NUCLEAR WASTE MANAGEMENT AND DECOMMISSIONING – REVENUE REQUIREMENT IMPACT

1.0 PURPOSE

The purpose of this evidence is to present the impacts on OPG’s nuclear asset retirement obligation (“ARO”), nuclear segregated funds and asset retirement costs (“ARC”) resulting from the current approved Ontario Nuclear Funds Agreement (“ONFA”) Reference Plan effective January 1, 2012. This evidence also presents the projected financial impacts of the current approved ONFA Reference Plan on the 2014 - 2015 test period revenue requirement. These impacts are also reflected in projected additions to the Nuclear Liability Deferral Account and the Bruce Lease Net Revenues Variance Account in 2013.

2.0 OVERVIEW

OPG is seeking recovery of $847.5M over the test period in respect of liabilities for nuclear waste management and decommissioning for both prescribed and Bruce facilities. This amount includes the financial impacts of the current approved ONFA Reference Plan, which total $442.3M over the test period. These impacts relate primarily to increases in depreciation expense and variable used fuel storage and disposal expenses and, for the Bruce facilities, increases in accretion expense. The 2013 impacts of the current approved ONFA Reference Plan are being recorded as additions to the Nuclear Liability Deferral Account and Bruce Lease Net Revenues Variance Account and are projected to be $122.7M and $110M respectively.

For the prescribed facilities, OPG is seeking recovery of a total pre-tax test period amount of $427.8M in respect of the liabilities for nuclear waste management and decommissioning, consisting of $214.6M for 2014 and $213.2M for 2015 (Ex. C2-1-1 Table 1, line 6). The associated income tax impacts are $14.8M for 2014 and $13.5M for 2015 (Ex. C2-1-1 Table 1, line 7).

For the Bruce facilities, OPG is seeking recovery of a total pre-tax test period amount in respect of the liabilities for nuclear waste management and decommissioning of $293.6M as
a reduction to Bruce Lease net revenues, consisting of $144.9M for 2014 and $148.7M for 2015 (Ex. C2-1-1 Table 1, line 15). The associated income tax impacts are $48.3M for 2014 and $49.6M for 2015 (Ex. C2-1-1 Table 1, line 16).

The current approved ONFA Reference Plan covers the 2012-2016 period. The ONFA was approved by the Province effective January 1, 2012, as discussed in EB-2012-0002. The accounting consequences and financial impacts of the current approved ONFA Reference Plan are summarized in section 3.0. The impacts for the prescribed facilities projected for 2013 are discussed in Section 4.1 and, for 2014 and 2015, in Section 4.2.

### 3.0 SUMMARY OF IMPACTS

Accounting for the current approved ONFA Reference Plan increased the carrying balance of the ARO and ARC by $1,363.5M, as detailed in Ex. C2-1-1 Table 4, lines 6 and 7 (2011 ARO/ARC adjustment of $934.3M) and lines 13 and 14 (2012 ARO/ARC adjustment of $429.2M). Exhibit C2-1-2 Table 4 includes the details of these adjustments at the program and station level.

The financial impacts of the current approved ONFA Reference Plan for 2013 to 2015 are summarized below. The methodologies applied in deriving these impacts are unchanged from those applied in EB-2012-0002 and EB-2010-0008.

1) With respect to the prescribed facilities, an increase in the 2014-2015 after-tax revenue requirement of $136.4M as detailed in Ex. C2-1-2 Table 5, and discussed in section 4.2

2) With respect to the Bruce facilities, a reduction in the 2014-2015 Bruce Lease net revenues of $229.4M as detailed in Ex. C2-1-2 Table 5 and discussed in Ex. G2-2-1 Section 6.0. The reduction in Bruce Lease net revenues results in a corresponding pre-tax increase in the test period revenue requirement and an associated increase of $76.5M in income taxes for the prescribed facilities as detailed in Ex. C2-1-2 Table 5.

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1 Ex. C2-1-2 Table 4 contains the same information as presented in EB-2012-0002 Ex. H1-1-2, Table 20
3) Projected 2013 additions to the Nuclear Liability Deferral Account of $122.7M detailed in Ex. H1-1-1 Table 10 and discussed in Section 4.1 below

4) Projected 2013 additions to the Bruce Lease Net Revenues Variance Account of approximately $110M discussed in Ex. G2-2-1 Section 6.0

The above impacts arise as a result of the following:

- Higher ARC depreciation and variable costs for storage and disposal of incremental used fuel and low and intermediate level waste ("L&ILW") for both prescribed and Bruce facilities;
- Lower cost of capital on ARC\(^2\) in rate base, at the weighted average accretion rate, for the prescribed facilities;\(^3\)
- Higher accretion expense for the Bruce facilities, due to the higher ARO balance; and,
- Lower income taxes for the Bruce facilities.

The above depreciation and cost of capital impacts include those due to the lower depreciation expense for prescribed and Bruce facilities' ARC balances recorded prior to December 31, 2011, resulting from the changes in the estimated service lives of the Pickering A and B and Bruce A and B stations effective December 31, 2012.

Additionally, higher contributions into the segregated funds for the prescribed facilities for 2014 and 2015, per the approved segregated fund contribution schedule based on the current approved ONFA Reference Plan, result in a higher income tax deduction for the prescribed facilities in those years.

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\(^2\) For each of 2013-2015, the average ARC is lower than the average Unfunded Nuclear Liability; both with the current approved ONFA Reference Plan in effect and in the illustrative case without the current approved ONFA Reference Plan. As such, in both cases, in accordance with the methodology established by the OEB in EB-2007-0905 and applied in EB-2010-0008, return on rate base is calculated by applying the weighted average accretion rate to average ARC.

\(^3\) The lower cost of capital results as both the average ARC amount in Ex. C2-1-1 Table 2 and the weighted average accretion rate of 5.37% in Ex. C1-1-1 Tables 1 (2015) and 2 (2014) are lower than the ARC and accretion rate applicable prior to the implementation of the current approved ONFA Reference Plan illustrated in Ex. C2-1-1 Table 5a, note 2.
The higher variable used fuel and L&ILW costs reflect higher storage and disposal baseline cost estimates as well as a lower discount rate. The changes in the ARO and ARC at the end of 2011 and the variable costs during 2012 were recorded at the accounting discount rate of 3.43 per cent, which is lower than the discount rate of 4.8 per cent used to value and accrete the previous ARO tranche and to determine the variable costs reflected in EB-2010-0008. The changes in the ARO and ARC at the end of 2012 were recorded at the accounting discount rate of 3.50 per cent, which is reflected in the projected variable costs for 2013 - 2015 presented in this Application. The weighted average accretion rate of 5.37 per cent used to calculate the projected return on rate base for the prescribed facilities’ ARC for 2013 - 2015 reflects the impact of the ARO tranches recorded at 3.43 per cent and 3.50 per cent, as shown in EB-2012-0002.\(^4\)

**4.0 PROJECTED IMPACTS FOR PRESCRIBED FACILITIES**

**4.1 Impacts on Nuclear Liability Deferral Account for 2013**

The Nuclear Liability Deferral Account has been authorized by the OEB pursuant to section 5.2(1) of O. Reg. 53/05 in order to capture the revenue requirement impact of any change in OPG’s nuclear decommissioning liability arising from an approved reference plan under the ONFA.\(^5,6\) Ontario Regulation 53/05 section 6(2)8 requires the OEB to ensure that OPG recovers the revenue requirement impact of its nuclear decommissioning liability arising from the current approved reference plan.

The forecast amounts approved in EB-2010-0008 were based on the previous reference plan. As a result, the 2013 impacts of the changes in the nuclear ARO from the current approved ONFA Reference Plan and the changes in segregated fund contributions are

\(^4\) The derivation of the weighted average accretion rate of 5.37% is found at EB-2012-0002 Ex. M1-1, Att. 3, Table 1a, Note 1.

\(^5\) As originally determined by the OEB in its EB-2007-0905 Decision with Reasons (p. 112) and as stated in the EB-2012-0002 Payment Amounts Order (Appendix B, p. 9 and 11), the cost impacts of changes in OPG’s nuclear decommissioning and nuclear waste management liabilities for the Bruce facilities are recorded in the Bruce Lease Net Revenues Variance Account rather than the Nuclear Liability Deferral Account.

\(^6\) The “nuclear decommissioning liability” is defined in O. Reg. 53/05 and the EB-2012-0002 Payment Amounts Order (Appendix F, p. 9) as “the liability of Ontario Power Generation Inc. for decommissioning its nuclear generation facilities and the management of its nuclear waste and used fuel.”
captured as additions to the Nuclear Liability Deferral Account. Similar amounts recorded in the account as 2012 additions were approved by the OEB in EB-2012-0002.

The projected revenue requirement impact on the prescribed assets to be added to the Nuclear Liability Deferral Account balance during 2013 is $122.7M, as shown in Ex H1-1-1 Table 10.

The projected amount of $122.7M consists of the following items:

1) Increase in Depreciation Expense of $51.7M: The amount includes: (i) the additional depreciation in 2013 resulting from the 2011 and 2012 ARC adjustments attributable to Pickering A, Pickering B and Darlington, and (ii) reduction in 2013 depreciation for ARC balances for Pickering A and B recorded prior to December 31, 2011, due to changes in the estimated service lives of Pickering A and B effective December 31, 2012.

The first impact is derived by dividing the December 31, 2012 net book value of the ARC changes in 2011 and 2012 by the current remaining useful lives of the corresponding prescribed stations. The December 31, 2012 net book value of the 2011 and 2012 ARC changes includes the increase in ARC of $439.2M at December 31, 2011 (Ex. C2-1-1 Table 4, line 7), reduced by the 2012 impact on depreciation of $98.2M (recorded in 2012 in the Nuclear Liability Deferral Account, as presented in EB-2012-0002), and the decrease in ARC of $276.9M at December 31, 2012 (Ex. C2-1-1 Table 4, line 14).

The second impact is derived by calculating the difference between the 2013 depreciation of the pre-December 31, 2011 ARC using the current estimated service lives of Pickering A and B and the depreciation that would have resulted from the

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7 These items follow Section 6(2)7 of O. Reg. 53/05, which states that the revenue requirement impact to be recorded in the deferral account is to be based on: return on rate base, depreciation expense, income and capital taxes, and fuel expense. No capital taxes are included as capital taxes were eliminated effective July 1, 2010.

8 The 2012 depreciation impact of $98.2M is calculated as shown at EB-2012-0002 Ex. H1-1-2, Table 8, note 1.
services lives in effect prior to December 31, 2012 and reflected in the EB-2010-0008 payment amounts.

The details of the calculations of the above impacts are provided in Ex. H1-1-1 Table 10 note 1.

2) **Increase in Return on Rate Base of $2.1M:** The relatively small increase results from applying the weighted average accretion rate of 5.37 per cent, per the EB-2012-0002 Payment Amounts Order (App. B, p. 9), to the additional ARC associated with the current approved ONFA Reference Plan (Ex. H1-1-1, Table 10, line 4)

3) **Increase in Variable Expenses of $27.1M:** The higher variable cost rates for used fuel storage and disposal and L&ILW management are applied to the average forecast nuclear used fuel and waste volumes underpinning the EB-2010-0008 forecast variable expenses for 2011 and 2012 in order to calculate the impact of the current approved ONFA Reference Plan on the variable expenses

4) **Increase in Income Taxes of $41.8M:** As in EB-2012-0002, the increase in income taxes is a result of the net increase in taxes associated with the recovery/refund of the three impacts noted above and the changes in taxes associated with changes in segregated fund contributions. On a net basis, the three impacts above increase regulatory taxable income because they are added to regulatory earnings before tax. These items are not deductible for income tax purposes. The decrease in 2013 segregated fund contributions, relative to the average of the 2011 and 2012 forecast contributions reflected in the EB-2012-0002 payment amounts, also increases taxable income because these contributions are deductible from earnings before tax. The calculation of the income tax impact is based on the resulting net amount of incremental additions to earnings before tax and is provided at Ex. H1-1-1, Table 10, lines 8 to 13.

### 4.2 Impacts on the Test Period Revenue Requirement
With respect to the prescribed facilities, the current approved ONFA Reference Plan increases the test period revenue requirement by $136.4M, as presented in Ex. C2-1-1 Table 5. The forecast test period impacts for the prescribed facilities consist of the four items identified in Section 3.1. The impacts are derived similarly and, in total, are comparable in size to the projected 2013 impacts. The return on rate base impact for the test period reflects the declining net book value of the 2011 and 2012 ARC due to depreciation in the normal course. The income tax impact reflects the difference between the segregated fund contributions for 2014 and 2015 per the current segregated fund contribution schedule and those per the segregated fund contribution schedule based on the previous approved ONFA Reference Plan.