 24 or equivalent Resin Grouted SN Rock Dowels with a length L = 2.4 m to 6.0 m are used. These rock dowels have a load capacity of > 240 kN.

Steel Wire Mesh or equivalent material:

Steel wire mesh 102x102-MW25.7xMW25.7 or equivalent 100/100/6/6 mm is fixed in the roof of the tunnel to protect personnel from falling rock particles until shotcrete is installed.

In addition the welded steel wire mesh facilitates the application of shotcrete to the tunnel crown.

Steel Ribs:

Two types of steel ribs are used for the construction of the bored tunnel.

The light C-Channels are used as a crown support element in geological conditions, which require roof protection mainly. It is applied in form of

- C100X11: b x d = 43 x 102 mm or equivalent UNP 100
  (weight: 10.0 kg/m, second moment of area y-y: > 17.0 cm^4)
- C150X16: b x d = 51 x 152 mm or equivalent UNP 120
  (weight: 13.0 kg/m, second moment of area y-y: > 35.0 cm^4)

In case heavy steel support is required full round, steel sets are to be used in form of
Steel ribs are installed just behind the TBM cutter head with mechanical erectors. As an alternative to the steel channels lattice girders may be used.

**Shotcrete:**

Shotcrete is considered the main supporting element of the initial lining. The thickness of the initial lining is 50 to 260 mm. Shotcrete also serves also as a sealing layer and protects the rock from drying out and from the abrasive action of water during construction.

### 6.2.4 Tunnel Support Application

The arrangement of mechanical and electrical parts on a TBM allows for two locations, where support of excavation is installed at a regular basis.

The location L1 is situated just behind the cutter head between 4 m and 7 m back from the excavation face.

Steel ribs (C-channels in Rock Support Classes 2, 3 and 4, H-beams Rock Support Classes 5 and 6) are installed full round or only in the crown of the tunnel at regular intervals. In Rock Support Class 4Q lattice girders may be used as an alternative to the C-channels.

Steel wire mesh is installed behind the steel ribs with a mesh erector in the roof of the tunnel as a protection measure.

Rock dowels are used to fix the steel wire mesh and the C-channels in the tunnel crown. They are installed at distinctive locations above springline, where support is not harmed by the gripper loads exerted to the side walls of the tunnel. It is planned to drill holes for up to 6 m long rock dowels without extension of the drill rod just behind the TBM cutter head. Additional rock dowels to complete the systematic rock support are installed from the working platform situated between 20m and 40m from the excavation face approximately.

Shotcrete application is possible in L1 but limited to the absolute minimum requirement. Sensible electronic and mechanical parts of the TBM, which are situated in L1 may be affected by dust and rebound material. Protection measures and cleaning of the TBM as a result of shotcrete application in L1 reduces the rate of tunnel advance considerably.

All support installation in L1 adversely affects the rate of tunnel advance, therefore the intention is to install the majority of the required ground support, from the working platform at location L2.
Depending on the ground conditions, which prevail in the tunnel at certain locations it is important to gradually increase the amount of support in a way that the reduction of tunnel advance rate is minimized, but the required level of safety for people working in the tunnel is always maintained.

It has to be acknowledged, that support installation is carried out in several stages at different locations in the TBM and backup system. Full support of the bored tunnel is installed 40 m back from the excavation. However, the ground support required early is depending on the prevailing ground conditions and is installed already behind the cutter head of the TBM.

In order to allow for gradually increasing support installation in an organized manner, support types are defined.

### 6.2.5 Rock Conditions

Table 1 based on the Agreement, Appendix 5.4 (GBR), 8.1.3 does reflect the rock conditions to be encountered along the tunnel alignment. The characteristics specified herein are used as a basis for designing the support and initial lining of the tunnel.

<table>
<thead>
<tr>
<th>Rock Condition</th>
<th>Rock Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stable rock</td>
</tr>
<tr>
<td>2</td>
<td>Loosening of rock in crown or localized area</td>
</tr>
<tr>
<td>3</td>
<td>Unstable or closely broken rock</td>
</tr>
<tr>
<td>4</td>
<td>Unstable or closely broken rock</td>
</tr>
<tr>
<td>4Q</td>
<td>Continuous overbreak due to any of sidewall spalling invert heave</td>
</tr>
<tr>
<td>5</td>
<td>Continuous overbreak due to any of sidewall spalling invert heave slabbing Squeezing rock conditions</td>
</tr>
</tbody>
</table>
Rock pressure generally exceeding rock mass strength
Crown is between 3m and 1.5 m from bedding plane in Queenston

| 6 | Continuous overbreak due to any of
|   | sidewall spalling
|   | invert heave
|   | slabbing
|   | Squeezing rock conditions
|   | Rock pressure generally exceeding rock mass strength
|   | Closely broken shear and thrust zones
|   | Crown is within 3m of bedding plane in Queenston
|   | Other conditions requiring greater support than under Conditions 4 and 5

Table 1: Rock Conditions and Characteristics of the Rock Mass

6.2.6 Rock Support Types

Six types of rock support are differentiated for the bored Diversion Tunnel. The rock support types define support measures for the rock conditions specified in table 1 ranging from sealing shotcrete (if required) to heavy support with steel ribs full round, rock dowels and reinforced shotcrete are designed to cover a wide range in rock mass behaviour, which is anticipated for the project.

In case of seepage water dimple membrane panels are fixed to the tunnel crown and wall to drain the water into the invert area. The dimple membrane (Delta MS or equivalent) will be installed to the initial lining surface or directly to the rock surface as required.

6.2.6.1 Support Type 1:

Support Type 1 is to be applied in stable rock conditions with a uniaxial compressive strength comparable to lean concrete. Only if rocks are sensitive to water or will degrade when exposed to air, a 50 mm thick sealing layer of shotcrete is to be applied.

6.2.6.2 Support Type 2

In case blocks of ground are differentiable in otherwise stable rock conditions, Support Type 2 is to be applied. It consists of steel ribs in form of C100X11 steel channels, which are bolted with a limited number of 2.4 m long rock dowels to the tunnel crown. Also steel wire mesh or equivalent material is fixed with the dowels or purpose-bent bars. This support installed just behind the TBM cutter head will provide safety for personnel working at the front of the TBM.

Further back at the TBM working platform the steel support is covered in the top section of the tunnel with a layer of shotcrete (70 mm thickness) and additional rock dowels are installed. If necessary in ground sensitive to water sealing shotcrete is applied to the invert section of the tunnel equal to Support Type 1.
6.2.6.3 Support Type 3

Support Type 3 is used in friable ground, where small blocks of ground tend to fall from the tunnel crown if left unsupported. It consists of steel C150X16 channels installed at 1.2 m intervals, 4.0 m long rock dowels and steel wire mesh, which is installed close to the front of the TBM (“L1”).

Further back (i.e. working platform) shotcrete (t = 100 mm) and more rock dowels are installed to support the full circumference of the tunnel.

6.2.6.4 Support Type 4

Close to the intersection of the tunnel crown and primary bedding planes, an increasing number and size of unstable blocks of ground is to be expected. Invert heave is to be expected in the shale formations. Support Type 4 consisting of steel C150X16 channels at 0.9 m intervals in the crown (in the Queenston Formation channels are extended to the sidewalls and invert where required– Support Type 4Q), 4.0 m long rock dowels and steel wire mesh or equivalent material in the tunnel crown is to be applied in “L1”.

Shotcrete (t = 130 mm) and additional rock dowels are installed from the working platform of the TBM (“L2”) to complete the support of the tunnel full round.

6.2.6.5 Support Type 5

Support Type 5 is to be installed in squeezing ground, where slabbing and spalling is experienced soon after the excavated rock appears behind the cutter head. Invert heave is to be expected in the shale formations. Support Type 5 consists of steel ribs in form of mid weight W150X37 steel beams, which are installed just behind the TBM cutter head (“L1”) around the full circumference of the cross section at 1.8 m intervals. As for support types 3 and 4 steel wire mesh or equivalent material and 6 m long rock dowels are installed in the tunnel crown to provide safety of the personal working at the front of the TBM.

160 mm of shotcrete is applied from the working platform of the TBM (“L2”) full round is completing the Support Type 5.

6.2.6.6 Support Type 6

Support Type 6 is to be installed in exceptional ground conditions, where spalling, slabbing from rock squeeze is experienced even in front of the excavation face. Invert heave is to be expected in the shale formations. Heavy W200X59 steel beams, 6 m long rock dowels and mesh reinforced shotcrete (t = 100 mm) are to be installed already in L1. Additional shotcrete (t = 160 mm) and one more layer of mesh reinforcement is installed at the working platform (“L2”) to complete the support of the full circumference of the excavation cross section.
6.2.7 Geotechnical Sections along the Tunnel Alignment

6.2.7.1 General

In order to allocate the support types, the potential rock mass behaviour along the tunnel alignment has been evaluated. Five tunnel sections have been identified, which suggest consistent rock mass behaviour being encountered. The following chapters summarize the geological, geotechnical and hydrogeological conditions for each of these sections and the prevailing rock mass behaviour. The description of the tunnel sections starts at the Outlet Structure and proceeds towards the intake.

The following issues apply more or less to all defined tunnel sections:

- The length of each section is based on the tunnel axis. Prolonged interfaces in tunnel crown or invert are not considered when estimating the section length.

- Significant overbreak has to be expected in all tunnel sections where weak bedding planes or flat lying shears occur above the crown. During upslope tunnel advance overbreak is possible when approaching such a feature, during downslope tunnel advance overbreak may occur when leaving such a feature. The depth of the overbreak is controlled by the distance to the overlying plane. Rock slabs in the crown of the tunnel of up to 3.0m are considered in the design of the initial support.

- Where rock mass spalling and slabbing occurs, it is expected soon after excavation took place.

- Invert heave has been measured in previous excavations of tunnels in the area. It was related to slabbing of the rock at horizontal bench excavations. In shale formations invert heave can also be attributed to swelling of the rock mass with the presence of fresh water from tunnelling.

- Shale units are prone to change in moisture content, which will result in the development of cracks and degradation of rock mass when surfaces are left unprotected. Due to previous construction experiences, in case the shale is not protected, cracks will be registered soon after excavation. Application of sealing shotcrete stops the process of drying out.

- Long term rock mass deformation in terms of rock swelling is predicted for all shale formations in case fresh water penetrates into the rock. Laboratory testing indicates that even shale interbeds within the sandstone and carbonate units show swelling potential. However it is assumed that non-swelling sandstone/carbonate interbeds inhibit overall deformation. The extent and reach of the actual swelling will depend on the presence of water and the prevailing in situ stress conditions.
The prevailing Support Types applicable to each section of tunnel are defined in section 6.2.6. To cover a range of support, which may be used in a particular tunnel section, a distribution of applicable Support Types is defined by:

- dominant = high probability
- subordinate = low probability

The quantity of support measures (i.e. rock dowels, steel wire mesh, steel ribs and shotcrete) for the Diversion Tunnel has been estimated based on assumptions for the Proposal and included in the Agreement, Appendix 5.4 (GBR), 8.1.3.

6.2.7.2 Tunnel Section 1

**Section Length:** The first tunnel section has a length of 750m and commences at the location of the Outlet Structure (Chainage 0+000.0 to Chainage 0+750.0). The tunnel is descending from the Outlet Structure at a gradient of 7.82% towards the low point.

**Geology/Geotechnics:** Within this section the tunnel will intersect the total sequence of all formations relevant for the Niagara Tunnel Facility Project including Lockport, DeCew, Rochester, Irondequoit, Reynales, Neahga, Thorold, Grimsby, Power Glen, Whirlpool and Queenston Q10 and Q9 formation.

The Tunnel Section 1 is also characterised by frequent changes of lithology and rock mass properties. The spectrum of lithologies to be encountered includes limestone, dolostone, shale and sandstone. The rock mass is in general slightly fractured to moderately fractured and fresh to slightly weathered. In situ stress conditions are expected to be homogeneous throughout the section but their effect on rock mass is changing due to the variability of rock mass properties. Only in the close vicinity of primary bedding planes the stresses are expected to exceed rock mass strength of shaly formations. Also heave is to be expected in case shale formations (Rochester and Queenston) are encountered in the invert.

**Groundwater Conditions:** Groundwater conditions are expected to vary between dry and wet. The later can be expected to prevail in Irondequoit, Reynales, Thorold, Grimsby, Whirlpool and Queenston Q10 and Q9 formations. Groundwater inflow is expected when traversing the primary bedding planes, which separate the formations. In particular the topside of formations with increased clay content may act as a water carrying boundary. The shale surface may be dissolved and eroded by the presence of water at particular locations.

**Expected Rock Mass Behaviour:** Rock mass behaviour is expected to be stable with negligible deformation and local cracking or loosening of rock to friable with systematic geological overbreak due to discontinuities in the sandstone, siltstone and dolostone. Friable rock slightly swelling with systematic geological overbreak due to discontinuities, minor spalling and deformations, which stabilize quickly are expected in the shaly
formations. Squeezing and swelling rock with systematic geological overbreak due to spalling and slabbing is only expected locally in the Queenston Q10 and Q9.

Failure of the rock mass in the invert may be induced when approaching a bedding plane separating shale from sandstone. The prevailing failure mode will be failure induced by stress and/or along discontinuities, resulting in rock mass slabbing and spalling and/or wedge failure.

On the descending section of the tunnel, interfaces between formations are first encountered in the invert. This provides time to adjust the required support of the tunnel crown, if necessary.

Dominant Rock Support Types in this section of tunnel are expected to be 3 and 4. Rock Support Types 2 and 5 may apply locally.

6.2.7.3 Tunnel Section 2

Section Length: 765m (chainage 0+750.0 to chainage 1+515.0). The low point of the tunnel is situated in this section. After the low point is passed, the tunnel advances at near horizontal grade of 0.10%.

Geology/Geotechnics: This tunnel section of descending advance is situated entirely within the Queenston formation, members Q10 to Q6. The prevailing lithology is shale. The rock mass is slightly fractured to moderately fractured in the vicinity of primary bedding planes and fresh to slightly weathered elsewhere. Low angle (5 degree) shear zones may be expected.

Groundwater Conditions: Groundwater conditions are expected to vary between dry and wet. The later can be expected to prevail in formation Q10 and Q9 due to the higher degree of fracturing and the lower strength characteristics of these formations.

Expected Rock Mass Behaviour: Friable rock, slightly swelling with systematic geological overbreak due to discontinuities, minor spalling and deformations, which stabilize quickly are expected in the in the Queenston Formation. Squeezing and swelling rock with systematic geological overbreak due to spalling and slabbing is only expected locally in the Queenston Q10 and Q9.

Dominant Rock Support Types in this section of tunnel are expected to be 4 and 5 depending on the location of the closest primary bedding plane above the tunnel. Rock Support Types 3 and 6 may apply locally.
6.2.7.4 Tunnel Section 3

Section Length: 500m (chainage 1+515.0 to chainage 2+015.0) Tunnel advance is ascending at a gradient of 0.10%.

Geology/Geotechnics: This tunnel section is situated entirely within the Queenston formation, member Q6 and Q7. The prevailing lithology is shale. Within Q6 a gypsum nodule horizon has been discovered by the geotechnical investigations. The tunnel is passing under the buried St. David's Gorge with rock cover of at least 30 m according to Geotechnical borehole investigations (R-NAW130-10120 – 0041 Geotechnical Investigation of the Buried St. David's Gorge). The geotechnical investigations indicate near chainage 1+870.0 a sand layer embedded into the rock. To cover uncertainties a rock cover of minimum 10 m is assumed in the design of the tunnel at the location of the buried gorge until detailed information about the ground is available.

Groundwater Conditions: Groundwater conditions are expected to vary between dry and wet. Wet conditions are expected to prevail under the St. David's Gorge.

Expected Rock Mass Behaviour: Friable rock slightly swelling with systematic geological overbreak due to discontinuities, minor spalling and deformations, which stabilize quickly are expected in the Queenston Q6 and Q7 formations. The nearest bedding plane (interface Q7 and Q8) is predicted further than 5 m above the tunnel crown, which should positively affect the stability of the tunnel excavation. The bedding plane between Q6 and Q7 is closely below the tunnel crown and could affect the crown and shoulder of the tunnel excavation in a negative way.

Dominant Rock Support Types in this section of tunnel are expected to be 4 and 5. Rock Support Types 3 and 6 may apply locally.

6.2.7.5 Tunnel Section 4

Section Length: 7310m (chainage 2+015.0 to chainage 9+325.0) Tunnel advance is ascending at a gradient of 0.10%.

Geology/Geotechnics: This tunnel section is situated entirely within the Queenston formation, member Q6 to Q10. The prevailing lithology is shale. Within formation member Q6 a gypsum nodule horizon occurs. The rock mass is slightly fractured to moderately fractured in the vicinity of primary bedding planes and fresh to slightly weathered elsewhere. The geological conditions are comparable to Section 2.

Groundwater Conditions: Groundwater conditions are expected to vary between dry and wet. The later can be expected to prevail in formation member Q9 and Q10 due to their higher degree of fracturing and the lower strength characteristics of the formations. The groundwater regime may be affected by the presence of seepage from the existing Diversion Tunnels 1 and 2 which are located 20 m to 60 m above the tunnel crown.
Expected Rock Mass Behaviour: Friable rock, slightly swelling with systematic geological overbreak due to discontinuities, minor spalling and deformations, which stabilize quickly are expected in the in the Queenston Formation. Squeezing and swelling rock with systematic geological overbreak due to spalling and slabbing is only expected locally in the Queenston Q10 and Q9. Invert heave is to be expected since the tunnel cross section is entirely in Queenston shale.

Between chainage 4+300.0 and chainage 5+100.0 the interface Q7 and Q8 is predicted closer than 3 m to the tunnel crown. An increased risk of major slabbing is to be expected in the tunnel crown. Again between chainage 7+100.0 and chainage 7+800.0 the interfaces to Q9 and Q10 are close to the tunnel crown. Finally the tunnel crown is exposed to increased risk of major slabbing, when the interface to the Whirlpool formation is closer than 3 m between chainage 8+600.0 and chainage 9+150.0.

Dominant Rock Support Types in this section of tunnel are expected to be 4 and 5 depending on the location of the closest primary bedding plane above the tunnel. When tunnelling directly under existing tunnel and shaft structures, Rock Support Types 5 will be installed. Rock Support Types 3 and 6 may apply locally.

6.2.7.6 Tunnel Section 5

Section Length: 1045m (chainage 9+325.0 to chainage 10+370.0) Tunnel advance is ascending at a gradient of 7.15%.

Geology/Geotechnics: Within this section the tunnel will intersect the total sequence of all formations relevant for the Niagara Tunnel Facility Project including Lockport, DeCew Rochester, Irondequoit, Reynales, Neahga, Thorold, Grimsby, Power Glen, Whirlpool and Queenston Q10 and Q9 formations. Thus the tunnel section is also characterised by frequent changes in lithology and rock mass properties. The spectrum of lithologies to be encountered includes limestone, dolostone, shale and sandstone. The rock mass is in general slightly fractured to moderately fractured and fresh to slightly weathered. In situ stress conditions are expected to be homogeneous throughout the section but their effect on rock mass is changing due to the variability of rock mass properties. Only in the close vicinity of primary bedding planes the stresses are expected to exceed rock mass strength of shaly formations. In general the geological conditions are comparable to section 1.

Groundwater Conditions: Groundwater conditions are expected to vary between dry and wet. The later can be expected to prevail in Irondequoit, Reynales, Thorold, Grimsby, Whirlpool and Queenston Q9 and Q10 formations. Tunnel sections intersecting the Lockport and DeCew formations can expect groundwater conditions which vary between wet and flowing. Significant groundwater inflow can occur within last quart of this section.

Expected Rock Mass Behaviour: Rock mass behaviour is expected to be stable with negligible deformation and local cracking or loosening of rock to friable with systematic
geological overbreak due to discontinuities in the sandstone, siltstone and dolostone. Friable rock slightly swelling with systematic geological overbreak due to discontinuities, minor spalling and deformations, which stabilize quickly are expected in the shaly formations. Squeezing and swelling rock with systematic geological overbreak due to spalling and slabbing is only expected locally in the Queenston Q10 and Q9. Due to lithological changes of the rock mass a frequent variation of rock mass properties is expected.

Failure of the rock mass in the crown and shoulders of the tunnel may be induced when approaching a primary bedding plane separating weaker shale from sandstone. On the ascending section of the tunnel, interfaces between formations are first encountered in the tunnel crown. This demands increased awareness when the tunnel excavation intersects bedding planes, since little time is provided to adjust the required support, if necessary. Also heave is to be expected in case shale formations (Rochester and Queenston) are encountered in the invert.

Dominant Rock Support Types in this section of tunnel are expected to be 3 and 4. Rock Support Types 2 and 5 may apply locally.

6.3 Instrumentation

6.3.1 Instrumented Tunnel Sections

The following instrumentation for long-term monitoring is provided for a section situated close to the low point of the tunnel (see. drawings NAW130-D0V-29230 – 0022, Diversion Tunnel, Geotechnical Measurements, Tunnel and NAW130-D0V-29230 – 0023, Diversion Tunnel, Geotechnical Measurements, Surface and Subsurface):

- A permanent array of eight extensometers that have monitoring positions (anchors) at 25, 10, 5, 2 and 1 m measured radially from the surface of the tunnel excavation. Installation of an initial group of anchors is carried out and the initial readings taken, subject to installation of the initial lining, before the tunnel face advances more than 25 m beyond the array. The extensometer cross section including long anchors is completed behind the TBM back-up. The array of extensometers is finally capable of being monitored remotely from the surface during the initial filling and operation of the tunnel.

- A permanent array of six piezometers around the exterior of the tunnel final lining and one piezometer situated on the interior of the lining in the tunnel invert. The array of piezometers will be also capable of being remotely monitored from the surface during the initial filling and operation of the tunnel.

- Electrical leads for extensometers and piezometers are routed in watertight conduits, adequately fixed to the tunnel crown and extending up one of the
boreholes used for dewatering shafts or tunnel piezometers leading to a lockable watertight box located in a manhole at ground level.

6.3.2 Tunnel Piezometers

(see. Drawing NAW130-D0V-29230 – 0026, Diversion Tunnel, Tunnel Piezometers, Sections and Details)

Tunnel piezometric levels are measured at two locations along the alignment of the tunnel at approximate chainage 2+988.365 and chainage 9+100.000 (locations to be confirmed at detail design). Each location consists of two piezometers, 2 m to 20 m apart. The borehole for each piezometer is extending through the tunnel lining at the tunnel crown to the ground surface. The final locations will be agreed with the flow testers and OPG prior to detail design.

Piezometer holes are cased with HDPE casings with a minimum 95 mm inside diameter. The annular gap between the rock and the casing will be grouted to prevent groundwater migration between the different rock formations. Waterproofing membrane for the diversion tunnel is perforated and the connection squeezed between two flanges of stainless steel, which contain the lower partition of the piezometer well extending into the tunnel final lining.

The instrument will be a vibrating wire or similar type instrument, which is lowered on a cable into the pipe to an elevation, which is determined to measure the water pressure in the standpipe. Detailing will ensure that the velocity head is not measured.

The piezometer hole exits into a manhole at the ground surface. This is made of precast concrete shaft rings of 1.5 m diameter and 2 m deep. A data box, electricity supply, and a dewatering pipe is also provided for the manhole. A watertight, lockable cap covers the hole.

6.3.3 Surface Movement Monitoring

Surface movement monitoring (SM) is carried out with survey equipment and surface movement monitoring points (SMMP). The SMMP is a marker fixed to a surface, and used for the measurement of the vertical movement of the ground surface. For SMMP permanent pins on structures or grouted rods in rock are used. Where measurements of settlement or heave are monitored in soil, the monitoring points shall be placed such to eliminate frost heave. Survey equipment (theodolite, level, electronic distance measuring device, tape extensometer), is capable of measuring vertical and horizontal movements of the SMMPs to ±1 mm.
6.3.4 Tunnel Convergence Monitoring during Excavation

Optical methods are used for tunnel convergence monitoring. The monitoring equipment consists of precision theodolite, monitoring targets and purpose designed software. The theodolite used for convergence measurements has an accuracy of ± 1 mm.

Tape extensometer measurements and levelling studs are used in exceptional cases only. Measurements also allow an accuracy of ± 1mm.

Lining deformations are monitored by the observation of movement of targets or measuring bolts installed in the initial lining.

Monitoring cross sections are typically arranged at 200 m centres along the tunnel.

6.3.5 Tunnel Convergence Monitoring during Interface Grouting

Tunnel convergence monitoring during interface grouting will be covered in a separate specification document to be compiled for interface grouting. It is anticipated to have a precise monitoring system developed, which is equipped for digital data transfer and automatic evaluation of monitoring results.

6.4 Grouting of the Rock Mass

6.4.1 General

Cavity Grouting will be made to reduce the water ingress in tunnel sections of high permeability and fill voids in the rock mass. Formation Grouting will be applied to improve the ground for excavation purposes where necessary.

Typically in case of a grouting operation, holes will be drilled, packers will be installed and grout will be injected through boreholes.

Commencing mixes for grouting may be applied at a water cement ratio of 1:3 by volume unless a thinner mix is indicated by pre-mature refusal. Increasing or static flow conditions determine the mix adjustment. In order to prevent washouts, sodium silicate based or similar water stopping admixtures and filter pipes will be used. The grouting materials (grouting mortar or cement grout) and the water / binder ratio are confirmed by grouting trials. In areas of high water inflow, chemical grouts (e.g. Polyurethane) will be used to seal water bearing seams.

Any grout hole that accepts significant grout has two additional adjacent holes drilled and grouted. A recorder takes records of the whole grout operation including readings of the volume of grout injected and the number of cement bags with the corresponding water cement ratios batched. The recorder also keeps in contact with the header operator to
verify injection pressures and to register conditions at the face; i.e. grout leakage, interconnection with other holes, etc. He produces a daily time sheet and an as built record of the grout operation on a regular basis.

6.4.2 Formation Grouting

Formation Grouting is applied in case of significant washout from the tunnel face or if the stability of the excavation face is affected by the ingress of water.

In case loose ground is encountered in the TBM advance which cannot be excavated or supported by means of typical support measures, the TBM will be stopped, boreholes drilled, packers installed and grout will be injected through the boreholes. Formation Grouting will be carried out at the front of the TBM and through and/or above the cutter head, if necessary.

The as-built record of the grout operation in combination with the tunnel water inflow record is the basis for the decision to advance with the TBM.

6.4.3 Cavity Grouting

Tunnel inflow will be covered by standard pumping measures. Grouting will be applied in case higher rates of water ingress than anticipated are encountered. Cavity Grouting is carried out from the working platform or from a suitable location behind the TBM such that the advance of the tunnel drive is not influenced by the grouting operation.

Grout holes for systematic full round Cavity Grouting are drilled to a depth of 4 m in a radial pattern of 1.5 m centres and at 2.5 m centres along the tunnel. The grout holes are subsequently grouted with cement based grout mixture in order to reduce the water inflow to a manageable level.

Grout holes to fill known cavities in the rock mass are drilled that they reach well into the cavity. Grouting pipes are installed and the voids filled with grout.

The grouting operation is performed in accordance to standard grouting procedures developed and applied in similar cases.

To prepare the permeable section of the Lockport and Decew Formations for the TBM advance an approx. 400 m long “Grout Tunnel” will be driven by drill and blast from the intake. Cavity Grouting will be performed depending on the water inflow.

The seepage of water along the tunnel axis from the water bearing units to the shale units is to be prevented. To a large degree this issue is covered by the fact that any gap between tunnel lining and rock is tightly closed by interface grouting. To avoid that migration of water is diverted through open joints in the rock mass surrounding the tunnel.
additional cavity grouting is carried out where necessary at the interfaces between water-bearing dolomite or sandstone formations and the shale formations.

The success of cavity grouting will be tested by confirmatory drillholes and/or water permeability tests, if required.

### 6.5 Final Lining

The final invert concrete is installed at adequate distance to the excavation.

The placement of the waterproofing membrane system and the installation of hoses and valves for interface grouting is also accommodated within the location of invert concrete works.

The invert is cast in 12.5 m long bays. A bridge will facilitate the material supply to the excavation while pouring of the invert concrete is in progress.

Before the final lining is installed in the top of the tunnel, the grout hoses for interface grouting and a waterproofing membrane system consisting of waterproofing membrane and membrane-backed geotextile fleece are fixed to the tunnel walls and crown.

The final lining concrete top section is placed with 12.5 m long steel shutters that are placed on the invert concrete. The steel skin used for formwork is designed to meet tight smoothness criteria which are set to limit losses to the flow of water in the Diversion Tunnel. The abrasivity is also counteracted by achieving a very smooth concrete surface.

Although a uniform internal diameter of the Diversion Tunnel is generally anticipated, adjustable formwork segments which allow a variation of the internal diameter are used. Flow rates can be maximised for water transfer dependent on the initial lining thickness (0 mm in rock support Type 1 to 260 mm in rock support Type 6). Adjustment of the internal tunnel diameter shall be achieved between 12.60 m and 12.80 m. Steps between sections of different diameter as a result adjustable formwork will be smoothened by a short transition section to minimize flow losses.

### 6.6 Contact Grouting

Contact grouting is applied through a series of grout holes (“grouting cones”) distributed over the inner lining surface. The grouting cones are fitted with packers and grout is systematically filled between the back of the final lining concrete and the waterproofing membrane system. Once the gap between waterproofing membrane and final lining concrete is filled and voids are closed, the contact grouting pressure of approx. 2 – 3 bar is kept to ensure uniform spread of grout.
Injection barriers are placed in the radial construction joints of the final tunnel lining to avoid a loss of grout through the joints.

6.7 Interface Grouting

The interface grouting has been originally developed for pressure tunnels and shafts at highhead hydropower schemes. Grout is injected between initial lining and waterproofing system at high pressures. The interface gap between membrane backed geotextile fleece and the initial lining is systematically opened and filled with grout. The final lining at one hand and the rock mass surrounding the tunnel on the other hand is compressed as a result of the grouting pressure locked permanently into the ground. The final lining is prestressed and the rock mass around the tunnel is brought close to its original stress state before excavation of the tunnel took place.

The interface grouting operation is carried out through a system of grout-hose-rings installed between the initial lining and the waterproofing membrane system. Grout hose lines with valves at regular intervals are attached to the surface of the initial lining. The ends of grout hoses are guided through the waterproofing membrane system and through the cast in place final lining into the tunnel. Grouting commences after the final lining is installed and has gained sufficient strength.

By pumping grout to the interface between membrane and initial lining a circumferential joint is opened and filled with cement grout. The membrane-backed extrados of the geotextile fleece will ensure an evenly distributed flow of grout along the extrados of the tunnel. Joints and cracks in the initial lining and rock mass, which have not been filled by cavity grouting already will also be filled with grout.

The final lining is prestressed against the rock by the grout pressure acting in the circumferential joint. The deformations of initial lining, final lining and the rock mass are locked after the cement grout has hardened. At the same time the ground is consolidated and sealed against ingress of water, since grout escapes into the cracks and fissures of the rock mass.

Grout blocking rings are installed every 12 m approximately around the entire circumference of the tunnel to introduce a certain amount of resistance to the flow of grout and to limit the extent of grout distribution to 150 – 200 m. They consist of bands of geotextile folded in several layers and fixed to the rock or shotcrete surface with nails and metal strips.

The grouting procedure follows a defined pattern of pressure application with aid of two or more pumps, hence creating a consistent flow of grout along the tunnel. Grouting is carried out in a first phase at every other interface grouting ring from both ends of the
grout hose. If necessary the remaining intermediate rings are grouted in a second phase of interface grouting.

At the start of interface grouting, the final tunnel lining can be considered under at least 1 bar pressure (remaining from contact grouting) round the circumference increasing from top to bottom of the tunnel according to the distribution of bedding reaction resulting from self weight of the lining. Interface grout is pumped into the grouting hoses in two to three grouting rings simultaneously. Once the local existing pressure (contact grouting and bedding reaction) is exceeded at the valve (situated at 3 m circumferential centres), grout starts to travel along the outside of the grout hose at pressures, just above the existing pressure affecting small areas around the circumference of the tunnel until the grouting ring is fully closed. This fully closed grouting "coat" around the tunnel circumference travels at pressures defined by the grouting procedure along the tunnel with the progress of interface grouting works.

The success of grouting is carefully monitored. Pumping pressures defined by structural analysis, are controlled within the allowable limits.

All operational pressures and loads are carried by the compressed final lining concrete ring after successful grouting. Shrinkage of concrete and the shrinkage due to the drop in temperature when filling the tunnel with water are carefully considered in calculations for the required grouting pressures to be applied.

Regrouting is required in case the anticipated grouting pressure is not achieved or if the pressure loss falls below the required minimum prestressing pressure determined to sustain the internal water pressure.

Outline of the procedure:

1. Calculation of the required long term prestressing pressure and associated tunnel convergence.

2. Assessment of losses (in form of differential deformations) due to shrinkage and creep of concrete and temperature contraction of the final lining due to watering up.

3. Measurement of tunnel diameter before interface grouting takes place.

4. Measurement of tunnel diameter after interface grouting is completed and calculation of the differential convergence.

5. Comparison with differential deformation associated with the conservation of the minimum long term prestress including the temperature contraction after watering up, concrete shrinkage and concrete creep.

A test section is planned in the tunnel where the final lining is completed early to calibrate grouting parameters and to correlate grouting and monitoring equipment.
7 DESIGN REQUIREMENTS

7.1 General

It has to be appreciated that, prior to tunnelling, the tunnel design represents a prediction which is either verified when geotechnical parameters of the geology encountered coincide with the parameters given in the Design Build Agreement, Appendix 5.4 (GBR), or which has to be adjusted to suit actual conditions.

7.2 Design Loads

7.2.1 Self weight

The self weight of the structural elements is based on unit weight and computed volume of the materials. The following unit weight is used:

- Shotcrete: \( \gamma_{SH} = 24.0 \text{kN/m}^3 \)
- Unreinforced concrete: \( \gamma_{UC} = 24.0 \text{kN/m}^3 \)
- Reinforced concrete: \( \gamma_{RC} = 25.0 \text{kN/m}^3 \)
- Structural steel: \( \gamma_{ST} = 78.5 \text{kN/m}^3 \)

7.2.2 Ground Load

Weight of ground for all rock formations: \( \gamma_R = 26.0 \text{kN/m}^3 \).

Ground load in Finite Element Analyses is calculated automatically in form of rock pressure on the tunnel lining. The horizontal rock pressure is predetermined in the primary stress field applying the relevant stress ratio (horizontal / vertical stress).

In structural analyses using elastically bedded beam models (Beam Spring Model), the vertical and horizontal ground load is adopted to the load case considered. I.e. a structural analysis of a rock slab up to 3.0 m thickness as defined in Appendix 1.1 (vv) of the Design Build Agreement (OMR) item 8.3.2.

7.2.3 Rock Swelling

It is assumed that swelling will occur in the shale formations if there is both stress relief and a reduction of the chloride concentration. The chloride ion diffusion is assumed to be the mechanism for the reduction of the chloride concentration.
Due to the presence of a waterproofing membrane system, which is diffusion tight for chloride ions, rock swelling is not initiated during operation of the Diversion Tunnel and therefore not an applicable design load case for the final lining (see Table 5 and Table 6).

However, since during the two years of excavation preceding the final lining installation fresh water used in the tunnel excavation may affect the invert of the tunnel, rock swelling loads are calculated according to the Agreement, Appendix 1.1 (vv) (OMR) 8.3.4. to determine associated heave, which may affect the initial lining.

Stress relief arises from the secondary stress state (stress redistribution around the tunnel) during the excavation procedure.

**Diffusion Criteria:**

The waterproofing membrane will be assumed impermeable for chloride ions during the operational time of the tunnel. Special tests will either confirm this thesis or the appropriate diffusion rates (chloride diffusion coefficient [cm²/s]) for the lining system (consisting of shotcrete, waterproofing membrane and final lining concrete) will be defined.

Analysis for chloride diffusion will be performed if required:

For the upper Queenston (Q6 – Q10) the chloride diffusion coefficient D is taken to be 1.5 x 10⁻⁵ cm²/s as defined in Appendix 1.1 (vv) of the Design Build Agreement (OMR) item 8.3.4. Due to lack of additional data a chloride diffusion coefficient of 1.5 x 10⁻⁶ cm²/s, which is specified for the lower Queenston, is applied to the rock formations on top of the Queenston too.

The chloride ion penetration will be analyzed for various time steps \( t_i \) as a function of the location \( x \) (distance from the excavation wall). It is assumed that the chloride concentration \( C \) initially is constant in the rock and in the tunnel. The calculations result in chloride ion penetration profiles from time \( t_1 = 0 \) to time \( t_{\text{end}} = 90 \) years (chloride concentration \( C \) as a function of the distance). The following differential equation will be used for the diffusion:

\[
\frac{\partial C}{\partial t} = -D \cdot \nabla C
\]

with an uniaxial formulation:

\[
\frac{\partial C}{\partial t} = -D \frac{\partial^2 C}{\partial x^2}
\]

or a radially symmetric formulation:

\[
\frac{\partial C}{\partial t} = -D \left( \frac{1}{r} \frac{\partial C}{\partial r} + \frac{\partial^2 C}{\partial r^2} \right)
\]
Either Finite Element or Finite Difference Methods will be used to analyse the diffusion process taking into account the similarity in modelling diffusion, permeability or temperature phenomena.

**Swelling Criteria:**

According to the Design Build Agreement, Appendix 5.4 (GBR), swelling will occur in the various rock formations of the Niagara Area. The swell potential for the shale layers of the Lockport and the Rochester formations is lowest. The shale layers in the Power Glen and the Grimsby Formations have higher swell potential. The Queenston shale possesses the highest swelling potential.

The potential of swelling in a zone will be checked by first calculating the rock zone with a reduction in chlorides of 2% as a worst case (according to the Design Build Agreement, Appendix 1.1(vv), item 8.3.4, [2.c.x]). In this way the depth of the diffusion front where swelling will be initiated is analyzed.

Rock zones with a potential reduction in chlorides of 2 % will be checked in a second step with respect to the principal stress state. It is generally assumed that the swelling rate is to be controlled by effective stresses. The effective principal stresses state will be compared to the swelling law (Design Line according to the Design Build Agreement (DBA), Appendix 1.1(vv), item 8.3.4, [2.c.v]). If a principal effective stress is less than the relevant swell suppression pressure then swelling strain is applied to this zone. Swelling pressures up to 5.0 MPa are indicated as a worst case, 4.0 MPa are expected according to test results presented in the DBA. In the FE-model a “volumetric strain approach” in the continuum elements will be used.

The sedimentary rock has anisotropic stress and strain behaviour. The analyses take into account the swell anisotropy of the rock formations: according to the Design Build Agreement, Appendix 1.1(vv), item 8.3.4, [2.c.xi] the horizontal rock swelling will be equal to 0.6 the vertical rock loading.

The processes “rock-squeeze” and “swelling” are interrelated and the individual effects of each process are difficult to distinguish (see Design Build Agreement, Appendix 5.4 (GBR), chapter 6.8).
7.2.4 Rock Squeeze

Squeeze Approach:

Rock squeeze is defined as substantial time-dependent deformation in vicinity of the tunnel as a result of load introduced by the redistribution of stresses adjacent to the tunnel excavation.

A time related approach to estimate “rock squeeze” or “rock creep” is used to estimate the potential long-term stress-increase on the tunnel lining:

\[
E_{rock}(t) = \frac{E_{rock}(t = 0)}{1 + \varphi(t)}
\]

The long-term rock mass behaviour is taken into account by calculating a reduced stiffness modulus \( E_{rock}(t) \) for the time \( t \), \( \varphi(t) \) represents the creep-coefficient. The range for the creep coefficient \( \varphi \) (\( t = 90 \) years) is selected on the basis of engineering judgement. The maximum creep rate to be applied is derived in the document R-NAW130-29230 – 0008, Diversion Tunnel, Derivation of Rock Squeeze, on the basis of deformations measured at the trial adit.

Evaluation of the stress increase due to rock squeeze:

The long-term stress increase due to rock-squeeze is equivalent to the time-dependent redistribution of ground load to the final lining. The convergence-confinement method is used to estimate the magnitude of this redistributed ground load.

The convergence-confinement method is based on a concept which involves analysis of the ground structure interaction by an independent simulation of ground behaviour and tunnel support. The ground behaviour is represented by a ground-reaction curve and the tunnel support is represented by a support reaction curve.

Loading Conditions in the FE-model

The additional load (stress increase) due to the long-term creep behaviour will be applied to the final lining taking into account 2 approaches in the FE-calculations:

- isotropic stress increase,
- horizontal stress increase.

Squeeze is initiated by the relief of high in-situ horizontal stresses. It is unclear whether this effect will load the tunnel lining in horizontal direction only or uniformly. Therefore both loading conditions will be checked.
7.2.5 Operating Water Pressures

The pressure exerted by water is governed by the water levels specified in chapter 2.2. Discounting for the various pressure elevations the design water level is defined at top of the surge shaft.

The water pressure at the top of the surge shaft multiplied by a load factor $\alpha'' = \alpha_0 = 1.25$ is determined the standard design water pressure.

The ratio of the water pressure at the top of the surge shaft to the normal mean water pressure ($p_{\text{Top of surge shaft}} / p_{\text{normal mean}}$) is defined as factor $\alpha'$. A corresponding overall load factor $\alpha$ can be calculated according to the following equation: $\alpha = \alpha' \times \alpha''$ (see Figure 1 as example for Analysis Section 6, Ch. 1 411.00 m) for assessment of the overall safety margin included in the analysis.

Figure 1: Operating water pressure
7.2.6 Groundwater Pressure

The groundwater pressure is extrapolated from the nearest measurement included in the Design Build Agreement, Appendix 5.4 (GBR) table 6.11 to the relevant analysis section for the Diversion Tunnel.

Discounting for the measured ground water elevations the design ground water level is defined to be equal to the ground level. The water pressure due to water at ground level is multiplied by a load factor $\alpha'' = \alpha_D = 1.25$.

The ratio of the water pressure due to water at ground level to the pressure due to the measured ground water table ($p_{\text{ground level}} / p_{\text{measured level}}$) is defined as factor $\alpha'$. A corresponding overall load factor $\alpha$ can be calculated according to the following equation: $\alpha = \alpha' \times \alpha''$ (see Figure 2 as example for Analysis Section 6, Ch. 1 411.00 m) for assessment of the overall safety margin included in the analysis.
7.2.7 Seismic Loads

Seismic loads as a result of earthquake are ignored during construction of the Diversion Tunnel. They are applied as an exceptional load in the analysis of the final tunnel lining.

Using a procedure, described in the Ontario Building Code 1997, 1 July, 2005 update, for the determination of the minimum lateral seismic force (paragraph 4.1.9.1. (4) and (5)) the horizontal acceleration of 0.2 * g [ms⁻²] is obtained.
Seismic loads are applied on the tunnel final lining in sectional and longitudinal direction. The horizontal acceleration of 0.2 * g [ms^-2] is used for the stability analysis.

7.2.8 Construction Loads

Construction loads are considered:
- weight of temporary plant and machinery placed on the invert of the final lining (Plant load is assumed to consist of a truck with a total weight of 52 tons and a maximum wheel load of 6.5 tons)
- concrete weight upon removal of top formwork

7.2.9 Cavity Grouting Pressure

The grouting operation will be carried out to decrease permeability of the ground before the final lining is installed in the tunnel. Cavity grouting has therefore no effect on the final tunnel lining and is not considered in the analysis. Any effects of ground improvement due to cavity grouting would be negligible compared to the high strength of the rock mass.

7.2.10 Contact Grouting Pressure

Contact grouting is applied up to a pressure of 2.0 bars. A uniform load distribution is assumed.

7.2.11 Interface Grouting Pressure

The interface grouting pressure is determined in form of a long-term pressure, which is the minimum defined grouting pressure to guarantee long-term stability of the final tunnel lining and a short-term grouting pressure which is to be actively applied in the works.

The required long term interface grouting pressure is determined by the
- appropriate operational water pressure
- losses due to temperature decrease upon watering up
- losses due to concrete creep and shrinkage.

a) Short-Term Grouting Pressure

The expected strains in the final lining concrete due to shrinkage, creep and temperature decrease when watering up, are defined in the subsequent chapters.
7.2.12 - 7.2.14. To determine the short-term grouting pressure, which has to be actively applied with the grout pump (pumping losses not included), the expected strains have to be added to the strains produced by the required long-term grouting pressure.

b) Long-Term Grouting Pressure

The required long-term interface grouting pressure to prestress the final lining and the surrounding rock is determined in such a way that the operational water pressure in form of the Normal Mean Water Level at the GIP according to subchapter 2.2 does not mobilize any tensile stresses in the final lining of the Diversion Tunnel. In addition the Probable Maximum Flood shall not cause tensile stresses in the lining as an exceptional load.

7.2.12 Thermal Forces

Strains and forces caused by temperature changes in the final lining are considered temperature loads.

The temperature development due to hydration during and after concreting will be based on actual measurements in the concreting trials.

Before filling the tunnel it is assumed that the temperature of concrete cools down to 10 °C on the shotcrete/rock interface (extrados) and to 10 to 20 °C (seasonal variations) on the intrados of the final lining concrete. After filling the tunnel with water, the concrete temperature is assumed to drop from maximum of 20 °C to a minimum of 4 °C on the intrados. The extrados of the final lining is assumed to remain at a temperature of 10 °C.

This drop in temperature will cause a contraction of the lining. It results in a reduction of the final lining prestress as a consequence.

<table>
<thead>
<tr>
<th>Concrete Lining Thickness d</th>
<th>Max. temp. gradient before filling the tunnel with water °C</th>
<th>Max. temp. gradient after the tunnel is filled with water °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>extrados (rock)</td>
<td>+10</td>
<td>+10</td>
</tr>
<tr>
<td>centre line</td>
<td>+15</td>
<td>+7</td>
</tr>
<tr>
<td>intrados</td>
<td>+20</td>
<td>+4</td>
</tr>
<tr>
<td>ΔT</td>
<td>+10</td>
<td>-6</td>
</tr>
</tbody>
</table>

Table 4: Temperature Gradient in Final Lining Concrete

To verify assumptions it is intended to measure the temperature in the tunnel.
7.2.13 Concrete Shrinkage

Concrete shrinkage is caused by the migration of the excess water from the interior of the concrete mass and leads to shortening of the concrete per unit length. Since the final lining is restraint the shortening of the concrete leads to stresses in the lining. Shrinkage strains are assumed to be constant over the entire lining thickness. The shrinkage process is basically stopped, when the tunnel is filled with water.

The shrinkage strain mainly depends on the ratio of volume to surface of the structure, on the drying time of the concrete and on the humidity of the environment.

It is assumed that the concrete shrinkage will be reduced due to tunnel watering after 2 year time. The concrete shrinkage will be determined at the concreting trials. Meanwhile a strain of $\varepsilon_s = -15.7 \times 10^{-5}$ is applied based on experience with comparable tunnel linings.

7.2.14 Concrete Creep

Creep will be taken into account by reducing Young's Modulus for concrete. A stiffness-reduction-factor of $\mu = 1.5$ to $\mu = 2.3$, dependent on the concrete age, will be assumed to model concrete creep time-dependently. In the analysis an average reduction factor of $\mu = 2.0$ is applied. This leads to a reduction of Young's Modulus for concrete to 50% of the initial value.

7.3 Analysis Methods

7.3.1 Elastically Bedded Beam Spring Model

7.3.1.1 Calculation Model

An elastically bedded beam spring model is used for the following structural analysis:

a) in case of well defined active load conditions combined with predominantly elastic subgrade reactions

b) in case of load cases combined with constraint forces such as temperature gradient, shrinkage and creep in the concrete lining.

The ground reaction is defined as an elastic-plastic subgrade reaction $K$ (radial springs with tension cut-off criterion) and is modelled by radial and tangential springs.

The radial modulus of subgrade reaction $K_R$ is calculated using the following formula:
\[ K_R = \frac{E}{R} \]

E represents the stiffness modulus of the surrounding rock and R is the radius of the tunnel lining. In case of an effective interlocking between the lining and the surrounding rock (for the initial lining) tangential springs are taken into account in this analysis. The tangential modulus of subgrade reaction for the interface rock – shotcrete is \( K_T = 0.2 K_R \).

Tangential bedding is not modelled for the analysis of the final lining due to the presence of a waterproofing membrane system.

Initial lining and final lining of the tunnel is analyzed using the Elastically Bedded Beam Model. Both ultimate limit state and serviceability limit state are considered for analysis of the:

- initial lining with respect to a key block representing a rock slab up to 3.0 m thickness.
- time until removal of the top formwork for the “young” final lining concrete is allowed.
- effect of construction loads on the final lining.
- final lining with respect to the applied contact grouting and short term grouting pressures.

### 7.3.1.2 Loads considered in the Beam Spring Model

The following loads are considered with the beam spring method (for the definition see chapter 7.2):

- Self weight
- Ground load
- Operating Water and Hydrodynamic Water Load
- Short-term grouting pressure (from Contact and Interface Grouting)
- Construction loads
- Thermal forces
- Concrete shrinkage
- Concrete creep
- Seismic loads
7.3.1.3 Design Factors

In the beam spring model factors are determined in accordance with CSA A23.3. Herein the effect due to specified loads is multiplied by a load factor $\alpha$:

- Self weight $\alpha_D = 1.25$
- Ground load $\alpha_D = 1.25$
- Short-term grouting pressure $\alpha_L = 1.0$ (*)
- Operating water pressure $\alpha_L = 1.5$ (**) 
- Construction loads $\alpha_L = 1.5$
- Thermal forces $\alpha_T = 1.25$
- Concrete shrinkage $\alpha_T = 1.25$
- Concrete creep $\alpha_T = 1.25$

According to CSA A23.3:

D … dead loads
L … live loads
T … temperature loads

*) Factor $\alpha_L = 1.0$ for the short-term grouting pressure is in accordance with CSA A23.3, since the grouting operation is carefully monitored and the pressure can be instantly switched off.

**) The factor may be reduced to 1.25 if the factored water level is above ground level (refer to chapter 7.2.5)

7.3.1.4 Load Combinations

For the beam spring model the above specified loads multiplied by a load factor $\alpha$ are combined in accordance with CSA A23.3:

$$\alpha_D \ D + \gamma \psi \left( \alpha_L \ L + \alpha_T \ T \right)$$

Herein the effect due to a load combination factor $\psi$ and an importance factor $\gamma$ is considered:

- Load combination factor $\psi$:
  - $\psi = 1.00$ when L or T is considered
  - $\psi = 0.7$ when a combination of L and T is considered.

- The importance factor $\gamma$ is equal to 1.0 for all load combinations.
7.3.2 Finite Element Method

7.3.2.1 Calculation Model

The Finite Element Method is used to analyse all stages of construction and operation of the tunnel. The design analysis starts with the defined primary stress field, models excavation, initial lining and final lining installation, prestressing of the final lining with interface grouting, filling the tunnel with water, dewatering of the tunnel for exceptional maintenance, rock squeeze, rock creep and earthquake. All relevant loads which are applicable to the final lining structure of the Diversion Tunnel during the design life of 90 years are modelled in the time-dependent sequence as they actually may occur.

The initial lining is stressed as a result of tunnel excavation and it is deformed depending on the primary stress state, the strength and the stiffness of the rock mass. The ground surrounding the tunnel is also considered a load carrying element in the FE analysis. Nonlinear ground parameters are taken into account.

The dimensions of the Finite Element mesh are selected in a way that effects of the excavation on the boundaries of the system can be excluded. The boundary conditions of the FE mesh are as follows: The ground surface is free to displace, the side surfaces have roller boundaries and the base is fixed.

In general the Finite Element Code PLAXIS is used for the computations. The ground is modelled as a continuum using the isotropic constitutive model of Mohr Coulomb with linear elasticity and perfect plasticity. The Mohr-Coulomb model requires a total of five parameters:

- \( E \) - Young’s modulus
- \( \nu \) - Poisson’s ratio
- \( \phi \) - friction angle
- \( c \) - cohesion
- \( \psi \) - dilatancy angle
7.3.2.2 Loads Considered in the FE Analysis

The following loads will be considered in a time dependent Finite Element Analysis:

- Self weight
- Ground Load
- Long-term grouting pressure
- Operating water pressures (including regular and flood cases
- Groundwater pressure
- Rock swelling (initial lining)
- Rock squeeze
- Dewatering of tunnel
- Earthquake

These loads affecting the tunnel lining will be analysed using the Finite Element Method taking into account all stages of construction and operation.

7.3.2.3 Load Assumptions

The excavation of a tunnel is a three dimensional problem. As a result of excavation, deformations occur in the ground ahead the tunnel face. After excavation and initial lining application further deformations occur causing stresses in the shotcrete.

For the design of the support measures the 3-D behaviour near the tunnel face is generally approximated by 2-D models. Plane strain conditions can be assumed in a certain distance from the face. However, the distribution of stresses and strains close to the tunnel face is governed by arching effects. In order to design the tunnel with 2-D models following load assumptions are taken into account:

**Stress release factor:**

Upon excavation, deformations occur at and in front of the tunnel face resulting in a stress release. The portion of forces acting on the ground ahead of excavation and the portion acting on the combined system of ground and lining depend on:

- Size of excavation
- Stiffness of ground
- Stiffness of the lining
- Unsupported length of excavation
To evaluate the stress release of the ground in front of the tunnel face, the “$\beta$-method” is used in the numerical analysis. The initial stress $p_i$ acting around the tunnel excavation is divided into a part $\beta_i p_i$, that is applied to the unsupported tunnel ahead of the face and a part $(1-\beta_i) p_i$ that is applied to the supported tunnel (see Figure 1). The factor $\beta_i$ represents the stress release factor.

When simulating the excavation sequence of a tunnel, the finite elements in the excavation area are deactivated and equivalent lining forces (nodal forces) are analyzed to find a comparable initial stress state $p_i$. Equivalent nodal forces ($F_i$) act on the boundaries of the excavation and equilibrium conditions are not disturbed. In the first calculation phase, the equivalent pressure is reduced stepwise to the stress release value $\beta_i F_i$ (see Figure 3, Section B-B). In a second calculation phase, the remaining out-of-balance stress $(1-\beta_i) F_i$ is applied (lining installation) to the tunnel support (see Figure 3, Section A-A).

![Figure 3: Calculation phases simulating stress release](image)

The stress release in front of the tunnel face is determined on the basis of a 3D-FE calculation.

**Load transfer to the initial support:**

2-D conditions can be assumed in a certain distance from the face. Following load transfer factors can be distinguished taking into account the time-dependency of the activation of the support measures:

- unsupported length (length of cutterhead): $\beta_1$
7.3.2.4 Design Factors

The input parameters for the Finite Element Analysis such as unit weight, strength and stiffness of rock etc. are applied as characteristic values, i.e. the resulting numerical loads are unfactored. Load factors in accordance with CSA A23.3 are applied to the calculated sectional forces (bending moments, normal forces, etc.):

- regular load factor $\alpha_D = 1.25$

7.3.2.5 Load Combinations

The Finite Element Calculations are based on the staged calculation procedure according to table 5.
Calc. stage | Activation of | Detail of Calculation Stage  
---|---|---
1 | In-situ stress state |  
2 | Stress release | Stress release factor $\beta_1$ in front of excavation face, $\beta_1$ based on preliminary 3D calculations  
3 | Excavation and installation initial lining | a Excavation and installation of steel ribs close to excavation face, load transfer factor $\beta_2$  
b Young shotcrete at working platform, load transfer factor $\beta_3$  
c Hardened shotcrete, remaining load $\beta_4$ (ground load)  
4 | Short term rock swelling | Change $> 2\%$ of Cl $\cdot$ over 2 years, if applicable  
5 | Final lining | Self weight of lining  
6 | Grouting pressure | Long-term grouting pressure  
7 | External water pressure | Groundwater pressure  
8 | Internal water pressure | Operating water pressure  
9 | Long-term rock squeeze | a Overall (isotropic) stress increase  
b horizontal stress increase  
10 | Dewatering | Dewatering of tunnel  

Table 5: Relevant Calculation Stages for the FE-Calculations

The following load combinations are defined for the 2D-Finite Element analysis of the Diversion Tunnel.

The load combination factor $\psi$ and an importance factor $\gamma$ are considered to be $\psi = \gamma = 1.00$. This is in accordance with CSA A23.3 as no temperature load case is considered in the FE-calculations.
The design-relevant load combinations are given in table 6:

<table>
<thead>
<tr>
<th>Load Comb.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>F'</th>
<th>G</th>
<th>G'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calc. stage</td>
<td>Excavation, initial lining installation</td>
<td>Short term rock swelling</td>
<td>Groundwater pressure dewatered case</td>
<td>Operation and external water pressure</td>
<td>Operation, no external water pressure</td>
<td>Operation, overall rock squeeze</td>
<td>Operation, overall rock squeeze, dewatering</td>
<td>Operation, horizontal rock squeeze</td>
<td>Operation, horizontal rock squeeze, dewatering</td>
</tr>
<tr>
<td>1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3 a,b,c</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>not considered for final lining design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>8</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>9 a</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 b</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6: Design-relevant load combinations for FE-Calculations
7.4 Design Criteria

7.4.1 Load Bearing Capacity

7.4.1.1 Lining Design

Initial Lining Design

The initial lining consisting of rock dowels, steel ribs, steel wire mesh and shotcrete is checked against the design strength of unreinforced concrete. In the FE-analysis, the contribution of steel elements (reinforcement, dowels, ribs) to the bearing capacity of the initial lining is ignored.

The degree of safety of the lining (≡ degree of mobilization of the strength of the unreinforced concrete) is expressed by checking the design factor $f_{NM}$, which is the ratio of the design normal force $N_{sd}$ and the resisting normal force $N_{rd}$, considering the calculated eccentricity $e = M_{sd} / N_{sd}$ of the unreinforced shotcrete.

The following formula is used for the design of unreinforced concrete:

$$N_{rd} = \phi_c \cdot f' \cdot d \left( 1 - \frac{2e}{d} \right)$$

- $N_{rd}$ is the resisting normal force
- $b = 1\,m$
- $d$ … thickness of the tunnel lining
- $e$ … eccentricity ($e = M/N$)

The resistance factor of concrete $\Phi_c$ is assumed to be 0.60 according to CSA A23.3. The required design factor $f_{NM} = N_{sd} / N_{rd}$ for design check of the lining is:

$$f_{NM} \geq 1.$$  

The computed structural forces $N$ will be multiplied by a factor $\alpha_D = 1.25$ in accordance to CSA A23.3 and chapter 7.2 and 7.3 in order to get the design structural forces $N_{sd}$.

Final Lining Design

The final lining consisting of cast in place concrete is checked against the factor $f_{NM}$ in the same way as the initial lining.

7.4.1.2 Design of Reinforced Concrete

Reinforced concrete – if required - is designed according to CSA A23.3.
7.4.1.3 Steel Design

Rock Dowels

The load bearing capacity of a rock dowel in tension is determined by the ultimate tensile strength or breaking load.

Other Steel Structures

Other steel structures, such as steel ribs are designed according to CSA S16-01.

7.4.1.4 Seismic Design

The final lining is analyzed for self-weight and all permanent static loading combined with loading from seismic activity as defined in chapter 7.2.7.

The tunnel structure is constrained by the surrounding rock. Therefore it is unlikely that the tunnel lining could move independently of the surrounding rock.

The response of tunnels to seismic loading is analyzed in terms of axial deformations, curvature deformations and ovalization. These seismic induced deformations are considered using either closed form solutions (analytical approaches) or pseudo-static solutions (with numerical approaches).

Capacities of the structural components are determined by a linear design check. If necessary, the non-linear material behaviour of concrete (state II of concrete) is to be taken into account.

7.4.2 Serviceability Limit State

The results of lining deformations in the various analyses will be used to define deformation criteria.

Radial cracks do not affect the serviceability of the tunnel. A crack analysis will therefore not be carried out. Mitigation measures for limiting circumferential cracks are:

- Use of low heat developing concrete
- Limitation of friction between final lining and rock by provision of a smooth interface
- Closure of extraordinary large cracks
7.4.2.1 Initial Lining Deformation Criteria

For each support type, criteria will be defined which serve as the basis for the choice of the relevant category during construction.

For failure of rock blocks the discontinuity configuration is the only decisive criterion.

For the failure induced by stress (due to stress redistribution process) lining deformations develop progressively with the distance from the face. Therefore expected deformations according to calculations will be provided.

7.4.2.2 Final Lining Deformation Criteria

All operational pressures and loads are carried by the final lining concrete ring after successful interface grouting. The required long term grouting pressure is determined by FE-calculations. The anticipated short term grouting pressure is determined by an elastically bedded beam spring model taking into account loss of prestressing due to the effect of constrain forces, such as shrinkage and creep of concrete and temperature contraction after watering up.

The various calculations result in acceptable deformations (convergences and differential deformations) for individual construction stages. These acceptable deformations differ with relation to the location in the tunnel. Therefore they have to be determined individually for each section of the tunnel:

**Deformation Criteria to determine prestress**

The success of interface grouting is monitored by precise deformation measurements of the final lining.

Regrouting is considered in case the anticipated short term grouting pressure is not achieved or the required deformations associated with the long term minimum prestress of the final liner are not reached.

This deformation limit is determined taking into account losses due to temperature contraction after watering up, concrete shrinkage and creep.

**Deformation Criteria with respect to rock squeeze and swelling**

The deformation of the rock will be analysed at the location of measuring points of extensometers to facilitate verification by measurements in the tunnel.
7.5 Material Properties

7.5.1 Shotcrete

**Shotcrete strength:**

The characteristic compressive strength of shotcrete is $f_{ck} = 25$ MPa (cylinder H:D = 1).

The compressive strength of young shotcrete after 24 h is $f_c = 6$ MPa (cylinder H:D = 1).

**Shotcrete stiffness:**

In the FE-calculations a different short-term and long-term stiffness (modulus of elasticity) is taken into account for shotcrete to simulate time-depended behaviour (creep and hardening) in the analysis. The characteristics of “young” shotcrete (i.e. shotcrete before it has reached final design strength) are used for calculations shortly after the initial lining is installed. A hypothetical modulus of elasticity (HME) is applied; This HME reflects the behaviour of ground, shotcrete and reinforcement soon after installation. The values for HME are based on engineering judgement and defined in table 7:

Young's Modulus of 15 000 MPa is used for hardened shotcrete.

<table>
<thead>
<tr>
<th>Rock Mass Behaviour</th>
<th>Slow Stress Redistribution Ductile Behaviour</th>
<th>Fast Stress Redistribution Brittle Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shotcrete Material and Reinforcement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-day-strength &lt;10 MPa</td>
<td>1,000 – 3,000</td>
<td>1,500 – 3,000</td>
</tr>
<tr>
<td>slightly reinforced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-day-strength &lt;10 MPa</td>
<td>3,000 – 5,000</td>
<td>3,500 – 6,000</td>
</tr>
<tr>
<td>moderately reinforced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-day-strength &lt;10 MPa</td>
<td>4,000 – 6,000</td>
<td>4,500 – 7,000</td>
</tr>
<tr>
<td>heavily reinforced or steel-fiber reinforced</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7: Modulus of Elasticity for Young Shotcrete
7.5.2 Reinforcement

The reinforcement of the shotcrete is not explicitly modelled in the calculations.

7.5.3 Rock Dowels

The load bearing capacity of Swellex or equivalent rock dowels in tension is defined by its load capacity.

For Swellex Type MN24 a load capacity of 240 KN is defined.

7.5.4 Steel Ribs

The following material properties apply in accordance with CSA S16-01:

Minimum yield stress \( f_y = 410 \ \text{MPa} \),

Modulus of elasticity \( E_s = 200 \ \text{000 MPa} \).

7.5.5 Final Lining Concrete

The minimum specified compressive strength of the final lining concrete is \( f'_c = 38 \ \text{MPa} \) after 90 days tested on a cylindrical test specimen with a ratio of \( \text{Length : Diameter} \ L:D = 2 \). A compressive strength of \( f'_c = 35 \ \text{MPa} \) after 28 days is assumed for analyses where earlier strength characteristics of the final lining concrete have to be assumed.

Additional material properties are:

Poisson’s ratio \( \nu = 0.2 \)

Young's-Modulus \( E_c = 4500 \sqrt{f'_c} = 26 \ \text{600 MPa (after 28 days)} \)

In order to guarantee sufficient strength capacity at the time of removal of the top formwork following properties are assumed in the analysis (see document R-NAW130-29230-0016):

minimum specified compressive strength \( f'_c = 1.5 \ \text{MPa} \)

minimum specified Young's-Modulus \( E_c = 3 \ \text{GPa} \)

minimum specified tensile strength (*) \( f'_{ct} = 0.25 \ \text{MPa} \)

(*) or equivalent shear stress \( \tau_c \).
7.5.6 Material Factors

The following factors of material resistance are selected for design:

concrete $\Phi_c = 0.6$

steel $\Phi_s = 0.9$

A reduced factor is applied in combination with load combinations lasting over a short period of time (i.e. short term grouting pressure).

concrete $\Phi_{c,\text{red}} = 0.7$
7.6 Geotechnical Design Parameters

7.6.1 Geotechnical Data

7.6.1.1 Rock Mass Strength Parameters

Geotechnical parameters for design calculations are established on the basis of the Design Build Agreement, Appendix 5.4 (GBR), Table 6.9.

<table>
<thead>
<tr>
<th>Formation</th>
<th>UCS [MPa]</th>
<th>mi</th>
<th>GSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lockport</td>
<td>151</td>
<td>7</td>
<td>82</td>
</tr>
<tr>
<td>DeCew</td>
<td>128</td>
<td>7</td>
<td>79</td>
</tr>
<tr>
<td>Rochester</td>
<td>42</td>
<td>10</td>
<td>77</td>
</tr>
<tr>
<td>Irondequoit</td>
<td>106</td>
<td>7</td>
<td>82</td>
</tr>
<tr>
<td>Reynales</td>
<td>95</td>
<td>7</td>
<td>77</td>
</tr>
<tr>
<td>Neahga</td>
<td>14</td>
<td>10</td>
<td>66</td>
</tr>
<tr>
<td>Thorold</td>
<td>163</td>
<td>15</td>
<td>83</td>
</tr>
<tr>
<td>Grimsby</td>
<td>155 (33)</td>
<td>10</td>
<td>75</td>
</tr>
<tr>
<td>Power Glen</td>
<td>172 (24)</td>
<td>10</td>
<td>68</td>
</tr>
<tr>
<td>Queenston Q10</td>
<td>33</td>
<td>6.5</td>
<td>55</td>
</tr>
<tr>
<td>Queenston Q8 – Q9</td>
<td>33</td>
<td>6.5</td>
<td>65</td>
</tr>
<tr>
<td>Queenston Q 7</td>
<td>33</td>
<td>6.5</td>
<td>71</td>
</tr>
<tr>
<td>Queenston Q 6</td>
<td>33</td>
<td>6.5</td>
<td>67</td>
</tr>
</tbody>
</table>

Table 8: Rock Mass Strength Parameters (GBR, Table 6.9)

Further, the boundary conditions such as virgin stresses, size, shape and orientation of the opening are taken into account in order to establish all possible failure mechanisms, thereby establishing the potential behaviour of the rock mass while the opening is excavated.
7.6.1.2 In-Situ Stress Conditions

In-situ stress conditions in southern Ontario are characterised by high horizontal stress, exceeding vertical stresses in parts significantly. The stress field is reported to be relatively consistent trending in a north-eastern direction. However, the magnitudes of stress and the direction of the maximum stress can vary significantly depending on lithology, depth and topographical features.

The vertical stresses are generally based on the full overburden gravity load of the rock mass. In the section between the Tunnel Outlet and St. David’s Gorge, in situ testing showed that the vertical stresses are 30% above the calculated vertical stresses. However, the influence of the increased vertical stresses is negligible according to the calculations presented in R-NAW130-29230-0015, Appendix 12.

The in situ stresses provided in the GBR are effective stresses. Relevant stress ratios are summarized in the Design Build Agreement, Appendix 5.4 (GBR), Chapter 6.6 and Table 6.14. The data in the GBR shows that the in-plane in situ stresses increase as the tunnel proceeds upstream due to the tunnel orientation relative to the regional stress regime.

These boundary conditions are incorporated in the subsequent calculations. The calculations presented hereafter are based on effective stress analysis. A water table, i.e. an initiating pore water pressure, is present and therefore effective stresses are analysed as follows: \( \sigma' = \sigma - u \).

7.6.2 Evaluation of Rock Mass Strength & Stiffness Parameters

According to the Design Build Agreement, Appendix 1.1(vv), item 8.3.4, [2.d] effective stresses, accounting for 100 % of the porewater pressure, will be used in the calculation of confining pressures for use in analyses of rock mass strengths.

The geotechnical rock mass parameters are derived based on Hoek-Brown’s mass law. The general form of the Hoek-Brown’s failure criterion is:

\[
\sigma_1 = \sigma_3 + \sigma_{ci} \left( m_b \frac{\sigma_3}{\sigma_{ci}} + s \right)^a
\]

\( \sigma_1, \sigma_3 \ldots \) major and minor principal effective stresses
\( m_b \ldots \) Hoek-Brown constant for rock masses
\( s, a \ldots \) parameters describing rock mass properties
\( \sigma_{ci} \ldots \) uniaxial compressive strength of the intact rock (see chapter 7.6.1)
The Hoek-Brown criterion thus establishes a connection between the principal effective stresses. The rock mass parameters \( m_b \), \( a \) and \( s \) can be derived by means of the following parameters:

- Hoek-Brown constant for intact rock \( m_i \)
- Geological Strength Index GSI

Values for Hoek-Brown constant \( m_i \) and the GSI are taken from chapter 7.6.1.

These values enable the parameters \( s \) and \( a \), to be defined as follows:

\[
m_b = m_i \cdot \exp\left(\frac{GSI - 100}{28 - 14D}\right)
\]

\[
s = \exp\left(\frac{GSI - 100}{9 - 3D}\right)
\]

\[
a = \frac{1}{2} + \frac{1}{6} \left( e^{-GSI / 15} - e^{-20 / 3} \right)
\]

D (Disturbance Factor) is a factor which depends upon the degree of disturbance to which the rock mass has been subjected by blast damage and stress relaxation. It varies from 0 for undisturbed in situ rock masses to 1 for very disturbed rock masses. Due to the planned excavation method the D-Factor was generally assumed to be 0.

In addition to the parameters of the non-linear failure criteria Mohr-Coulomb parameters \( \varphi' \) and \( c' \) are calculated. The appropriate failure envelope range is adopted using the so-called “Range-Option: Tunnel” taking into account the tunnel depth.

\[
\varphi' = \sin^{-1}\left[ \frac{6am_b(s + m_b\sigma'_{3n})^{a-1}}{2(1+a)(2+a)+6am_b(s + m_b\sigma'_{3n})^{a-1}} \right]
\]

\[
c' = \frac{\sigma_{ci}(1 + 2a)s + (1-a)m_b\sigma'_{3n}(s + m_b\sigma'_{3n})^{a-1}}{(1 + a)(2 + a)(1 + (6am_b(s + m_b\sigma'_{3n})^{a-1})/(1 + a)(2 + a))}
\]

Where \( \sigma'_{3n} = \sigma'_{3\max} / \sigma_{ci} \)

The value of \( \sigma'_{3\max} \) is the upper limit of confining stress over which the relationship between the Hoek-Brown and the Mohr-Coulomb criteria is considered.

In the FE-calculations the rock strength assumptions will be checked for various stress points close to the excavation. In case of unsuitable “failure envelope ranges” in
comparison to the Hoek-Brown failure criterion adopted Mohr-Coulomb parameters will be obtained.

Furthermore, the deformation modulus using the parameters $\sigma_{ci}$ and GSI can also be determined.

\[
Em\,(GPa) = \left(1 - \frac{D}{2}\right) \sqrt{\frac{\sigma_{ci}}{100}}\,10^{(GSI-10)/40} \quad \text{for } \sigma_{ci} \leq 100
\]

\[
Em\,(GPa) = \left(1 - \frac{D}{2}\right)\,10^{(GSI-10)/40} \quad \text{for } \sigma_{ci} > 100
\]

Geotechnical input parameters and resulting rock mass parameters are included in table 9.

7.6.3 Rock Mass Parameters for FE Analysis

7.6.3.1 Primary Stress Field

The stress ratios as mentioned in chapter 7.6.1.2 are used to initialize the primary stress field in the FE-calculations. In case widespread plastic zones develop during initial state, decrease of horizontal stress has to be applied to the analysis in order to ensure stable initial conditions of the analysis model.

7.6.3.2 Rock Mass Parameters

The rock mass parameters for the calculations resulting from the evaluation as described in chapter 7.6.2 are summarized in Appendix 1. The rock mass parameters are evaluated for a primary stress level which is expected at tunnel crown elevation approximately.

The Mohr-Coulomb strength parameters and the Young’s Modulus are given in table 9:

Generally best estimate values for ground properties are applied to the analysis. The effect of variation of the selected design values for these properties will be checked by means of sensitivity analysis.

The range of parameters that is used to appreciate parameter variability in the design is defined according to an approach given in Design Build Agreement, Appendix 5.4 (GBR), Introduction: Where an average value is given without a range or histogram, the given value shall be considered to be the 50% probability of occurrence averages, and the range shall include extreme values at 10% probability of occurrence that are 30% greater and 30% lower than the average.
The strength parameters summarized in table 9 are considered as “peak-strength” data. According to Design Build Agreement, Appendix 1.1 (OMR) especially the Queenston shale exhibits a predominant “post-peak” behaviour. The reduction from peak strength to post-peak strength is considered as follows:

(iii) Hoek.Brown residual rock mass strength parameters: $m_r = 1.0$, $s_r=0.001$
(or equivalent)

(iv) plastic shear strain in rock for peak to post-peak ranging from 0.5% to 2.0%

<table>
<thead>
<tr>
<th>Formation</th>
<th>$\phi$ [°]</th>
<th>$c$ [MPa]</th>
<th>$E$ [GPa]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean</td>
<td>range</td>
<td>mean</td>
</tr>
<tr>
<td>Lockport, DeCew</td>
<td>53.2</td>
<td>43.1 – 60.1</td>
<td>6.9</td>
</tr>
<tr>
<td>Rochester</td>
<td>55.0</td>
<td>45.0 – 61.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Irondequoit</td>
<td>51.0</td>
<td>40.8 – 58.1</td>
<td>6.9</td>
</tr>
<tr>
<td>Reynales</td>
<td>52.1</td>
<td>42.0 – 59.1</td>
<td>4.5</td>
</tr>
<tr>
<td>Neahga</td>
<td>45.1</td>
<td>35.1 – 52.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Thorold</td>
<td>61.4</td>
<td>52.1 – 67.2</td>
<td>8.1</td>
</tr>
<tr>
<td>Grimsby</td>
<td>57.7</td>
<td>47.9 – 64.1</td>
<td>5.5</td>
</tr>
<tr>
<td>Grimsby Shale</td>
<td>51.9</td>
<td>41.8 – 58.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Power Glen</td>
<td>58.0</td>
<td>48.2 – 64.3</td>
<td>4.0</td>
</tr>
<tr>
<td>Power Glen Shale</td>
<td>47.8</td>
<td>37.7 – 55.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Whirlpool</td>
<td>59.4</td>
<td>49.8 – 65.5</td>
<td>6.1</td>
</tr>
<tr>
<td>Queenston</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q 10</td>
<td>39.0</td>
<td>29.5 – 46.5</td>
<td>0.8</td>
</tr>
<tr>
<td>Q9 – Q6</td>
<td>41.4</td>
<td>31.7 – 48.9</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Table 9: Rock Mass Strength & Stiffness Parameters
Consequently “post-peak” strength parameters according to table 10 are applied to the Queenston formation.

<table>
<thead>
<tr>
<th>Formation</th>
<th>Post-Peak-Strength -mean</th>
<th>Post-Peak-Strength - range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \phi_{\text{res.}} ) [°]</td>
<td>( c_{\text{res.}} ) [MPa]</td>
</tr>
<tr>
<td>Queenston Formation</td>
<td>26</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Table 10: Strain Softening Strength Parameters for Queenston Shale

The decrease in strength due to strain softening is considered in the analysis with the mobilization of plastic shear strains during all calculation phases. As soon as a critical plastic shear strain will be reached in any zone, a post peak strength decrease to the residual strength will be executed. According to Design Build Agreement, Appendix 1.1 (OMR) the relevant plastic shear strain to reach a decrease to a residual strength is in the range of 0.5% to 2.0 %. In the subsequent analysis, a best estimate value of 1.25 % is selected for the critical plastic shear strain. An elasto-brittle material model is used, i.e. a sudden decrease in post-peak strength is modeled as soon as the critical plastic shear strain is reached.

![Figure 4: Post-Peak behaviour of rock mass strength](image-url)
If the post-peak behaviour is modelled in FE-calculations assuming a softening rule, it is commonly known that the developing shear bands will result in a mesh-dependency of the calculation process. This disadvantage can only be resolved with complex regularization techniques. Regularization techniques, such as Cosserat Theory, Visco-Plastic models and Non-Local models result in an enormous increase of calculation time due to the more complex iteration included in the numerical calculation process. In addition the various regularization techniques are still a research topic and not yet useful for engineering purpose.

Instead of using a constitutive model with an implemented softening rule a predefined shear strain is checked and when reached a decrease to the residual strength is implemented for consecutive iteration steps in the FE-analysis. Consequently a simple elasto-brittle material model is used, i.e. a sudden decrease from peak strength to residual strength is modeled as soon the critical shear strain is reached in the rock mass.

It has to be pointed out, that the mobilized total shear strain is affected by elastic and plastic shear strains: $\varepsilon = \varepsilon^e + \varepsilon^p$. The linear-elastic part $\varepsilon^e$ is modelled according to Hook’s elasticity theory. The plastic part, defined by the Mohr-Coulomb-Criterion can be described as follows:

$$\gamma^p = \varepsilon^1_p - \varepsilon^2_p - \varepsilon^3_p$$

This softening rule (post-peak strength behaviour) according to the Figure 4 guarantees a numerically stable calculation process throughout all construction and operation phases (i.e. from excavation and final lining installation until the end of the operational time of the Diversion Tunnel is reached and the tunnel is dewatered).

7.6.3.3 Discontinuity Parameters

Primary bedding planes are defined as major bedding planes between lithological units above the Queenston Formation and between subunits in the Queenston Formation. The tunnel traverses six major stratigraphic divisions identified in the Queenston Formation, which are separated by fairly distinctive primary bedding planes.

It is expected that especially the primary bedding planes, which are present between the subunits of the Queenston Formation, affect the stresses and strains around the tunnel during and after excavation. In order to account for such discontinuous behaviour the parameters in Table 11 are used for modelling the bedding planes:
<table>
<thead>
<tr>
<th>Formation</th>
<th>Peak-Strength</th>
<th>Post-Peak-Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>bedding planes between subunits of Queenston Shale</td>
<td>( \Phi_{\text{peak}} ) [°]</td>
<td>( c_{\text{peak}} ) [MPa]</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>0.45</td>
</tr>
</tbody>
</table>

Table 11: Strength Parameters for bedding planes between subunits of Queenston Shale

Based on the result shown in the GDR Volume11/12: Appendix G9: 1992, Direct Shear Test Results, as well as on engineering judgment a deformation of 10 mm is a suitably low value to be used for the application of residual strength values in the analysis.

7.6.4 Rock Parameters for the Elastically Bedded Beam Spring Model

In order to simulate the structure-rock interaction the modulus of subgrade reaction is calculated on the basis of a rock mass stiffness (E-modulus) for the individual rock formation given in chapter 7.6.3.2.

7.7 Analysis Sections

In order to allocate relevant calculation section, rock mass types and rock mass behaviour along the tunnel alignment have been evaluated. The tunnel cross sections which are selected for analysis of the tunnel final lining are presented in table 12.

The calculation sections are illustrated in Appendix 2 and indicated in the Geotechnical Longitudinal Section.

Additional calculation section may be defined during detail design.
Table 12: Analysis Sections

<table>
<thead>
<tr>
<th>Calculation Section</th>
<th>Tunnel - km</th>
<th>Geologic Formation</th>
<th>Remarks</th>
<th>Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10+260</td>
<td>Lockport / DeCew</td>
<td>“if required”</td>
<td>10+381.125 10+144</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0+072    0+000</td>
</tr>
<tr>
<td>2</td>
<td>9+580</td>
<td>Rochester</td>
<td>“if required”</td>
<td>9+844 9+293</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0+700 0+272</td>
</tr>
<tr>
<td>3</td>
<td>8+666</td>
<td>Queenston Q10</td>
<td>“if required”</td>
<td>9+293 7+505.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1+266 0+700</td>
</tr>
<tr>
<td>4</td>
<td>1+700</td>
<td>Queenston Q6 – Q9</td>
<td>below gorge</td>
<td>1+800 1+650</td>
</tr>
<tr>
<td>5</td>
<td>1+411</td>
<td>Queenston Q6 – Q9</td>
<td>deepest section</td>
<td>7+505.5 1+800</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1+650 1+266</td>
</tr>
<tr>
<td>6</td>
<td>0+100</td>
<td>Rochester</td>
<td>Low overburden</td>
<td>0+272 0+072</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10+144 9+844</td>
</tr>
</tbody>
</table>

7.8 Compliance with and Deviations from OMR

The purpose of the Design Basis is to locate general criteria, technical background information, guidelines, requirements and procedures. The present chapter provides all input parameters, sources and procedures to enable to perform comprehensive stability analysis for the structural tunnel design for the Diversion Tunnel. This information will be used for the subsequent analysis and design of the initial support for excavation and of the final lining of the Diversion Tunnel.
<table>
<thead>
<tr>
<th></th>
<th>OMR, chapter 8.3.2 – 2</th>
<th>Addressed in</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Self-weight of the lining</td>
<td>Chapter 7.3.1 (using the beam spring model)</td>
</tr>
<tr>
<td>b</td>
<td>Rock loading of a loosened slab of thickness not less than 3 m (…)</td>
<td>Chapter 7.3.1 (using the beam spring model)</td>
</tr>
<tr>
<td>c</td>
<td>Immediate elastic deformation of the rock mass</td>
<td>Chapter 7.3.2 (using the FE model)</td>
</tr>
<tr>
<td>d</td>
<td>Elastoplastic deformations prior to filling of the tunnel</td>
<td>Chapter 7.3.2 (using the FE model)</td>
</tr>
<tr>
<td>e</td>
<td>Grouting pressure</td>
<td>Short-term grouting in chapter 7.3.1 (using the beam spring model)</td>
</tr>
<tr>
<td>f</td>
<td>External groundwater pressures prior to filling the tunnel</td>
<td>Chapter 7.3.2 (using the FE model) see also Table 4: Design relevant Load Combinations</td>
</tr>
<tr>
<td>g</td>
<td>Loading resulting from stress changes caused by tunnel excavation</td>
<td>Chapter 7.3.2 (using the FE model) see also Table 3: calculation stages 3 a-c of the FE - calculations</td>
</tr>
<tr>
<td>h</td>
<td>Time-dependent rock deformation loading on the lining</td>
<td>Rock swelling, chapter 7.2.3 Rock Squeeze, chapter 7.2.4</td>
</tr>
<tr>
<td>i</td>
<td>Internal hydrostatic pressure (…)</td>
<td>Chapter 7.3.1 (using the beam spring model)</td>
</tr>
<tr>
<td>j</td>
<td>Thermal effects due to differential temperatures between lining and rock at time of installation and between lining and water</td>
<td>Chapter 7.3.1 (using the beam spring model)</td>
</tr>
<tr>
<td>k</td>
<td>Full external groundwater pressure (…)</td>
<td>Chapter 7.3.2 (using the FE model) see also Table 4: Design relevant Load Combinations</td>
</tr>
</tbody>
</table>

Table 13: List of Design Requirements according to OMR – Part 1
According to Design Build Agreement, Appendix 1.1 (OMR), chapter 8.3 – 2a:

<table>
<thead>
<tr>
<th>considerations during analysis and design shall include, but not limited to</th>
<th>addressed in</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td></td>
</tr>
<tr>
<td>a (i) The accessibility of the rock to freshwater (...)</td>
<td>Chapter 7.2.3</td>
</tr>
<tr>
<td>a (ii) The variability of the amount and rate of time-dependent deformation along the tunnel and other structures</td>
<td>Rock swelling, chapter 7.2.3</td>
</tr>
<tr>
<td>a (iii) The effect of stress on rock swelling rate</td>
<td>Chapter 7.2.3</td>
</tr>
<tr>
<td>a (iv) The state of stress on rock mass after excavation which affects the rate of swelling</td>
<td>Chapter 7.2.3</td>
</tr>
<tr>
<td>a (v) Swell anisotropy</td>
<td>Chapter 7.2.3</td>
</tr>
<tr>
<td>a (vi) Non-uniform loading</td>
<td>With respect to swelling see chapter 7.2.3</td>
</tr>
<tr>
<td></td>
<td>For general non-uniform loading see load cases modelled with beam spring models, chapter 7.3.1.2 and load cases simulated with FE-models, chapter 7.3.2.5</td>
</tr>
</tbody>
</table>

Table 14: List of Design Requirements according to OMR – Part 2
<table>
<thead>
<tr>
<th></th>
<th>OMR, chapter 8.3.4 – 2</th>
<th>addressed in</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>The modelling shall include</td>
<td>-</td>
</tr>
<tr>
<td>b (i)</td>
<td>Analysis for both the deepest and shallowest tunnel sections in the Queenston formation</td>
<td>See analysis sections chapter 7.7 and table 10</td>
</tr>
<tr>
<td>b (ii)</td>
<td>Both unwatered and operational tunnel conditions</td>
<td>Chapter 7.3.2 (using the FE model) see also Table 4: Design relevant Load Combinations</td>
</tr>
<tr>
<td>c</td>
<td>The following parameters shall be included in the analyses</td>
<td>-</td>
</tr>
<tr>
<td>c (i)</td>
<td>Appropriate rockmass and bedding plane strength and deformability values as given in the GBR</td>
<td>Rock mass: chapter 7.6.1.1 Bedding plane: chapter 7.6.3.2</td>
</tr>
<tr>
<td>c (ii)</td>
<td>Appropriate in situ stresses as given in the GBR</td>
<td>chapter 7.6.1.2</td>
</tr>
<tr>
<td>c (iii)</td>
<td>Hoek-Brown residual strength parameters: (...)</td>
<td>Equivalent Mohr-Coulomb parameters, see table 8 (chapter 7.6.3.3)</td>
</tr>
<tr>
<td>c (iv)</td>
<td>Plastic shear strain in rock for peak to post-peak: (...)</td>
<td>chapter 7.6.3.2</td>
</tr>
<tr>
<td>c (v)</td>
<td>Design line for rock swelling (...)</td>
<td>Chapter 7.2.3</td>
</tr>
</tbody>
</table>

Table 15: List of Design Requirements according to OMR – Part 3
Table 16: List of Design Requirements according to OMR – Part 4

According to Design Build Agreement, Appendix 1.1 (OMR), chapter 8.3.2 – 2 loads to be considered in the design of the concrete lining shall include, but not limited to what is presented in tables 13 to 16.
8 QA/QC REQUIREMENTS

The Quality Assurance Programme as included in the Contract and updates thereof has to be regarded for the construction of the Diversion Tunnel.

9 VARIATIONS FROM AGREEMENT

The precast concrete invert segment included in the agreement will be replaced by cast in place concrete.

The thickness of initial shotcrete lining is reduced from 200 mm to 160 mm and 300 mm to 260 mm respectively in Rock Support Types 5 and 6. The size of steel beams is adjusted to match the shotcrete thickness. Rock dowels are added to cover the deficit in lining capacity and to support rock slabbing more effectively. Also different ground parameters are applicable to the Proposal-Alignment as compared to the Concept-Alignment, since the tunnel is moved from the Q2/Q3 formations to the Q6/Q7 formations below the buried St. David’s Gorge. In case the application of a 300 mm thick shotcrete lining will be required for additional ground support, this is still be covered by the Proposal.

***
APPENDIX 1

Geotechnical Input Parameters and Resulting Rock Mass Parameters
Table A1: Evaluation of Rock Mass Parameters

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Remarks:

(1) Source: Design Build Agreement, Appendix 5.4 (GBR), Table 6.9.
(2) Stress ratios as given in Design Build Agreement, Appendix 5.4 (GBR), Chapter 6.6 and Table 6.14 are adopted in order to ensure stable initial conditions of the FE-analysis. (Levels rounded to 5 m)
(3) Boundary conditions (overburden and groundwater level) for Irondequoit, Reynales, Nehaga, Thorold, Grimsby, PowerGlen and Whirlpool are evaluated for the situation at the calculation section 9+580.
(4) The defined calculation sections are postulated to be valid for a certain sector of the tunnel (as indicated also in the Geotechnical Longitudinal Section.).
(5) The mean value is the 50% probability of occurrence average, and the range includes extreme values at 10% probability of occurrence that are 30% greater and 30% lower than the average. The range of the friction angle φ is defined on the basis of tan φ.
APPENDIX 2

Relevant Calculation Cross Sections
Appendix 1.1(vv)
Owner’s Mandatory Requirements
Appendix 1.1(vv) - Owner's Mandatory Requirements

1. GENERAL

1.1 Introduction

1. The Mandatory Requirements cover the minimum requirements for the design, instrumentation, construction, testing, commissioning and other requirements necessary for the performance of the Work. These requirements are the minimum acceptable requirements for the Work. The Contractor shall develop additional requirements and Specifications as necessary to perform the Work.

2. These requirements shall be used in conjunction with the Summary of Work, Concept Drawings, Geotechnical Report (GR) and other information as provided by the Owner to perform the Work.

3. The GR provides a summary of geotechnical information obtained during various investigation phases of the work. This information is to be used in preparation of the final design and augmented with information from additional investigations as required by the Contractor for the final design.

1.2 Operating Environment

1. The tunnel and all ancillary equipment required for its safe operation shall be capable of adequate operation under all weather and river conditions.

1.3 Water Surface Elevations

1. Water surface elevations defined in Appendix 1.1(sss) shall be used in the design of the Tunnel Facility Project as appropriate.

1.4 Water Level Gauges

1. The water level gauges for measuring the intake and outlet canal water levels are as shown on the Concept Drawings.

2. These gauge locations shall be used in conjunction with the hydraulic design levels defined in Appendix 1.1(aa) for determining the GFA of the tunnel.

1.5 Design and Service Life

1. The primary elements of the Niagara Tunnel Facility Project are required to be designed and constructed for a service life of 90 years with no tunnel outages during such 90-yr life. Elements not specifically required to be designed to a 90-yr service life shall be designed to applicable and appropriate codes, guidelines and standards that are commensurate with their intended purpose.

2. The following elements shall be designed and constructed to a 90-yr service life:
Appendix 1.1(vv) – Owner’s Mandatory Requirements

(a) tunnel lining system, including
   (i) reinforced concrete lining
   (ii) annular grout
   (iii) impermeable liner if used
   (iv) gaskets and/or any other water control features incorporated in the Work

(b) intake structure

(c) outlet structure.

3. Assessment of 90-Yr Service Life

(a) **Loading** – The tunnel lining system and intake and outlet structures shall be designed for all short- and long-term prescribed time-dependent loading and deformations. The 90-yr service life shall be deemed to have been met by demonstrating compliance with the long-term time-dependent loading and deformations prescribed in Section 8.3 of this Appendix.

(b) **Loading and Deformation** – Compressible annular grout, if proposed, and compressible materials at the intake and outlet structures shall be designed to accommodate all short- and long-term time dependent loading and deformation as prescribed in Section 8.3. Confined compressive testing of annular grout mixes with a confining pressure equivalent to the applied pressure shall be performed to determine the compressive strength of the grout at the calculated long-term (90-yr) deformation. The 90-yr service life shall be deemed to have been met by demonstrating through testing that the measured compressive strength of the grout at a strain equivalent to the 90-yr deformation assumed for the design is greater than the ultimate design strength ($f'_c$) of the grout.

(c) **Sulphate Attack** – The cement for the annular grout and reinforced concrete lining shall be designed to resist the effects of sulphate attack. Accelerated tests shall be performed on the annular grout and lining concrete mixes. The 90-yr service life shall be deemed to have been met by demonstrating through testing that the mixes are resistant to sulphate attack derived from the highest values of sulphate concentrations for the groundwater in contact or potentially in contact with the tunnel lining or annular grout over a 90-yr period.

(d) **Corrosion from Chloride Penetration** – The tunnel lining system shall be designed to be resistant to corrosion from chloride penetration. The 90-yr service life shall be deemed to have been met by demonstrating that the time taken to reach the corrosion threshold at the reinforcing steel, based on chloride diffusion rates for the concrete and chloride levels present in the
Document Transmittal

From Hatch Mott MacDonald/Hatch Acres
2520 Stanley Avenue, RR1
Niagara Falls, Ontario, Canada
L2E 6S4

To STRABAG Inc.
2520 Stanley Avenue, RR1
Suite 1
Niagara Falls, ON L2E 6S4

Date March 12, 2007

Project No. NA1510-29230-T5

Transmittal No. CT0367

Project Title/Subject Niagara Tunnel Project

Description/Title ORFI-0027, 90 Year Tunnel Service Life

Code: A - Reviewed as Submitted
B - Revised as Noted - Do Not Resubmit
C - Revise and Resubmit
D - Review not Required
E - For Information Only

Type: O - Original
P - Print
C - CD/DVD
E - Electronic/FTP

Date Rev Type Code
ORFI-0027 2P/1E H
12-Mar-07

Transmitted by

Harry Charalambu
Project Manager

Copies to:

Acknowledgment
Please sign, date and return second copy.

Signature

Date

Niagara Tunnel Project
From | Hatch Mott MacDonald  
in association with Hatch Acres  
2520 Stanley Avenue, RR1  
Suite 2  
Niagara Falls, ON L2E 6S4
---|---
Date | March 12, 2007
Via | ☑ Hand Delivered  
☐ Courier  
☐ Email  
☐ Other  
☐ Pickup
---|---
To | STRABAG Inc.  
2520 Stanley Avenue, RR1  
Suite 1  
Niagara Falls, ON L2E 6S4
---|---
RFI | ORFI-0027
Project | NTFP-0001
Date Required | March 20, 2007
---|---
DESCRIPTION/TITLE: | 90 Year Tunnel Service Life
REQUESTED BY: | M. Hughes

1. Further to Section 5.3.2 of R-NAW130-29230-0004, elaborate and quantify how each element of the tunnel lining design contributes to the 90 year service life.

RESPONSE BY: | RESPONSE DATE:  
☑ Attachments Included
---|---

SUBMITTED BY: | H. Charalambu, OR Project Manager
# DOCUMENT TRANSMITTAL

**FROM**
Ernst Gschnitzer, Project Manager
STRABAG Inc.

**TO**
Harry Charalambu, Project Manager
Hatch Mott MacDonald / Hatch Acres

**DATE**
July 10, 2007

**DOC No**
DT-0524-R00

**FILE No**
00060-10

**CODE**
A - For Information Only
B - Preliminary
C - Issued for Construction
D - Superceded

**TYPE**
O - Original
E - Electronic
C - CD

**WORK ELEMENT**
Other

**REGARDING**
Response to ORFI 0027 - 90 Year Tunnel Service Life

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**PREPARED BY**
Mary Jane Ferraro
Engineering Coordinator

**APPROVED BY**
Marcus Gottschling
Contract Manager

- Attachment Included

**COMMENTS**

**ACKNOWLEDGEMENT**

**Sign, Date and Return Second Copy**
Signature: ___________________________  Date: ___________________________
REQUEST FOR INFORMATION - RESPONSE

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DESCRIPTION/TITLE: Response to ORFI 0027

WORK ELEMENT: Other

In response to ORFI 0027 - 90 Year Tunnel Service Life, we provide you with the following answer provided by ILF.

RESPONSE SUBMITTED BY: Mary Jane Ferraro

APPLICATIONS INCLUDED

COMMENTS:

ACKNOWLEDGEMENT:

Sign, Date and Return Second Copy

Signature: Date:
Design and Construction for 90 Years Service Life:

In vision of the extraordinary challenge to meet the specified requirements for a service life of 90 years, the following design aspects have been determined to serve the purpose:

- The initial rock support is timely separated from final lining erection, which improves the quality of the final structure in total.

- Separation of the final lining from the aggressive (sulphate containing) environment by a waterproofing membrane system. The waterproofing system is vacuum tested to ensure reliable performance. In addition any exchange of water or chloride between inside and outside of the tunnel is inhibited to prevent swelling of the rock.

- The use of high quality concrete for the final lining, which is designed to minimize temperature and shrinkage cracking, has a smooth surface from utilisation of a steel formwork and features high resistance against the abrasive action of water, ice and debris.

- Tight connection between final structure and the surrounding rock mass to mobilize the load bearing capacity of the rock to contribute to the support of high internal and external pressures from ground and water during the 90 year operation requirement. By no means shall be allowed that rocks and debris is washed out and voids behind the lining are created. The tight connection between ground and lining and to a large extent impermeability of the rock mass is achieved by application of cavity grouting where required, contact grouting and interface grouting.

- Prestressing of the final lining to create a compressed concrete support ring, which is able to sustain internal waterpressure without steel reinforcement being required. The risk of corrosion for structural reinforcement within the 90 years design life is such eliminated. The prestressing of the tunnel with interface grouting takes the rock mass surrounding the tunnel close to its original stress state and reduces or eliminates adverse time dependent deformations of the rock mass.

Final Lining design requirements for 90 Years Service Life

The final liner is designed to sustain short term and long term loads over the full operational time of the tunnel by

- using national and international standards and guidelines as a design basis for materials and design loads which generally assume a design life of hundred years.

- suppression and limitation of crack development in the final lining by
  - using concrete with limited heat development
  - firm embedment of the final liner into the rock mass as a result of grouting (cavity grouting, contact grouting, interface grouting/liner prestressing)
- protection of the final lining concrete from aggressive substances enclosed in the rock mass in form of a waterproofing membrane system

- preventing exchange of water between the tunnel and the surrounding rock and suppress swelling of the rock mass with the implementation of a waterproofing membrane system.

Waterproofing membranes have been used in tunnels for the past 40 years. Upgrading of road tunnels due to increased safety standards, which require additional niches, revealed at visual inspections, that membrane materials remained intact over the 40 years of operation of these tunnels. These findings and the fact that membrane materials improved over the past 40 years, suggest that a design life of 90 years can be assumed for a synthetic waterproofing membrane system.

Hence the design of the Diversion Tunnel defines a particular concrete strength and thickness of the final lining to resist design loads, assumes that the waterproofing membrane system remains intact to prevent loss of water and swelling of the rock mass and that the liner prestress as a result of interface grouting corresponds at least to the minimum long-term prestress ($p_{lt \ min.}$) to ensure bedding of the tunnel structure in the rock mass and to prevent tension cracking of the final lining concrete as a result of the operational water pressure.

**Prestressing of the Final Lining**

The effect of prestress of the final concrete lining can be visualized in a diagram proposed by Seeber* (figure 1). The radial pressure ($p_F, p_A$) in the rock mass and the concrete lining is indicated in the upper half and the radial tension ($p_A$) in the concrete lining is indicated in the lower half of the diagram. Strains ($\varepsilon_F, \varepsilon_A$) towards the tunnel center are shown on the left side and strains towards the rock are shown on the right side. The stiffness of the lining ring and of the rock mass is illustrated by the lines drawn through the centre point. The internal water pressure ($p_{wi}$) at a particular strain is the vertical connection between the two lines representing the stiffness of rock and concrete.
It can be postulated that any voids between the final lining and the waterproofing membrane between the waterproofing membrane and the rock are filled after cavity grouting (to fill voids in the rock mass), contact grouting (to fill voids in the final lining concrete) and interface grouting (to prestress the interface between the waterproofing membrane and the initial lining) is completed. The final lining of the Diversion Tunnel is connected tightly to the rock mass.

The minimum long-term prestress ($p_{lt \ min.}$) can be determined by moving the line representing the stiffness of the rock mass to the left until the internal water pressure ($p_{WI}$) can be placed between the two lines without causing any tension strains in the concrete lining (see figure 1).

The actual prestress ($p_V$) is introduced by scaling the total radial strain $\varepsilon_r$ from the centre point of the diagram to the left (compression).

The calculated prestress ($p_{lt \ calc.}$) for the tunnel in operation is determined after all losses ($\varepsilon_0$) related to thermal contraction, concrete shrinkage and creep have been subtracted.

Strains resulting in losses due to concrete shrinkage and creep will have to be quantified based on

- theoretical equations and/or former experience
- laboratory test results
The interface grouting has performed successfully as long as the calculated prestress \( (p_{lt\, calc}) \) is larger than the minimum long-term prestress \( (p_{lt\, min}) \) which corresponds to the required long term grouting pressure \( (p_{lt\, requir}) \) determined by analysis.

After filling of the tunnel concrete creep and shrinkage strains will effectively cease and the concrete lining will be brought close to a non-strained condition as internal water pressure and prestress neutralize each other.

*) G. Seeber, Druckstollen und Druckschächte, ENKE im Georg Thieme Verlag, 1999
Board Staff Interrogatory #162

Ref: Exh. F5-3-1 Appendix re Detailed Discussion Related To Niagara Tunnel Lining

Issue Number: 6.12

Issue: Are the depreciation studies and associated proposed changes to depreciation expense appropriate?

Interrogatory

Neither OPG nor Gannet Fleming has indicated that the tunnel lining has a life limiting component to the tunnel to be operational as compared to nuclear stations life limiting components such as the life of pressure tubes. Is the tunnel lining a life limiting component to the overall tunnel? If so, please specify the reasons including comparison to nuclear stations life limiting components.

Response

No.
Board Staff Interrogatory #163

Ref: Exh. F4-2-1

Issue Number: 6.13

Issue: Are the amounts proposed to be included in the test period revenue requirement for income and property taxes appropriate?

Interrogatory

Please confirm OPG is seeking recovery of income tax expense of $220.6M and $152.3M for the 2014 and 2015 test years respectively.

Response

Not confirmed.

OPG is seeking to recover income tax expense of $211.5M and $157.5M for the 2014 and 2015 test years, respectively. These amounts are the updated amounts reflecting the Impact Statement at Ex. N1-1-1, and are derived as follows:

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The updated income tax amounts are reflected in the revised Revenue Requirement Work Form provided in response to Ex. L-1.0 1 Staff-001.
Board Staff Interrogatory #164

Ref: Exh. F4-2-1 and Tables

Issue Number: 6.13
Issue: Are the amounts proposed to be included in the test period revenue requirement for income and property taxes appropriate?

Interrogatory

Please update the evidence in Exh. F4-2-1 including applicable Tables arising from OPG’s 2014/15 Payment Amounts Application – Impact Statement (on December 6, 2013) and from the passage of time by replacing “2013 Budget” amounts with “2013 Actual” amounts.

Response

Amounts arising from OPG’s 2014/15 Payment Amounts Application – Impact Statement (on December 6, 2013) are provided in Attachment 1. Tables 1 - 3 are updated versions of Ex. F4-2-1, Tables 1 - 3, respectively. Attached Table 4 provides updated information for 2014 and 2015 in the same format as Ex. F4-2-1, Table 5. The updated tables reflect the income tax impacts reflected in Chart 4 of OPG’s Impact Statement at Ex. N1-1-1.

Actual amounts are provided in Ex L-1.0-1 Staff-002, Table 29.
Numbers may not add due to rounding.

Table 1
Taxes - Previously Regulated Hydroelectric (Updated per Ex. N1-1-1) ($M)\(^1\)

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</thead>
<tbody>
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<td>(b)</td>
<td>(c)</td>
<td>(d)</td>
<td>(e)</td>
<td>(f)</td>
</tr>
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<tr>
<td></td>
<td>Property Tax:</td>
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</tr>
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<td>(0.4)</td>
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Notes:
1. With the exception of line 1, cols. (e) and (f), all amounts are from Ex. F4-2-1, Table 1.
Numbers may not add due to rounding.

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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>(d)</td>
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<td>(f)</td>
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<td>N/A</td>
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<td><strong>Property Tax:</strong></td>
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<td>Ottawa-St.Lawrence Plant Group²</td>
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<td>Northeast Plant Group</td>
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<td>0.1</td>
<td>0.1</td>
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<td>7</td>
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<td><strong>0.2</strong></td>
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<td><strong>0.2</strong></td>
<td><strong>30.8</strong></td>
<td><strong>44.0</strong></td>
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Notes:

1. With the exception of line 1, cols. (e) and (f), all amounts are from Ex. F4-2-1, Table 2.
Numbers may not add due to rounding.

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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
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<td></td>
<td></td>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>(d)</td>
<td>(e)</td>
<td>(f)</td>
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<td>1</td>
<td>Income Tax(^{1,2})</td>
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<td>9.4</td>
<td>(23.9)</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>(8.6)</td>
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Notes:
1. With the exception of line 1, cols. (e) and (f), all amounts are from Ex. F4-2-1, Table 3.
Table 4
Calculation of Regulatory Income Taxes for Prescribed Facilities (Updated per Ex. N1-1-1) ($M)
Years Ending December 31, 2014 and 2015

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<th>Line No.</th>
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<th>Note</th>
<th>2014 Plan</th>
<th>2015 Plan</th>
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<td></td>
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<td>(b)</td>
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<tr>
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<td>Regulatory Earnings Before Tax</td>
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<td>604.4</td>
<td>525.0</td>
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<td></td>
<td>Additions for Regulatory Tax Purposes:</td>
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<td></td>
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<tr>
<td>2</td>
<td>Depreciation and Amortization</td>
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<td>418.0</td>
<td>433.8</td>
</tr>
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<td>3</td>
<td>Nuclear Waste Management Expenses</td>
<td></td>
<td>59.3</td>
<td>62.2</td>
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<tr>
<td>4</td>
<td>Receipts from Nuclear Segregated Funds</td>
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<td>62.6</td>
<td>116.5</td>
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<tr>
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<td>Pension and OPEB/SPP Accrual</td>
<td>3</td>
<td>761.7</td>
<td>739.1</td>
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<td>Regulatory Liability Amortization - Income and Other Taxes</td>
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<td>9.0</td>
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<tr>
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<td>9</td>
<td>Taxable SR&amp;ED Investment Tax Credits</td>
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<td>14.8</td>
<td>10.4</td>
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<td>10</td>
<td>Other</td>
<td></td>
<td>45.9</td>
<td>49.7</td>
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<tr>
<td>11</td>
<td>Total Additions</td>
<td></td>
<td>1,466.4</td>
<td>1,481.8</td>
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<td></td>
<td>Deductions for Regulatory Tax Purposes:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>CCA</td>
<td></td>
<td>418.0</td>
<td>467.0</td>
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<td>13</td>
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<td>197.6</td>
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<td>14</td>
<td>Contributions to Nuclear Segregated Funds</td>
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<td>172.8</td>
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<td>355.3</td>
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<td>95.8</td>
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<td>Reversal of Return on Rate Base Recorded in Capacity Refurbishment Variance Account</td>
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<td>Other</td>
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<td>0.5</td>
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<td>20</td>
<td>Total Deductions</td>
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<td>887.8</td>
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<td>(line 1 + line 11 - line 20)</td>
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<td></td>
<td></td>
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<tr>
<td>21</td>
<td>Regulatory Income Taxes - Federal (line 21 x line 26)</td>
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<td>100.7</td>
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<tr>
<td>22</td>
<td>Regulatory Income Taxes - Provincial (line 21 x (line 27 + line 28))</td>
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<td>88.8</td>
<td>97.1</td>
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<tr>
<td>23</td>
<td>Regulatory Income Taxes - SR&amp;ED Investment Tax Credits</td>
<td>2</td>
<td>(10.4)</td>
<td>(10.4)</td>
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<tr>
<td>24</td>
<td>Total Regulatory Income Taxes (line 22 + line 23 + line 24)</td>
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<td>211.5</td>
<td>157.5</td>
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<tr>
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<td>Income Tax Rate:</td>
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<td></td>
<td></td>
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<tr>
<td>25</td>
<td>Federal Tax</td>
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<td>15.00%</td>
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<td>26</td>
<td>Provincial Tax</td>
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<td>11.00%</td>
<td>11.00%</td>
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<td>-1.00%</td>
<td>-1.00%</td>
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<td>28</td>
<td>Total Income Tax Rate</td>
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<td>25.00%</td>
<td>25.00%</td>
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</table>

Notes:
1. Regulatory Earnings Before Tax for are calculated as follows:

   Table 1 - Calculation of Regulatory EBT for 2014 and 2015 ($M)

<table>
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<tr>
<th>Line No.</th>
<th>Item</th>
<th>Reference</th>
<th>2014</th>
<th>2015</th>
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<td>(b)</td>
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<td>Requested After Tax Return on Equity</td>
<td>Ex. C1-1-1 Tables 2 and 3</td>
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<td>100.7</td>
</tr>
<tr>
<td>2a</td>
<td>Less: Bruce Lease Net Revenues</td>
<td>Ex. G2-2-1 Table 2, 3</td>
<td>88.8</td>
<td>97.1</td>
</tr>
<tr>
<td>3a</td>
<td>Single Payment Amounts Adjustment</td>
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<td>12.3</td>
<td>(12.3)</td>
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<td>Additions for Regulatory Tax Purposes</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>Deductions for Regulatory Tax Purposes</td>
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<td></td>
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<td>7a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8a</td>
<td>Regulatory Income Taxes - Federal</td>
<td>(lines 7a + 24) x line 26 /</td>
<td>133.2</td>
<td>100.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1 - line 29)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9a</td>
<td>Regulatory Income Taxes - Provincial (line 7a + 24) x (line 27 + line 28)</td>
<td>(1 - line 29)</td>
<td></td>
<td></td>
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<td>Total Regulatory Income Taxes</td>
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<td>14a</td>
<td>Add: Total Regulatory Income Taxes</td>
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<td>15a</td>
<td>Single Payment Amounts Adjustment</td>
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2. With the exception of lines 4, 15 and 16, additions and deductions for regulatory tax purposes and SR&ED investment tax credits are from Ex. F4-2-1 Table 5, col. (b) for 2014 and col. (c) 2015.

3. From Ex. N1-1-1 Chart 4, line 1
4. From Ex. N1-1-1 Chart 4, line 4
5. From Ex. N1-1-1 Chart 4, line 5
Board Staff Interrogatory #165

Ref: Exh. F4-2-1 and Tables 1, 2 and 3

Issue Number: 6.13

Issue: Are the amounts proposed to be included in the test period revenue requirement for income and property taxes appropriate?

Interrogatory

Page 3 states: “For the purpose of determining payment amounts for each regulated business, total income taxes, before SR&ED ITCs, determined for OPG’s prescribed facilities are allocated based on each business’s regulatory taxable income.” Please provide a detailed calculation showing the derivation of each business’s regulatory taxable income in relation to the income tax amounts for 2014 and 2015 in Tables 1, 2 and 3.

Response

Attachment 1, Table 1 (2014) and Table 2 (2015) provides the derivation of each business’s regulatory taxable income and corresponding income tax amounts.
### Table 1
Calculation of Regulatory Income Taxes for Prescribed Facilities by Segment (Updated per Ex. N1-1-1) ($M)

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Particulars</th>
<th>Note</th>
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<th>Newly Reg Hydro</th>
<th>Nuclear</th>
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<td></td>
<td></td>
<td></td>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>(d) (a)+(b)+(c)</td>
</tr>
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<td>604.4</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>Depreciation and Amortization</td>
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<td></td>
<td>82.1</td>
<td>62.2</td>
<td>273.7</td>
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<td>Nuclear Waste Management Expenses</td>
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<td>0.0</td>
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<td>59.3</td>
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<td>Receipts from Nuclear Segregated Funds</td>
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<td>0.0</td>
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<td>62.6</td>
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<td>64.6</td>
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<td>717.1</td>
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<td>0.0</td>
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<td>41.9</td>
</tr>
<tr>
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<td>0.0</td>
<td>12.1</td>
<td>12.4</td>
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<td>74.6</td>
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<td>Other</td>
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<td>45.0</td>
<td>45.0</td>
</tr>
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</tr>
<tr>
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<td>CCA</td>
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<td>0.0</td>
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<td>148.8</td>
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<td>0.0</td>
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<td>70.1</td>
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</tr>
<tr>
<td>16</td>
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Notes:
1. Amounts are those presented in L-6.13-1 Staff-164, Att. 1, Table 4
2. Regulatory Earnings Before Tax are calculated as follows:
3. Amounts are those reflected in Ex. N1-1-1, Chart 4.
4. Amounts are those presented in L-6.13-1 Staff-164, Attachment 1, Tables 1-3, col. (e), line 1
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<td>110.9</td>
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<td>11.00%</td>
<td>11.00%</td>
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<td>-1.00%</td>
<td>-1.00%</td>
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<td>25.00%</td>
<td>25.00%</td>
<td>25.00%</td>
</tr>
</tbody>
</table>

Notes:
1. Amounts are those presented in L-6.13-1 Staff-164, Attachment 1, Table 4.
2. Regulatory Earnings Before Tax are calculated as follows:
3. Amounts are those reflected in Ex. N1-1-1, Chart 4.
4. Amounts are those presented in L-6.13-1 Staff-164, Attachment 1, Tables 1-3, col. (f), line 1.
Board Staff Interrogatory #166

Ref: Exh. F4-2-1 and Table 5

Issue Number: 6.13

Issue: Are the amounts proposed to be included in the test period revenue requirement for income and property taxes appropriate?

Interrogatory

Table 5 at Line 21 in “Regulatory Taxable Income” shows a negative amount of $39.2M (net loss) for 2013 Budget.

a) Please update the 2013 Budget amount to reflect the actual amount for 2013 as at December 31.

b) If the actual amount for 2013 remains as a net loss, is the amount being applied as a loss carry forward to reduce the Regulatory Taxable Income for 2014? If not, please explain.

Response

a) The 2013 actual regulatory tax loss is $153.8M, as shown at Ex. L-1.0-1 Staff-002, Table 29, line 21.

b) No. The 2013 regulatory tax loss is not applied to reduce the forecast 2014 regulatory taxable income because the loss arises as a result of a 2013 nuclear operating loss, as discussed below. As OPG incurred the operating loss, it should receive the benefit of the associated tax loss. This principle of attributing the tax cost or benefit between the ratepayers and OPG’s Shareholder was established by the Board in EB-2007-0905 (Decision with Reasons, page 170) and applied in OPG’s analysis of tax losses reflected in the balance of the Tax Loss Variance Account approved by the Board in EB-2010-0008 (EB-2010-0008, Ex. F4-2-1, section 4.3.3).

As determined below, the shortfall in 2013 nuclear production is approximately $325M, which is substantially higher than the regulatory tax loss of $153.8M. Most of the operating loss is related to production. OPG is at risk for production variances. A comparison of actual 2013 nuclear production of 44.7 TWh (Ex. L-1.0-1 Staff-002, Table 14, line 3, col. (d)) to the average of approximately 51.0 TWh of 2011 and 2012 production (50.4 TWh and 51.5 TWh, respectively), approved by the OEB in EB-2010-0008 Payment Amounts Order, Appendix A, Table 3 results in a production shortfall of approximately 6.3 TWh. Using the nuclear base payment amount of $51.52/MWh, the shortfall in production results in a reduction to revenue in 2013 of approximately $325M. As OPG has incurred the operating loss it should retain the benefit of the associated tax losses.
Board Staff Interrogatory #167

Ref: Exh. F4-2-1 and Table 5

Issue Number: 6.13

Issue: Are the amounts proposed to be included in the test period revenue requirement for income and property taxes appropriate?

Interrogatory

Pages 9-10 states: “The balances approved in EB-2012-0002 for the Pension and OPEB Cost Variance Account, the Nuclear Liability Deferral Account and the Impact for USGAAP Deferral Account as at December 31, 2012 contain amounts that do not have a matching tax benefit. As these balances reflect the associated income tax impacts, no adjustment to earnings before tax is made in respect of the recovery of these balances.”

Table 5 (line 7, col. 8) shows an addition for tax purposes of $21.4M although it is stated that no adjustment to earnings before tax is made in respect of the recovery of this account balance. Please explain the reason for this amount being added back to the regulatory tax calculation.

Response

There appears to be an error in this question. The only reference to a $21.4M figure in Table 5 relates to taxable Scientific Research and Experimental Development Investment Tax Credits (“SR&ED” “ITC”). This item is unrelated to the regulatory tax treatment of variance and deferral account recoveries. The tax treatment of SR&ED ITCs is explained in Ex. F4-2-1 Section 3.5, pages 10 to 12.
Board Staff Interrogatory #168

Ref: Exh. F4-2-1

Issue Number: 6.13

Issue: Are the amounts proposed to be included in the test period revenue requirement for income and property taxes appropriate?

Interrogatory

Please provide a summary of the losses incurred and applied to regulatory taxable income in each year from 2010 to 2015.

Response

The only regulatory tax loss arising during the 2010 - 2015 period is in 2013. The 2013 budgeted loss is $39.2M as shown in Ex. F4-2-1, Table 5, line 21. The 2013 actual loss is $153.8M as shown in Ex. L-1.0-1 Staff-002, Table 29, line 21. This loss is fully discussed in Ex. L-6.13-1 Staff-166.

Witness Panel: Finance, D&V Accounts, Nuclear Liabilities
Board Staff Interrogatory #168.5

Ref: Exh. F4-2-1 pages 2-4 and 10-12

Issue Number: 6.13

Issue: Are the amounts proposed to be included in the test period revenue requirement for income and property taxes appropriate?

Interrogatory

Please provide a summary of the SR&ED Qualifying Capital Expenditures and the SR&ED Investment Tax Credits Recognized in Regulatory Earnings Before Tax incurred and applied to regulatory taxable income in each year from 2010 to 2015.

Response

SR&ED qualifying capital expenditures were deductible against taxable income in the period incurred, as shown at Ex. F4-2-1, Table 4, line 21 and Table 5, line 18. As these are capital expenditures, they were not charged to earnings before tax ("EBT").

The only SR&ED investment tax credits ("ITCs") recognized in regulatory EBT are for 2010, in the amount of $18.8M (Ex. F4-2-1, Table 4, col. (a), line 22). As noted in Ex. A2-1-1, section 4.0 and Ex. F4-2-1, section 3.5, under CGAAP, SR&ED ("ITCs") were recognized in earnings before tax ("EBT") as a reduction to OM&A. However, under USGAAP, they are recognized as a reduction to income tax expense as shown at Ex. F4-2-1, Table 4, line 28 and Table 5, line 24. SR&ED ITCs are therefore not included in regulatory EBT for 2011 - 2015.¹

The following chart summarizes the above discussion.

<table>
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<th></th>
<th></th>
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<td>-</td>
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¹ SR&ED ITCs reduce regulatory income taxes, but not taxable income. Tax legislation distinguishes between tax credits, which are applied directly against taxes payable, and deductible items applied against taxable income.
Board Staff Interrogatory #169

Ref: Exh. F4-2-1 pages 10-12

Issue Number: 6.13

Issue: Are the amounts proposed to be included in the test period revenue requirement for income and property taxes appropriate?

Interrogatory

For the SR&ED Qualifying Capital Expenditures which are not deductible effective in 2014, please quantify and provide the related capital expenditures amounts that flowed to income tax Schedule 8 including the UCC and CCA amounts for 2014 and 2015 and provide the related asset class and CCA rate.

Response

OPG has not forecast SR&ED qualifying capital expenditures for 2014 and 2015 because they are no longer deductible for those years and, therefore, not necessary for the calculation of forecast income tax expenses.

Witness Panel: Finance, D&V Accounts, Nuclear Liabilities
Board Staff Interrogatory #170

Ref: Exh. F4-2-1 Table 9

Issue Number: 6.13

Issue: Are the amounts proposed to be included in the test period revenue requirement for income and property taxes appropriate?

Interrogatory

Table 9 (col. c) includes $1,227.8M under Net Adjustment and related Note 3 states that these amounts represent the inclusion of the Undepreciated Capital Cost for the newly regulated hydroelectric facilities effective in 2014.

Please provide a schedule (in the format of Table 9) detailing the derivation of the Undepreciated Capital Cost for the newly regulated hydroelectric facilities by year from 2007 to 2013.

Response

OPG notes that the total Net Adjustment amount in Ex. F4-2-1, Table 9, col. (c) is $1,277.8M, not $1,227.8M. The amount represents the forecast 2014 opening Undepreciated Capital Cost (“UCC”) for the newly regulated hydroelectric facilities.

Attachment 1, Tables 1 and 2 (in the format of Ex. F4-2-1 Table 9) detail the Undepreciated Capital Cost (“UCC”) for the newly regulated hydroelectric facilities for the same years (2012 and 2013) for which equivalent information was provided for the previously regulated facilities in Ex. F4-2-1, Tables 7 and 8.

The attached tables reflect an updated 2013 closing balance of UCC of $1,390.9M for the newly regulated hydroelectric facilities. This amount reflects actual information for 2013.
Numbers may not add due to rounding.

## Table 1

Undepreciated Capital Cost and Capital Cost Allowance Schedule for OPG's Newly Regulated Hydroelectric Facilities ($M)

**Year Ending December 31, 2012**

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<tr>
<th>Line No.</th>
<th>Class</th>
<th>Undepreciated Capital Cost at Beginning of Year</th>
<th>Cost of Acquisitions</th>
<th>Net Adjustments</th>
<th>Proceeds of Dispositions</th>
<th>(a)+(b)+(c)-(d)</th>
<th>UCC1</th>
<th>50% Rule</th>
<th>(e)-(f) Reduced Undepreciated Capital Cost</th>
<th>CCA Rate</th>
<th>Recapture/Terminal Loss</th>
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<th>(e)+(i)-(j) Undepreciated Capital Cost at End of Year</th>
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### Table 2
Undepreciated Capital Cost and Capital Cost Allowance Schedule for OPG's Newly Regulated Hydroelectric Facilities ($M)
Year Ending December 31, 2013

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<th>Line No.</th>
<th>Class</th>
<th>Undepreciated Capital Cost at Beginning of Year</th>
<th>Cost of Acquisitions</th>
<th>Net Adjustments</th>
<th>Proceeds of Dispositions</th>
<th>(a)+(b)+(c)-(d) UCC1</th>
<th>50% Rule</th>
<th>(e)-(f) Reduced Undepreciated Capital Cost</th>
<th>CCA Rate</th>
<th>Recapture/ Terminal Loss</th>
<th>Capital Cost Allowance</th>
<th>(e)+(i)-(j) Undepreciated Capital Cost at End of Year</th>
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Board Staff Interrogatory #171

Ref: Exh. F4-2-1 Table 9, Exh. A2-1-1 Attachment 1, Exh. B2-2-1 Table 1

Issue Number: 6.13

Issue: Are the amounts proposed to be included in the test period revenue requirement for income and property taxes appropriate?

Interrogatory

The 2012 Annual Report, Note 15 Business Segment (page 134), shows an amount of $3,310M for the “unregulated hydroelectric” segment property, plant and equipment in-service, net.

a) Please confirm whether the $3,310M amount represents the equivalent of “newly” regulated hydroelectric facilities in 2012, and if not, please provide this amount.

b) In March 2013, OPG would have released its 2013 financial results including its 2013 consolidated financial statements which will also provide the 2013 amount for the “unregulated hydroelectric” segment property, plant and equipment in-service, net. Please confirm whether the 2013 amount represents the equivalent of “newly” regulated hydroelectric facilities in 2013, and if not, please provide this amount.

c) Table 9 (col. c) of Exh. F4-2-1 includes $1,227.8M under Net Adjustment which represents the inclusion of the Undepreciated Capital Cost for the newly regulated hydroelectric facilities effective in 2014. Please provide a reconciliation of the $3,310M for the 2012 “unregulated hydroelectric” segment reported, or as adjusted, and the $1,227.8M for the 2014 Undepreciated Capital Cost. However, if the information requested in b) above is available, please provide a reconciliation of the 2013 “unregulated hydroelectric” segment reported, or as adjusted, and the $1,227.8M for the 2014 Undepreciated Capital Cost, instead.

d) Table 9 (col. c) of Exh. F4-2-1 shows $1,227.8M under Net Adjustment as an inclusion to the Undepreciated Capital Cost (UCC) for the newly regulated hydroelectric facilities effective in 2014. Table 1 (col. g) of Exh B2-2-1 shows rate base of $2,511.5M for the newly regulated hydroelectric. Please provide a reconciliation of the $2,511.5M rate base for the newly regulated hydroelectric in 2014 and the $1,227.8M UCC for 2014.

Response

a) Not confirmed.

Net property, plant and equipment in-service of $3,310M shown for the unregulated hydroelectric business segment in note 15 of OPG’s 2012 audited consolidated financial statements represents all of OPG’s unregulated hydroelectric facilities prior to 2014, including those facilities that will remain unregulated effective July 1, 2014. Ex. L-2.1-1 Staff-
008, Attachment 1, Table 1 provides a breakdown of the unregulated hydroelectric business segment information in OPG’s 2012 audited consolidated financial statements and indicates that the amount of $3,310M includes net property, plant and equipment (“PP&E”) in-service of $2,512M for the newly regulated facilities, as at December 31, 2012.

b) Not confirmed, for the same reasons as indicated in part (a) above.

Of the total net property, plant and equipment in-service of $3,312M as at December 31, 2013 shown for the unregulated hydroelectric segment in note 16 to OPG’s 2013 audited consolidated financial statements (Ex. L-2.1-6 ED-003, Attachment 1), $2,525M represents in-serviced PP&E of the newly regulated hydroelectric facilities, as also noted in Ex. L-2.1-1 Staff-010(b) and Ex. L-2.1-6 ED-003 b).

c) & d)  
Section 6(2)11 of O. Reg. 53/05 requires the OEB to accept the values for the assets and liabilities of the newly regulated hydroelectric facilities as set out in OPG’s most recently audited financial statements approved by OPG’s Board of Directors before the making of the OEB’s first payment amounts order in respect of these facilities (which are OPG’s audited financial statements as of December 31, 2013). That section applies to income tax effects of timing differences and the revenue requirement impact of accounting and tax policy decision reflected in the above noted financial statements. As the values of the fixed and intangible assets (“PP&E”) of the newly regulated hydroelectric facilities and the associated timing differences with respect to the Undepreciated Capital Cost (“UCC”) of these assets are reflected in OPG’s 2013 audited financial statements, the OEB must accept these values. As noted Ex. L-2.1-6 ED-003t b), the net book value of in-service PP&E of the newly regulated hydroelectric facilities reflected in OPG’s 2013 audited consolidated financial statements is $2,525M and the associated UCC as at December 31, 2013 is $1,391M, resulting in a PP&E timing difference of 1,123M1.

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1 Amounts represent income tax effects of temporary differences using 2013 tax rate of 25%, as shown in Ex. L-1.0-1 Staff 2, Table 29, line 28, col. (a). For this calculation, PPE excludes amounts related to land, which is not depreciable. These income tax impacts are as reflected in the calculation of OPG’s total deferred (future) income tax liability reported in its 2013 audited consolidated financial statements.
Board Staff Interrogatory #172

Ref: Exh. F4-2-1 Table 2

Issue Number: 6.13

Issue: Are the amounts proposed to be included in the test period revenue requirement for income and property taxes appropriate?

Interrogatory

With respect to the newly regulated hydroelectric facilities, are there any SR&ED Investment Tax Credits or loss carry forward amounts arising in prior years available to be applied to income taxes in the test period? If no please explain. If yes, please identify these amounts and how they were applied.

Response

No.

The principle of attributing the tax cost or benefit between the ratepayers and OPG’s Shareholder was established by the OEB in EB-2007-0905 (Decision with Reasons, page 170) and applied in OPG’s analysis of tax losses reflected in the balance of the Tax Loss Variance Account approved by the OEB in EB-2010-0008 (EB-2010-0008, Ex. F4-2-1, section 4.3.3).

OPG did not calculate income taxes (including SR&ED investment tax credits) separately for the newly regulated hydroelectric assets prior to 2014. If there were any tax losses that could be attributed to the newly regulated hydroelectric assets, they would have resulted from low operating margins resulting from low market prices for the then-unregulated hydroelectric production. OPG incurred the operating loss and therefore should receive the benefit of the associated tax. Similarly, any SR&ED investment tax credits that may have been generated by the newly regulated hydroelectric production would have related to costs incurred by OPG prior to regulation; therefore OPG should receive the benefit of associated SR&ED income tax credits.
Board Staff Interrogatory #173

Ref: Exh F3-2-2

Issue Number: 6.14

Issue: Are the asset service fee amounts charged to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

The application notes the asset service fee remains stable. In terms of nuclear, for the most part, they are quite stable from year to year. However, in the 2015 test year, there is an increase of 18% relative to the 2013 bridge year. The application notes that increase is primarily due to higher IT additions and IT depreciation with no further explanation. Please provide a more detailed explanation regarding the IT addition that resulted in the deviation from the stable trend that occurs in 2015 including the total cost and the associated amount allocated to regulated operations.

Response

The asset service fee for nuclear is relatively stable at about $23M, but increases from $22.7M in 2013 to $26.8M in 2015. This increase is primarily due to the Enterprise Systems Consolidation Project (“ESCP”) coming into service in 2015. Refer to the Executive Summary contained in Ex. D3-1-2, Attachment 1 for a detailed description of the project.

The total in–service addition cost for ESCP in 2015 is $48.6M (Ex. D3-1-2, Table 1) which results in depreciation expense of $4.9M and a tax adjusted return of $1.8M.

The amounts allocated to Nuclear operations in 2015 for depreciation expense and the tax adjusted return for ESCP are $3.9M and $1.4M, respectively.
Board Staff Interrogatory #174

Ref: Exh F3-2-1

Issue Number: 6.14

Issue: Are the asset service fee amounts charged to the regulated hydroelectric and nuclear businesses appropriate?

Interrogatory

The application discusses Joint Use Hydroelectric Assets which support both newly regulated and unregulated hydro stations (i.e., under OPA contracts). The application notes that, under the asset service fee approach, such assets are not included in rate base. Instead, the regulated and unregulated facilities are charged a service fee which is included in their respective OM&A expenses.

a) Is Board staff’s understanding correct that, if the capacity of newly regulated stations serviced by a ‘shared’ asset exceeds a threshold (referred to as “dominant use”), the ‘entire’ cost is attributed to regulated operations and is also included in rate base?

b) If so, why does OPG believe including costs associated with the unregulated hydro stations in the regulated payments is more appropriate than consistently applying the asset service fee methodology to all joint use assets by allocating the costs based on the relative capacity of the regulated and unregulated stations that use the asset and not including the asset in rate base?

Response

a) Yes. As noted in Ex. F3-2-1 Page 8, lines 10 to 12, if 90 per cent or more of aggregate station capacity serviced by the joint-use asset relates to newly regulated hydroelectric stations, the asset is included in rate base.

b) OPA contracts have been used to support the development of new incremental generation capacity. Assets such as control dams and service centers were an integral part of the operations of hydroelectric stations for many years prior to the development of incremental capacity subject to OPA contracts. If the use of a joint asset by regulated hydroelectric stations is not greater than the 90 per cent materiality threshold, then it is removed from rate base, and costs related to it are allocated. OPG’s approach appropriately reflects the principle of causation, as when asset usage is over 90 per cent its existence is effectively caused by the newly regulated stations and other usage is considered incidental. OPG is of the view that its approach is appropriate and the benefits of adopting a more detailed allocation proposed by Board Staff do not outweigh the costs. For perspective, the asset service fee for all hydroelectric assets exceeding the dominant use test is $0.9M per year.
HSG Group Inc., the consulting firm selected to review OPG’s cost allocation methodology for centralized services and common costs, reviewed OPG’s asset service fees for newly regulated hydroelectric facilities. The Report at Ex F5-5-1, Page 25 specifically identifies the 90 per cent threshold and concludes that OPG’s approach is “reasonable for assets used exclusively or near-exclusively by a business to be directly assigned to that business, and the application of cost-based ASFs reflects the operation of OPG’s business and cost causality.”