EXECUTIVE SUMMARY

This Executive Summary relates to the Environmental Impact Statement (EIS) prepared for the Darlington Nuclear Generating Station Refurbishment and Continued Operation Project (hereinafter abbreviated as the "DNGS Refurbishment Project" or the "Project") proposed by Ontario Power Generation Inc. (OPG).

ES.1 Introduction

Darlington Nuclear Generating Station (DNGS) is a four-unit nuclear power plant owned and operated by OPG. It is located on the Darlington Nuclear (DN) site on the north shore of Lake Ontario, within the Municipality of Clarington in the Region of Durham, approximately 70 km east of Toronto. Each of the four units comprises a CANDU pressurized heavy water reactor with a net generating capacity of 881 MW providing a combined capacity of 3,524 MW. DNGS has generated electricity continuously and safely since October 1990 when the first unit came into commercial service. A key support facility, the Darlington Waste Management Facility (DWMF), is located east of DNGS within the DN site.

Refurbishment of CANDU reactors is an aspect of their design and assumed to be required at the mid-point of their operational service life. In February 2010, OPG announced it would proceed with detailed planning for the mid-life refurbishment of DNGS. Because refurbishment will involve a number of activities that are not authorized by the station's current operating licence, an amendment to the licence will be necessary which, in turn, has triggered a requirement for an environmental assessment (EA) under the *Canadian Environmental Assessment Act* (*CEAA*). Accordingly, OPG has prepared and submits this EIS for the DNGS Refurbishment Project in compliance with the Scoping Information Document issued by the Responsible Authority, the Canadian Nuclear Safety Commission (CNSC).

ES.2 Description of the Proposed Project (Chapter 2)

The Project will involve refurbishment of the four reactors and continued operation of each reactor for approximately 30 years following refurbishment. Chapter 2 presents a description of the DNGS Project including an overview of the DN site and the principal buildings, facilities and structures comprising and supporting the operation of DNGS. For EA purposes, the key works and activities during the two phases of the DNGS Refurbishment Project will include:

Refurbishment Phase:

- Construction of a Retube Waste Storage Building(s) at the DWMF and other support buildings inside the Protected Area which surrounds the station;
- Refurbishment of each of the four DNGS reactors including defuelling and dewatering of each reactor; replacement of reactor components (including fuel channel assemblies and feeder pipes); repair, maintenance, and upgrades to balance of plant;
- Management of nuclear and non-nuclear waste (including storage of retube waste at the DWMF and transportation of miscellaneous refurbishment low and intermediate-level radioactive waste (L&ILW) to a licensed off-site facility) and;
- Refilling each reactor with heavy water, and refuelling and restarting the reactors.

Continued Operation Phase:

- Continued operation of the refurbished reactors (including maintenance of the reactors and associated systems/components as needed) for a period of approximately 30 years followed by a safe storage period of approximately 30 additional years; and
- Management of routine operational radioactive wastes (including construction and operation of additional facilities at the DWMF for interim storage of used fuel and any Steam Generators that may have to be replaced as part of normal maintenance) and non-radioactive waste.

For EA purposes, the following conceptual timelines were adopted for the two phases of the Project. No more than two reactors will be in refurbishment outages at any given time:

	Start	Finish
Refurbishment Phase	2013	2024
Continued Operation Phase (including safe shutdown period)	2019	2085

Preliminary Decommissioning Plan:

While decommissioning is not part of the scope of the Project, OPG has preliminary decommissioning plans for the major facilities involved in the Project (DNGS and DWMF) and included a description of these plans in Section 2.9 of the EIS, as required by the Scoping Information Document. The preliminary plan for DNGS is based on a strategy of "deferred dismantling" involving three main phases: Phase I - Preparation for Safe Storage; Phase II - Safe Storage and Monitoring (included in this EA as an activity under the operating licence) and Phase III - Dismantling, Demolition and Site Restoration (carried out under a new

decommissioning licence). Based on the above dates, it is anticipated that decommissioning (i.e., dismantling, demolition and site restoration of DNGS will start in about 2085 and be completed by approximately 2095. In accordance with the CNSC Regulatory Guide G-219, more detailed decommissioning plans for these facilities will be developed later as the time frame for their decommissioning approaches.

ES.3 Methodologies Used in the EIS (Chapter 3)

The overall methodology used in conducting the EA and preparing this EIS is consistent with the requirements of the *CEAA*, related general guidance and the project-specific guidelines in the Scoping Information Document issued by the CNSC. It includes the following basic steps: description of the proposed Project (including specific works and activities that may interact with the environment); description of the potentially affected environment and Valued Ecosystem Components (VECs); assessment and mitigation of potential adverse effects (including cumulative effects) that may be caused by the Project; assessment of credible malfunction and accident scenarios and other potential effects (including effects of the environment on the Project, climate change and sustainability considerations); determination of the significance of any residual environmental effects; consideration of local public and other stakeholder views throughout the EA process; and a preliminary plan for a follow-up and monitoring program.

The EA was conducted within a framework of temporal and spatial (geographic) boundaries. The temporal boundaries are defined by the planned start of the Refurbishment Phase (2013) and the anticipated end of the Safe Shutdown period in 2085. The spatial boundaries, representing the geographic framework within which the Project environmental effects were assessed, include a Site Study Area (SSA), a Local Study Area (LSA) and a Regional Study Area (RSA) as defined below for generic application to the EA studies:

- The **generic RSA** extends approximately 20 km east, west and north of the DN site. This area is generally bounded by Regional Road 23 (Lake Ridge Road) in the west; Regional Roads 5, 20 and 9 in the north; Highway 35/115 and County Road18 (Newtonville Road) in the east; and it extends a distance of 1 km into Lake Ontario to the south;

- The **generic LSA** extends approximately 10 km east, west and north of the DN site and 1 km into Lake Ontario. This area includes the DN site and all of the major urbanized communities in the Municipality of Clarington and the easterly urbanized portion of the City of Oshawa. The LSA corresponds generally with the Primary Zone for emergency planning identified by Emergency Management Ontario; and

- The **generic SSA** is represented generally as the southwest quadrant (approximately) of the DN site because it is within this area only that the physical activities associated with the DNGS Refurbishment Project will take place. It is bounded in the west by the DN site boundary; the CN railway tracks in the north; in the east by Holt Road (as it would be extended to Lake Ontario); and it extends a distance of 1 km into Lake Ontario to the south.

The generic study areas were reviewed and adjusted as appropriate for specific application for each of the individual environmental components. The study areas as applied specifically for each environmental component are described in the relevant sections of Chapter 4, including the rationale for their boundaries (e.g., the RSA for the Aquatic Environment was expanded to extend approximately 35 km east and west of DNGS; and the SSA for the Aquatic and Surface Water Environments was extended into Lake Ontario beyond 1 km in order to provide for potential effects associated with operation of the station intake and discharge structures).

ES.4 Description of the Existing Environment (Chapter 4)

Consistent with normal EA practice, the characterization of the existing environment ("baseline") focused on those aspects (environmental components) that are most likely to interact with and be affected by the Project. Since environmental studies have been conducted on and around the DN site since 1972, a large body of information on the physical, biological and social aspects of the environment is available. The existing environment description for this Project EA was largely based on the comprehensive characterization program that was undertaken to support the recent New Nuclear – Darlington (NND) Project EA. Where necessary, the NND-related information was updated or augmented to ensure that it was current and appropriate for the DNGS Refurbishment Project EA.

The existing environment description for each environmental component involved (e.g., atmospheric, surface water, aquatic, terrestrial, etc.), concludes with the identification of VECs considered relevant for that environmental component. The selected VECs and the corresponding environmental components are summarized in Table ES-1.

Table ES-1: Environmental Components and Selected VECs

Environmental Components	Relevant VECs	
Atmospheric Environment	• Pathway to Human Health • Pathway to Non-Human Biota Health • Pathway to Terrestrial Environment	
Surface Water Environment	• Pathway to Human Health • Pathway to Non-Human Biota Health • Pathway to VECs in other environmental components	
Aquatic Environment	• Lake Ontario Nearshore Habitat • Forage Species (e.g., Round Goby, Alewife) • Benthivorous Fish (e.g., White Sucker , Round Whitefish) • Predatory Fish (e.g., American Eel, Lake Trout)	
Terrestrial Environment	• Shrub Bluff Ecosystem (e.g., Grass of Parnassus) • Waterfowl Staging Areas & Winter Habitat (e.g., Bufflehead) • Wildlife Corridor (extent of connectivity across DN site)	
Geological & Hydrogeological Environment	• Pathway to Human Health • Pathway to Non-Human Biota Health • Pathway to VECs in other environmental components	
Radiation & Radioactivity	• Pathway to Human Health • Pathway to Non-Human Biota	
Land Use	• Land Use Planning Regime in Local Study Area	
Traffic and Transportation	• Transportation System Efficiency & Adequacy • Transportation System Safety	
Physical & Cultural Heritage Resources	• Aboriginal Archaeological Resources (e.g., sub-surface remains, features, artifacts) • Euro-Canadian Archaeological Resources (e.g., structural remains, features, artifacts) • Euro-Canadian Built Heritage Resources (e.g., architecture, structural remains, artifacts) • Euro-Canadian Landscape Resources (e.g., historic settlements, cemeteries)	
Socio-Economic Environment	• Population and Demographics • Employment • Business Activity • Tourism • Income • Municipal Finance & Administration • Housing and Property Values • Municipal Infrastructure	• Health and Safety Facilities & Services • Educational Facilities & Services • Community and Recreational Facilities & Services • Social Services • Use and Enjoyment of Property • Community character • Community cohesion
Aboriginal Interests	• Hunting & Fishing for Subsistence • Fishing, Trapping and Traditional Harvesting / Collecting for Sustenance, Recreational and Economic Purposes • Locations and Features of Cultural / Spiritual Importance	
Health - Humans	• Members of the Public • Workers on the DN site	
Health - Non-Human Biota	• Terrestrial Vegetation • Insects and Terrestrial Invertebrates (e.g., earthworm) • Birds and Waterfowl (e.g., American Crow, Bank Swallow, Mallard) • Mammals (e.g., Meadow Vole, Raccoon, White-tailed Deer) • Amphibians and Reptiles (e.g., Eastern Gartersnake, Northern Leopard Frog) • Aquatic Benthic Invertebrates • Aquatic Vegetation • Fish (Forage & Predator Species)	

ES.5 Assessment and Mitigation of Likely Environmental Effects (Chapter 5)

Each Project work and activity was screened to determine if it was likely to interact with the environment and, if so, if it was likely to cause a measurable change in the environment. If a measurable change was considered likely, the change was evaluated to determine the likely environmental effect on the relevant VECs. Design features and measures incorporated into the planning for the DNGS Refurbishment Project (i.e., in-design mitigation measures), to avoid or minimize environmental effects, were taken into account in the evaluation of change and effect. In addition, opportunities to further mitigate the likely environmental effects were identified and, after all identified mitigation measures were taken into account, residual environmental effects were determined. Where the residual effects were determined to be positive or beneficial, no further assessment was carried out. Where the residual effects were determined to be negative or adverse, they were considered further in terms of cumulative effects and their overall significance. This methodical assessment process resulted in the identification of only one residual adverse effect on the environment as summarized in Table ES-2.

Table ES-2: Summary of Residual Adverse Effects

Environment Component	Likely Adverse Residual Effects	Relevant VECs
Atmospheric [1]	None	N/A
Surface Water	None	N/A
Aquatic	Some impingement and entrainment losses associated with continuing operation of the CCW system	Various fish species & benthic invertebrates
Terrestrial	None	N/A
Geological & Hydrogeological	None	N/A
Radiation & Radioactivity [2]	None	N/A
Land Use	None	N/A
Traffic & Transportation [1]	None	N/A
Physical & Cultural Heritage	None	N/A
Socio-Economic Environment [1]	None	N/A
Health of Humans [2]	None	N/A
Health of Non-Human Biota	None	N/A
Aboriginal Interests	None	N/A

Notes

[1] Although no residual adverse effects were identified in the Atmospheric, Traffic and Transportation and Socio-Economic components of the environment, the potential for cumulative nuisance effects of the Project and seven other nearby projects in the Municipality of Clarington were considered further because of concerns raised in the community (Section ES.8).

[2] Although no residual adverse effects were identified in the Radiation and Radioactivity or related Human Health components of the environment, potential cumulative effects of radiation and radioactivity on human health were considered further because of concerns expressed by some members of the public (Section ES.8).

A residual adverse effect of the Project will result in only one component of the environment (the Aquatic Environment). This is attributable to the nature of the Project (refurbishment and continued operation of an existing facility rather than construction and operation of a new station) and the comprehensive existing safety and environmental management measures plus the mitigation measures identified through the assessment process. Given that the Project involves a nuclear facility, it is particularly noteworthy that no residual radiological health effects on humans or non-human biota were determined likely. The maximum radiation dose to the most exposed members of the public ("Critical Group") from continued operation of DNGS was estimated to be less than 1.7 μSv/a, a very small fraction of the regulatory dose limit (1,000 μSv/a) and an even smaller fraction of the typical dose from natural background radiation in Canada (1,840 μSv/a).

In addition, the assessment indicated that the Project is likely to result in a number of beneficial effects, all related to the Socio-Economic Environment.

ES.6 Assessments of Other Likely Effects (Chapter 6)

The EA also addressed a number of other factors including sustainability, potential effects of the environment on the Project (including seismicity, flooding, severe weather and other natural conditions) and climate change considerations.

In terms of sustainability, the EA considered how implementation of the Project will affect the sustainable use of resources, both renewable and non-renewable; and the compatibility of the Project with sustainable development principles in the local communities. Overall, the Project is not expected to affect the sustainability of renewable resources (such as surface water, groundwater and aquatic/terrestrial biota) or non-renewable resources, nor is it likely to adversely affect the ecological, social and economic sustainability objectives of the Municipality of Clarington or the Region of Durham.

With regard for potential effects of the environment on the Project, the EA considered a number of natural hazards and environmental conditions that might potentially affect the Project and, in turn, cause adverse effects on workers, the public or the environment:

- Flooding (including coastal, on-site or nearby watercourses, surface runoff and other flooding hazards);
- Severe Weather (including tornadoes, hurricanes, thunder & hail storms, and freezing rain);
- Seismicity (including earthquakes and earthquake-related phenomena such as tsunamis); and
- Biophysical (including zebra & quagga mussels, attached algae, fish, ice and silt).

In terms of earthquake-related hazards, current seismic standards, such as CSA N289.1-08 (CSA 2008) require use of the 1 x 10^{-4} per year probability level for design of new nuclear power plants and for evaluation of the seismic capacity of existing plants. A seismic probabilistic risk assessment has determined that the DNGS structures, systems and components can safely shutdown, remove decay heat, maintain containment function, monitor control systems and limit radioactive material releases following the mean 1 x 10^{-4} per year earthquake ground motion. No potential for tsunami effects at the DN site was identified. Overall, taking into account the robust design of DNGS, the assessment concluded that these natural hazards are not likely to cause significant effects on the Project.

Regarding potential effects of climate change, no risks were identified that could reasonably be expected to interfere with the Project. The analysis showed that in spite of possible future changes in climate, no climate parameters are likely to adversely affect Project structures or systems to such an extent that workers, the public or the environment would be at risk. Nevertheless, Project structures and systems that could be affected by a change in climate parameters (i.e., stormwater management system) will be monitored and modifications implemented, if required, as part of an adaptive management strategy for the DN site.

ES.7 Assessment of Malfunctions and Accidents (Chapter 7)

In addition to the likely environmental effects of normal Project works and activities, the EA assessed a range of potential malfunctions and accidents considered credible (have a reasonable probability of occurrence). Six categories of malfunctions and accidents were evaluated:

- Conventional (Non-Radiological)
- Radiological
- Transportation
- Nuclear
- Out of Core Criticality
- Malevolent Acts

In addition, lessons learned from the severe earthquake and tsunami events which occurred in Japan in March 2011, including relevant actions being undertaken by the CNSC and Canadian nuclear operators, are described.

Conventional Malfunctions and Accidents

This category of malfunctions and accidents involves only non-radiological substances with no potential for a release of radioactivity. They could potentially occur either within the DNGS facilities or during off-site transportation of non-radiological substances. Following screening of a wide range of accident scenarios, four bounding scenarios were identified and assessed: (i) spill of transformer oil on land; (ii) spill of fuel into the lake; (iii) spill of chemicals; and, (iv) fire and explosion (e.g., fire in fuel oil storage). The assessment indicated that conventional malfunctions

and accidents are unlikely to cause long-term or residual adverse effects to humans or the environment, taking into account the proposed mitigation measures including preventive measures and emergency response capability.

Radiological Malfunctions and Accidents

This category of malfunctions and accidents involves radioactive substances and components within the DNGS facilities, except those directly associated with the reactors and their auxiliaries (considered separately), such as the radioactive waste and used fuel storage facilities. Following screening of a range of accident scenarios, five bounding scenarios were identified and assessed: (i) Retube Waste Container drop and loss of containment; (ii) on-site traffic accident involving a DSC transporter; (iii) spill of tritiated moderator heavy water from a ruptured pipe; and, (iv) irradiated fuel damage in one of the in-station storage bays. The assessment results indicate that the doses to workers and the public in the event of an on-site radiological malfunction or accident would be below the applicable regulatory dose limit.

Transportation Accidents

This category of malfunctions and accidents is related to off-site transportation of tritiated heavy water and low and intermediate-level radioactive wastes. The following scenarios were identified and assessed: (i) transportation related equipment failure; (ii) traffic accident involving a transport vehicle; (iii) transportation fire; and (iv) adverse road conditions. Although transportation accidents are possible, no release of radioactivity is likely due to the robustness of the shipping containers and other precautions taken by OPG to ensure safety of workers and the public. In more than 35 years of OPG transportation experience, involving thousands of shipments and covering over 11 million kilometres, only five shipments were involved in traffic accidents and all were minor with none resulting in any release of radioactivity to the environment.

Nuclear Accidents

This category of malfunctions and accidents involves the operation of the reactors and could potentially include damage to the reactor core and/or fuel bundles. Whatever the nature of an accident that might occur inside the reactor containment structure, such an event could only pose a threat to the environment if radioactivity were to escape from the station in an uncontrolled manner. This would require an accident causing major damage to fuel in the reactor core, an opening in the containment structure and an internal driving force sufficient to expel the radioactivity into the environment. For EA purposes, a nuclear accident scenario is considered credible only if it has a one in one million ($1x10^{-6}$) or greater chance of occurring in any year.

Three nuclear accident scenarios were identified as having a frequency greater than 10^{-6} per year though one scenario (RC7) bounded the release of the other scenarios and was selected as the representative nuclear accident for analysis. The predicted doses from this accident were found to exceed the Provincial Protective Action Level (PAL) for sheltering at 1 km, but at a distance of 3 km, the predicted doses were less than the Provincial PAL for sheltering. At no point is the dose predicted to exceed the Provincial PAL for evacuation. No residual effect on humans was identified as a result of nuclear accidents. It is to be noted that the risk of a nuclear accident at DNGS would not change as a result of refurbishment; that is, the risk during continued operation would be the same as the current risk, which is very low.

Out of Core Criticality

This category involves potential criticality events outside the reactor core resulting from improper spacing or moderation of nuclear fuel enriched in uranium. Natural uranium fuel, such as is used in the DNGS reactors, only contains approximately 0.7% U-235 (the fissionable component of uranium) and would require very precise conditions in the reactors to sustain a chain reaction. The analysis concluded that an inadvertent out-of-core criticality event, with appropriate preventive controls in place, is not considered credible.

The potential effects of malfunctions and accidents on non-human biota were also assessed and it was determined that, as a result of the preventative and mitigative measures in place, there would be no effect on non-human biota from conventional, radiological or nuclear malfunctions and accidents.

Malevolent Acts

Since the events of September 11, 2001, increased attention has been given in Canada and world-wide on ensuring the safety and security of nuclear facilities against deliberate attempts (malevolent acts) to damage them and cause harm to people and the environment.

OPG has completed a comprehensive review of the safety of its existing nuclear facilities against credible threats and accidents, including the potential consequence of aircraft strikes. This review determined that considering the robust nature of the facilities, the "defence-in-depth" protection provided by various safety systems and the difficulty of perpetrating a damaging malevolent act, a substantial release of radioactivity to the public in such an event is unlikely. Given the broad range of credible malfunction and accident scenarios considered in this EA, it is reasonable to conclude that the potential consequences of a malevolent act would be encompassed within the range of consequences identified for the malfunction and accident

scenarios (e.g., nuclear design philosophies and features act to mitigate against potential malevolent acts; and containment structures designed to protect against accidental release of radioactivity also protect against the possible effects of malevolent acts).

Lessons from the Earthquake and Tsunami Events in Japan

OPG has made significant progress in evaluating the lessons learned from the events at the Fukushima nuclear site in Japan and is rigorously reviewing the preparedness of its stations to deal with events that could potentially exceed their design basis ("beyond design basis events" or BDBEs). To date, no significant issues requiring immediate corrective or compensatory measures have been identified. However, a number of potential improvement opportunities have been identified and are being prioritized and addressed through normal station processes. Longer term issues are being investigated in an expeditious manner. A Canadian nuclear utility working group is working on common issues for all CANDU reactors. OPG remains committed to the safe operation of its generating stations and will continue to review information and experience from the Fukushima event to ensure that all lessons learned are implemented in a timely manner.

ES.8 Assessment of Cumulative Environmental Effects (Chapter 8)

The residual environmental effects identified earlier as likely to be caused by the DNGS Refurbishment Project were assessed further to determine whether or not they have the potential to act cumulatively (i.e., overlap in space and time) with similar effects of other projects and activities, either past, existing or in the reasonably foreseeable future, within the study areas around the Project. A total of 23 other projects and activities were identified within the Regional Study Area and considered for their potential to contribute to cumulative environmental effects. These included OPG's Pickering Nuclear Generating Station, some 30 km west of DNGS, and the following projects and activities existing or planned within the Municipality of Clarington and the Region of Durham:

- St. Marys Cement Operation
- Durham-York Energy from Waste Facility
- Clarington Energy Business Park
- Hwy 407 East Link to Hwy 401
- Highway 401-Holt Road Interchange Improvements
- GO Transit Rail Service Extension – Oshawa to Bowmanville
- Growth and Development in the Region

All 23 other projects and activities were screened to identify those expected to have effects similar to, and likely to overlap geographically and temporally with, the residual adverse effects of the Project (limited impingement/entrainment effects on the aquatic environment resulting

from continued operation of the station's cooling water system). The assessment concluded that the cumulative effects would likely be not measurable at the lake-wide population level. No additional mitigation measures are therefore considered necessary beyond those already proposed for the DNGS Refurbishment and NND Projects.

Although the assessment in Chapter 5 indicated no radiological health effects are likely to result from the DNGS Refurbishment Project, this issue was examined further because of concerns generally expressed by some members of the public. The total cumulative dose to members of the public, taking DNGS and other existing and planned future nuclear operations into account, was determined to be very low (less than 7 μSv/a), well below the regulatory dose limit (1,000 μSv/a).

Based on feedback from members of the local community during the NND Project EA consultation process, OPG also addressed concerns regarding the concentration of development and related initiatives expected in the southwest Clarington area over the next decade or so, with a focus on adverse cumulative effects on local traffic, air quality, noise, labour market or community infrastructure. These concerns were addressed even though no corresponding residual adverse effects are predicted to result from the DNGS Refurbishment Project or the NND Project. OPG intends to work with the proponents of other nearby projects (e.g., MTO, GO Transit, Municipality of Clarington and the Region of Durham) to identify opportunities and undertake cooperative initiatives (where appropriate) that would minimize potential cumulative effects, should these other projects materialize.

ES.9 Significance of Residual Adverse Effects (Chapter 9)

The single residual adverse environmental effect of the Project was evaluated for significance. Using a methodical approach procedure, the residual effect was systematically rated (low, medium or high) against a set of criteria (magnitude, geographic extent, duration, frequency, reversibility, physical human health, psycho-social human health, ecological and societal value of the affected VEC, and sustainability). Taking into account the design of the DNGS cooling water system and proposed mitigation measures identified through the EA process, it was concluded that the residual adverse effect on the aquatic environment is likely to be minor and not significant relative to lake-wide fish populations.

ES.10 Communications and Consultation Program (Chapter 10)

A comprehensive communications and consultation program was initiated at the outset of the DNGS Refurbishment Project EA and will continue throughout the regulatory process and

beyond. The program is intended to fulfill all of the consultation requirements specified in *CEAA* and *NSCA* legislation. A range of stakeholders was identified from, but not limited to, the following categories:

- Federal government departments and agencies responsible for review or with a role in the Project approval process (including the CNSC);
- The Canadian Environmental Assessment Agency;
- Provincial government ministries and agencies;
- Regional and local municipal government agencies;
- Aboriginal Peoples (special engagement program);
- Conservation Authorities;
- Elected officials (including MPs, MPPs, regional and local municipal councils);
- Local, regional and national non-governmental organizations;
- Residents/general public;
- OPG employees; and
- Print and broadcast media.

In addition to pre-submission meetings with federal, provincial and municipal government departments, ministries and agencies, various methods were used to communicate and consult with the public and other stakeholders. These included: initial notification letters and subsequent update letters; a series of Project EA newsletters distributed to approximately 96,000 households and businesses in the local communities; a Project website and a toll-free phone line. More active methods included: regular meetings with existing and new stakeholder committees; periodic briefing sessions and workshops with key stakeholders; community information sessions in Bowmanville, Newcastle, Courtice and Oshawa; and a special program for engaging Aboriginal stakeholders.

As part of the consultation program, OPG offered funding to local municipalities to enable them to undertake independent technical peer reviews of the EIS and ensure that municipal concerns are addressed. The Municipality of Clarington and the Region of Durham both accepted this offer.

ES.11 Preliminary Plan for EA Follow-up Program (Chapter 11)

A preliminary plan and scope for a follow-up and monitoring program was developed for the Project and included in the EIS. The objective of the program is to verify that the environmental effects of the Project are as predicted and to confirm that the proposed mitigation measures are effective (and thus determine if additional or new mitigation measures are required). The

preliminary scope of the proposed follow-up program includes monitoring in the following areas of the environment:

- Aquatic Environment;
- Land Use;
- Traffic & Transportation;
- Socio-Economic Conditions & Human Health; and
- Public Consultation.

Details of the follow-up program and related reporting will be developed subsequently based on the requirements of the Screening Report prepared by the CNSC and other RAs. Beyond that, the scope and details of the program will be reviewed and adjusted on an ongoing basis to incorporate evolving Project/site conditions and monitoring data as acquired (adaptive management). During its implementation, the program will be coordinated with existing DNGS monitoring programs carried out for other related purposes, including licence and regulatory compliance and operational performance monitoring.

OPG routinely interacts with the local communities (notably the Municipality of Clarington and Durham Region) with regard for the planning and conduct of monitoring activities and programs at DNGS. This interaction will continue as the details of the EA Follow-up Program are developed and elements of programs or activities relative to this EA and their mutual interests will be integrated into the Plan as applicable.

In addition, OPG will continue to consider the results of independent monitoring and studies such as Health Canada's Canadian Radiological Monitoring Network, the Ontario Ministry of Labour's Radiation Protection Monitoring Service and the Durham Region Health Department's periodic health studies in the Region.

ES.12 Conclusions of the Environmental Assessment (Chapter 12)

Taking into account the findings of the EIS, including the identified feasible mitigation measures, it is OPG's conclusion that the Project will not result in any significant adverse environmental effects, including effects from accidents and malfunctions, effects of the environment on the Project and cumulative effects. Accordingly, OPG recommends that the CNSC accept these conclusions as a basis for preparation of its Screening Report under the *CEAA*.