OVERVIEW OF NUCLEAR FACILITIES

1.0 PURPOSE
This evidence describes OPG’s nuclear facilities and sets out an overview of OPG’s nuclear mandate, objectives, organization, and governance framework.

2.0 OPG’S NUCLEAR GENERATING FACILITIES
OPG’s nuclear generating facilities consist of Pickering A Generating Station ("Pickering A"), Pickering B Generating Station ("Pickering B"), and Darlington Generating Station ("Darlington") (collectively, the “nuclear generating stations”). All of the nuclear generating stations are CANDU reactors, which are a pressurized-heavy-water, natural-uranium technology developed in Canada. CANDU is an acronym for Canada Deuterium Uranium. CANDU reactors are unique in their use of natural uranium, deuterium oxide (heavy water) as a moderator/coolant, on-line refueling capability and two shut down safety systems. These plants serve as base load resources since they have been designed to operate at full power.

Photographs of the stations are provided in Attachment 1 and Attachment 2. Chart 1 below provides some basic information about the nuclear generating stations.

Chart 1
Nuclear Generating Stations Basic Information

<table>
<thead>
<tr>
<th></th>
<th>Pickering A</th>
<th>Pickering B</th>
<th>Darlington</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net in-service capacity</strong></td>
<td>1,030 MW</td>
<td>2,064 MW</td>
<td>3,512 MW</td>
</tr>
<tr>
<td><strong>Number of units in-service and size in MW’s</strong></td>
<td>2 x 540</td>
<td>4 x 540</td>
<td>4 x 934</td>
</tr>
</tbody>
</table>

While OPG’s ten nuclear units are all CANDU reactors, they reflect three generations of design philosophy and technology with Pickering A, Pickering B, and Darlington built in the 1960s, 1970s, and 1980s respectively. This results in significant variations among the three
nuclear stations including technology and overall design. Further discussion of these
technology and design differences among the three nuclear stations can be found at Ex. F2-T1-S1.

3.0 NUCLEAR GOVERNANCE FRAMEWORK

The Chief Nuclear Officer Charter contains all the key aspects of the governance framework embodied in nuclear facility operations. OPG’s Nuclear Safety Policy is derived from this Charter, and defines the principles, objectives, and responsibilities governing the safe operation of OPG’s nuclear facilities. A copy of the Nuclear Safety Policy is provided in Attachment 3. It requires that the OPG Board of Directors regularly review nuclear safety performance. It also requires the Chief Nuclear Officer (“CNO”) establish a Nuclear Oversight Committee and enlist the World Association of Nuclear Operators (“WANO”) to provide independent advice regarding OPG nuclear activities that may impact on nuclear safety.

In addition, OPG is subject to federal and provincial legislation and regulations including the Nuclear Safety and Control Act. More detail on the regulatory framework that applies to OPG’s nuclear facilities is provided at Ex. A1-T6-S1.

4.0 NUCLEAR ORGANIZATION

The nuclear business unit is comprised of Nuclear Operations; Darlington New Nuclear Project; and Nuclear Refurbishment, Projects and Support (per OPG’s organizational chart shown in Ex. A1-T5-S1). The current organization structure reflects reorganizations in 2008 and 2009 that separated the new build and refurbishment initiatives and also consolidated nuclear projects and non-core support organizations away from Nuclear Operations in order to allow it to better focus on the core business. In addition, the generation development function formerly in Nuclear Generation Development and Services is now within the Corporate Business Development group.

Another organizational change was made in 2008 as a consequence of the Government of Canada formally approving in 2007 the establishment of the Nuclear Waste Management Organization (“NWMO”) for the long-term management of used nuclear fuel. The NWMO has
the responsibility for siting, planning and ultimately overseeing the development and
collection of a deep geologic repository for high level nuclear waste. Consequently in 2008
OPG transferred resources and activities involving long-term nuclear waste management
programs (i.e., long-term management of nuclear waste produced at the nuclear stations as
well as the decommissioning of its nuclear generating stations after the end of their useful
lives) to the NWMO.

Day-to-day operations at OPG’s nuclear waste storage operation continue to be managed by
the Nuclear Waste Management Division in Nuclear Operations.

Nuclear Operations
Nuclear Operations, under the direction and leadership of the CNO, is focused on the
operation, maintenance, and performance of Pickering A, Pickering B and Darlington, along
with oversight of various core nuclear support services, which include:
- Engineering and Modifications
- Nuclear Programs and Training
- Nuclear Supply Chain
- Performance Improvement and Oversight
- Nuclear Waste Management Division

A description of the roles and responsibilities of the various operating groups in Nuclear
Operations is provided at Ex. F2-T2-S1.

Darlington New Nuclear Project
Darlington New Nuclear Project is responsible for managing OPG’s new nuclear project at
Darlington, as discussed in greater detail at Ex. D2-T2-S1.

Nuclear Refurbishment, Projects and Support
Nuclear Refurbishment, Projects and Support is responsible for managing the planning and
development of major refurbishment projects at Darlington and Pickering, as discussed in
greater detail at Ex. D2-T2-S1. In addition, Nuclear Refurbishment, Projects and Support is
OPG is responsible for the ongoing long-term management of nuclear waste produced by its operations, including high and low and intermediate level radioactive waste. In addition, OPG will have to manage radioactive waste associated with the decommissioning of its nuclear generating stations (including the Bruce Generating Stations) after the end of their useful lives.

The liabilities of OPG’s predecessor, Ontario Hydro, associated with nuclear waste management and decommissioning were transferred to OPG in April 1999. The responsibility for funding these liabilities is described in the Ontario Nuclear Funds Agreement (“ONFA”) between the Province of Ontario and OPG. A copy of the ONFA is available on OPG’s website at:


Details on nuclear waste management and decommissioning including the funding of nuclear liabilities are provided in Exhibit C2.

6.0 NUCLEAR MANDATE AND OBJECTIVES

With respect to the nuclear facilities, the Memorandum of Agreement (“MOA”) with the shareholder states:

OPG’s key nuclear objective will be the reduction of the risk exposure to the Province arising from its investment in nuclear generating stations in general and, in particular, the refurbishment of older units. OPG will continue to operate with a high degree of vigilance with respect to nuclear safety.

OPG will seek continuous improvement in its nuclear generation business and internal services. OPG will benchmark its performance in these areas against nuclear plants worldwide as well as against the top quartile of private and
publicly-owned nuclear electricity generators in North America. OPG’s top
operational priority will be to improve the operation of its existing nuclear fleet.

Consistent with OPG’s mandate and its vision and mission, OPG Nuclear has the following
cornerstone objectives with the purpose of making the existing nuclear facilities more
dependable, predictable, and cost effective:

- **Safety**: Makes nuclear safety, employee safety and environmental safety the overriding
  priority. Makes sure all laws are met and activities are performed conservatively and
  responsibly. Makes business decisions with the full knowledge of the risks and potential
  impacts.
- **Human Performance**: Recognizes that managing individual fallibility and organizational
  defences is the basis for excellence.
- **Reliability**: Operates, maintains and engineers OPG nuclear facilities such that
  equipment, performance, availability and output are optimized.
- **Value for Money**: Delivers solutions that are the best combination of cost, quality and
  performance.

These cornerstone objectives are the basis for the establishment of performance targets and
key initiatives during the benchmarking and business planning process. In 2009, consistent
with the 2005 MOA between OPG and its shareholder, OPG undertook a major nuclear
benchmarking initiative in conjunction with its 2010 - 2014 Business Plan, as discussed in
Ex. F2-T1-S1.

In June 2006, the shareholder directed OPG to begin feasibility studies on refurbishing its
existing nuclear plants, and to begin an environmental assessment (“EA”) on refurbishing
Pickering B’s four nuclear units.

In 2009, OPG completed its feasibility assessment of the economics of refurbishing its
Darlington units. Work is now proceeding on the next phase of the Darlington Refurbishment
project, as discussed in Ex. D2-T2-S1.
OPG has also completed its feasibility assessment of the economics of refurbishing Pickering B. In November 2009, OPG decided to not proceed with the refurbishment of Pickering B but rather to proceed with an initiative to achieve a short-term extension to the operating life of the Pickering B units beyond their current 2014 - 2016 nominal end of life. Discussion on the Pickering B Refurbishment and the Pickering B Continued Operations initiatives can be found at Ex. F2-T2-S3.

In the June 2006 directive, OPG was required to begin a federal approvals process, including preparation of an EA, for building new nuclear generating units at an existing site. On June 29, 2009, after the submission of final bids from potential suppliers, the Province announced that it had suspended the competitive procurement process to choose a preferred nuclear vendor. Discussion on the status of OPG’s new build initiative can be found at Ex. D2-T2-S1.
LIST OF ATTACHMENTS

1

2

3 Attachment 1: Photo of Darlington Generating Station

4

5 Attachment 2: Photo of Pickering Generating Station

6

7 Attachment 3: Nuclear Safety Policy

8
ATTACHMENT 1

Photo of Darlington Generating Station
ATTACHMENT 2

Photo of Pickering Generating Station
Nuclear Safety

Nuclear power poses unique hazards due to the enormous energy in the reactor core, radioactive material and decay heat produced by the fuel. Nuclear Safety is the protection of workers, public and the environment from these hazards.

Everyone can impact Nuclear Safety.

Policy Statement:

Nuclear Safety shall be the overriding priority in all activities performed in support of OPG nuclear facilities. Nuclear Safety shall have clear priority over schedule, cost and production.

Requirements:

Everyone shall demonstrate respect for nuclear safety by:

- Knowing how your work impacts on Control the power, Cool the fuel and Contain radioactivity (3C’s).
- Applying Event-Free tools and defences to prevent events.
- Reporting adverse conditions so they can be corrected.

Everyone shall conduct themselves in a manner consistent with the following Principles for a Strong Nuclear Safety Culture:

1. Everyone is personally responsible for Nuclear Safety.
2. Leaders demonstrate commitment to Nuclear Safety.
3. Trust permeates the organization.
4. Decision-making reflects Nuclear Safety first.
5. Nuclear technology is recognized as special and unique.
6. A questioning attitude is cultivated.
7. Organizational learning is embraced.
8. Nuclear Safety undergoes constant examination.

The Chief Nuclear Officer is accountable to the Chief Executive Officer and the Board of Directors to establish a management system that fosters nuclear safety as the overriding priority. This policy shall be reviewed at an appropriate interval.

Sponsoring Unit: Chief Nuclear Officer

Approval: Board of Directors
Date: March 5, 2010