



## **Supplementary Information**

## **Renseignements supplémentaires**

### **Presentation from Ontario Power Generation Inc.**

### **Présentation d'Ontario Power Generation Inc.**

In the Matter of the

À l'égard de

#### **Darlington New Nuclear Project**

#### **Projet de nouvelle centrale nucléaire de Darlington**

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Application to renew the nuclear power reactor site preparation licence for the Darlington New Nuclear Project

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Demande de renouvellement du permis de préparation de l'emplacement d'une centrale nucléaire pour le projet de nouvelle centrale nucléaire de Darlington

**Commission Public Hearing**

**Audience publique de la Commission**

**June 10-11, 2021**

**10-11 juin 2021**

# Darlington New Nuclear Project

## Power Reactor Site Preparation Licence Renewal Hearing

Mark Knutson, SVP Enterprise Engineering & Chief Nuclear Engineer | June 10 & 11, 2021  
CMD 21-H4.1A

**ONTARIO**POWER  
GENERATION

Where a brighter  
tomorrow begins.



An aerial photograph of a lush green landscape. On the left, a large body of blue water meets a shoreline. The land is covered in dense green trees and grass. Several winding, light-colored roads or paths crisscross the terrain. In the background, a small town or village is visible on a hillside under a clear blue sky.

# Opening Remarks

*Dominique Minière, Chief Strategy Officer*

# Outline

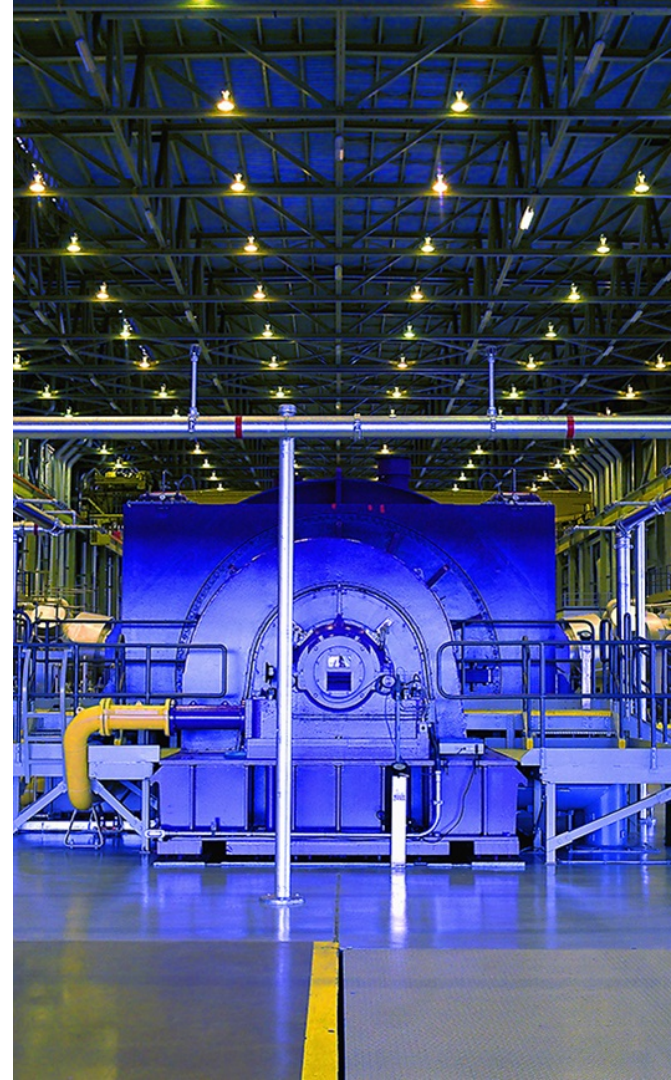
1. | Opening remarks and new nuclear vision
2. | DNNP overview
3. | OPG's environmental stewardship
4. | Industry leadership and PRSL renewal
5. | Indigenous engagement and social licence
6. | Safety and Control Areas
7. | DNNP commitments
8. | Conclusions





# Opening Remarks

- OPG has a leading role in electricity generation.
- Strong safety and operational performance and project excellence.
- Many significant achievements at its two nuclear generating stations over the past 50 years.
- Positive track record is a testament to the diligence and passion for excellence.
- OPG committed to upholding these standards of excellence for any future nuclear generating facility.



# New Nuclear Vision

- New generation capacity at Darlington site.
- OPG's Climate Change Plan.
- Need all forms of non-emitting generation.
- Federal and Provincial support for nuclear to combat climate change.
- **Key step:** renewal of the Power Reactor Site Preparation Licence.

A net-zero  
carbon  
company by  
**2040**

A net-zero  
carbon  
economy by  
**2050**

## **Net-Zero:**

Achieving an overall balance between direct carbon emissions produced and carbon emissions taken out of the atmosphere.

# New Nuclear Vision

- Provincial Memorandum of Understanding on SMRs:
  - Ontario
  - Saskatchewan
  - Alberta
  - New Brunswick
- Pan-Canadian approach
- First Of A Kind deployment a crucial step to enable others.



# New Nuclear Vision for Darlington

OPG envisions additional nuclear capacity towards end of the decade, in order to provide low-carbon, reliable energy to meet Ontario's energy demand, enable renewables, and support Canada's climate change goals.

## **Currently evaluating Small Modular Reactor options which:**

- Maintain conclusions of existing EA.
- Have advanced safety features.
- Is right size for maximum deployment and benefit – approximately 300 MWe output.
- Meets timeline supporting Ontario needs and pan-Canadian opportunity.
- Supports Canadian nuclear industry (e.g. jobs, supply chain).





# Darlington New Nuclear Project Overview

*Mark Knutson, Sr. Vice President Enterprise Engineering & CNE*

# DNNP Overview

- Ontario took the largest single climate change action – closed coal stations.
- Nuclear energy produces about half of the electricity in Ontario.
- Growing need for more clean electricity, with nuclear as the baseload.
- Nuclear energy an essential part of baseload needed for electrification.
- DNNP PRSL key to enabling new nuclear in Ontario and across Canada.

# OPG's Environmental Stewardship

- Operating in a sustainable manner = business success.
- Strive to maintain or enhance significant natural areas.
- Ongoing commitment will be sustained throughout any site preparation, construction and operations at DNNP.





# OPG's Environmental Stewardship - Examples

- In 2020, Darlington received a Gold Wildlife Habitat Council Conservation Certification.
- Stocked > 300,000 salmon since 2011.
- Deployed drones to help survey the growth of invasive reed grasses near the Western Waste Management Facility.
- OPG helps protect the environment across the entire province.



# Nuclear Industry Leadership

- Excellence in safe nuclear operations.
- Innovation
- Project management success (e.g. Refurbishment).
- Canadian Centre for Nuclear Sustainability
- Demonstrated capability to meet licence commitments safely and in an environmentally responsible way.





An aerial photograph of a lush green hillside bordering a large body of water. The hillside is covered in dense vegetation and has several winding roads. In the distance, a town or industrial area is visible on the edge of the water. A semi-transparent grey box is overlaid on the upper portion of the image, containing white text.

# Darlington New Nuclear Project PRSL Renewal

*Robin Manley, Vice President, New Nuclear Development*



# PRSL Renewal

- PRSL Expires on August 17, 2022.
- Requesting renewal for a 10-year term with same scope.
- OPG application meets all requirements of the NSCA and associated Regulations.
- OPG continues to be qualified to carry on the licensed activities, make adequate provisions to protect the health, safety and security of persons – and the environment.
- OPG continues to maintain national security and measures required to implement Canada's international obligations.

# Scope of Application and Hearing

- OPG is not seeking authorization for a reactor or any nuclear installations at the site. OPG is only seeking permission for site preparation activities as listed in the existing licence, including clearing and grubbing, routine construction activities, etc. – not nuclear construction or installations.
- Specific reactor design and supporting safety analysis of particular SMRs are out of scope.\*
- Any selected reactor technology will be carefully examined for a Licence to Construct application and hearing.



# Site Evaluation

- The site evaluation in place for the current licence concluded the site is suitable for construction and operation of a new nuclear power plant.
- To confirm the above conclusion remains valid, OPG evaluated natural and human-induced factors that may affect safety and security as part of the site evaluation.
- The site evaluation studies included consideration for the following:
  - meteorological and flooding events,
  - seismic hazards,
  - geotechnical hazards,
  - external human-induced hazards, and
  - radiological emissions (normal & accident conditions).





# Updated Baseline Data

- Baseline Air Quality - generally improved/within the natural variability.
- Terrestrial Community - undergone some changes - existing mitigation measures remain valid.
- New Butternut tree sapling (species at risk) discovered in 2018; OPG updated commitment to include the Butternut in site planting plans.
- Other updated baseline data consistent with data documented in the original evaluation.
- Changes in baseline conditions since the original evaluation => No effect on original conclusions with respect to residual adverse effects.
- **Conclusion => DNNP site remains suitable for New Nuclear Facility.**



# Review of Codes and Standards

- OPG completed compliance review of REGDOC-1.1.1, Site Evaluation and Site Preparation for New Reactor Facilities.
- Reviewed current codes, standards and practices against OPG Governance.





An aerial photograph of a lush green hillside bordering a large body of water. The hillside features several winding dirt roads and a large, rectangular cleared area. In the background, a nuclear power plant is visible on a higher elevation. The sky is clear and blue.

# Darlington New Nuclear Project Project Update

*Carol Gregoris, Project Director - DNNP Projects*



# The DNNP Site

**The DNNP site is located on the OPG property immediately east of the existing Darlington station.**



# Darlington Indicative Roadmap





# Our place in our community

- OPG takes pride in the relationships we have built with our local communities.
- Our families live and play here.
- Our facilities generate safe, reliable electricity for Ontario as well as a significant economic benefit to supporting communities and businesses.

## **OPG community outreach for this project includes:**

- Proactively contacting stakeholders/groups/individuals
- Targeted meetings and briefings with stakeholder groups
- Regular updates to local Municipal and Region councils
- Workshops with special interest groups
- Proactively engaging with local media
- Information posted to OPG's public website & printed media





# Darlington Lands

The lands upon which our Darlington Station and this project is located, is the traditional and treaty territory of the Chippewa and Mississauga Anishnawbeg.



ALDERVILLE  
FIRST NATION



BEAUSOLEIL  
FIRST NATION



CURVE LAKE  
FIRST NATION



GEORGINA ISLAND  
FIRST NATION



HIAWATHA  
FIRST NATION



SCUGOG ISLAND  
FIRST NATION



RAMA  
FIRST NATION



# OPG's Commitment to Indigenous Communities

- OPG is committed to working with Indigenous communities to develop positive relationships and generate shared social and economic benefits.
- We strive to build relationships based on the principles of respect, integrity and mutual responsibility.
- While we have made progress, we also recognize that we still have a lot to learn.
- **Our project engagement with communities includes:**
  - Availability of capacity building
  - Environmental consultation
  - Employment and training opportunities
  - Business and procurement opportunities



# Site Preparation - Licensed Activities

- Construction of site access control measures.
- Clearing and grubbing of vegetation.
- Excavation and grading of the site.
- Installation of services and utilities.
- Construction of administrative and support buildings.
- Construction of environmental monitoring and mitigation systems.
- Construction of flood protection and erosion control measures.

NUCLEAR POWER REACTOR SITE PREPARATION LICENCE  
OPG NEW NUCLEAR AT DARLINGTON GENERATING STATION

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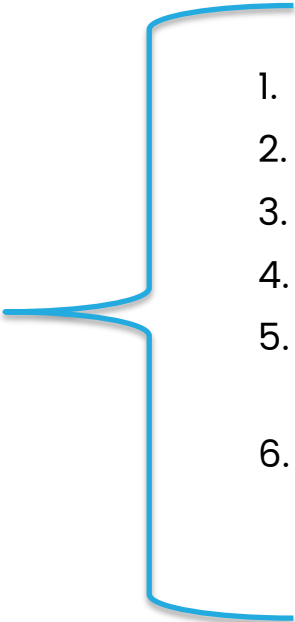
LICENCE NUMBER:	PRSL 18.00/2022	(Effective Date: August 17, 2012)
) LICENSEE:	Pursuant to section 24 of the <i>Nuclear Safety and Control Act</i> this licence is issued to:  <b>Ontario Power Generation Inc.</b> 700 University Avenue Toronto, Ontario M5G 1X6	
D) LICENCE PERIOD:	This licence is valid from August 17, 2012 to August 17, 2022, unless suspended, amended, revoked or replaced.	
) LICENSED ACTIVITIES:	is licence authorizes the licensee to:	

Prepare the Darlington Nuclear site, further described in OPG New Nuclear at Darlington Survey Drawing, NK054-DRAW-01210-00007, for the future construction and operation of a new nuclear generating station (hereinafter "the nuclear facility") located in the Township of Darlington, in the Municipality of Clarineton, in the Regional Municipality of Durham, in the



# Safety and Control Areas (SCAs)

SCAs Applicable  
to a PRSL  
(per REGDOC 1.1.1)

- 
1. Management System
  2. Operating Performance
  3. Safety Analysis
  4. Physical Design
  5. Radiation Protection Measures
  6. Conventional Health and Safety
  7. Environmental Protection
  8. Emergency Management and Fire Protection
  9. Waste Management
  10. Decommissioning
  11. Security
  12. Safeguards and Non-Proliferation

# SCA: Management System

- Effective management of site characterization and evaluation, site preparation, design, construction, commissioning and technical support functions being performed under the PRSL so as to promote and assure safety.
- For DNNP, OPG's existing nuclear management system is being used.



# SCA: Operating Performance

- Characterization of the risks to health, safety and the environment that may be encountered by workers and the public.
- OPG continues to monitor the DNNP site conditions and advance long lead commitments. Activities are primarily for environmental protection and site characterization.







# SCA: Physical Design

- Physical design applies to the proposed exclusion zone as well as safety-important civil work and to the layout of areas, structures and systems.
- Commitment actions include a proposed layout of structures in the final layout state.

# SCA: Safety Analysis

- A hazard analysis focusing on activities under the PRSL.
- A preliminary nuclear safety analysis will be included in the application for a Licence to Construct, once a reactor technology is selected.

# SCA: Conventional Health and Safety

A program to prevent occupational injuries and illnesses by the identification of occupational health and safety hazards, assessment of the associated risks, and ensuring the necessary materials, equipment, programs and measures are put in place to effectively manage, control and minimize those risks.



- OPG's existing Health and Safety Program addresses conventional health and safety of OPG workers and contractors.

# SCA: Radiation Protection

- Doses to workers and the public associated with activities related to the licence to prepare site, including exposures to any radioactive substances resulting from past or present nuclear activities, are within regulatory limits and maintained as low as reasonably achievable.
- Workers performing site preparation activities are not expected to receive any measurable radiation doses associated with their work.





# SCA: Environmental Protection

All reasonable precautions to control and monitor the release of any nuclear substances or hazardous substances to the environment resulting from site preparation activities and to ensure that licence limits are being respected.



## **Commitment actions include plans for:**

- Dust and noise control
- Spill prevention
- Effluent and emissions control & monitoring measures
- Environmental monitoring measures and EA follow-up
- Storm water management
- Erosion and sediment control
- Terrestrial environment mitigation measures
- Bank swallow mitigation measures and plans
- Aquatic environment mitigation measures

# SCA: Emergency Management and Fire Protection

- Adequate and timely emergency assistance is available to protect workers, the public and the integrity of site security, while mitigating any adverse environmental effects during project activities.
- OPG has updated the DNNP Emergency Preparedness Plan, and has associated commitments to ensure emergency response & evacuation plans as well as fire prevention and response plans are prepared by vendors working on site.



# SCA: Security



- At the site preparation stage, the security program is primarily focused on protection of prescribed information.
- OPG's nuclear security program and associated protection of prescribed information is robust.
- Commitment actions include a plan for a site access and security protocol.



# SCA: Waste Management

- Waste management includes both nuclear and hazardous substances used or produced in the course of carrying on a licensed activity that may pose a risk to the environment or the health and safety of persons.
- This licence does not cover details of long-term management of nuclear waste and spent fuel, however, OPG remains committed to developing lasting solutions for waste materials.
- Used fuel is safely and securely stored at each generating station, for eventual relocation to a permanent disposal facility.
- The Nuclear Waste Management Organization has responsibility for long-term management for all of Canada's used fuel.

# SCA: Decommissioning

- A preliminary decommissioning plan was prepared as part of the original application.
- Commitment actions include an update to the preliminary decommissioning plan and an appropriate financial guarantee for restoration of the site.



# SCA: Safeguards and Non-Proliferation

- No nuclear substances or components will be part of site preparation.
- OPG maintains appropriate Import & Export licenses and controls associated with information transfers.
- OPG will engage with CNSC staff during the PRSL phase to support development of a preliminary Design Information Questionnaire (DIQ).

# Status of Commitments

Required Prior to commencing PRSL Activities.

Commitment No.	Description	Status
D-P-1 (1.1 to 1.23)	<b>DNNP Management System and Implementing Documents</b>	Closure Request Submitted
D-P-2	<b>EPC Occupational Health and Safety Plan</b>	On track
D-P-3 (3.1 to 3.12)	<b>EPC Environmental Management and Protection Plans</b>	On track
D-P-4	<b>EPC Quality Management Plan</b>	On track
D-P-5.1	<b>DNNP Emergency Preparedness Plan</b>	Closure Request Submitted
D-P-5.2 to 5.4	<b>EPC Emergency Management and Fire Protection Plans</b>	On track
D-P-6.1	<b>Training Procedure</b>	Closure Request Submitted
D-P-6	<b>EPC Personnel Training Plan</b>	On track
D-P-7.1	<b>Security Plan for Site Preparation</b>	On track



# Status of Commitments

Required Prior to commencing PRSL Activities.

<b>Commitment No.</b>	<b>Description</b>	<b>Status</b>
D-P-7.2	<b>EPC Site Access and Security Protocol</b>	On track
D-P-8	<b>EPC Level 1 and Level 2 Project Management Schedule</b>	On track
D-P-9.1	<b>Site Geotechnical and Seismic Hazard Investigation Program</b>	On track
D-P-10	<b>EPC Traffic Management Plan</b>	On track
D-P-11	<b>Archaeological Excavation Reports</b>	Closed
D-P-12 (12.1 to 12.9)	<b>Environmental Monitoring and Environmental Assessment Follow-up</b>	On track
D-P-17	<b>Communications, Consultation and Stakeholder Relations Program</b>	On track
D-P-18	<b>Proposed Layout of Structures in the Final Layout State (to the extent practicable)</b>	On track

An aerial photograph showing a lush green landscape with several winding, unpaved roads. The terrain is hilly and covered in dense vegetation. In the background, a large industrial facility with multiple buildings and structures is visible. To the left, a large body of blue water, likely a lake or reservoir, stretches towards the horizon under a clear blue sky.

# Conclusion

*Mark Knutson, Sr. Vice President Enterprise Engineering & CNE*

# Conclusions

- DNNP site remains suitable for a new nuclear facility.
- Site preparation licensed activities would not pose any unreasonable risk to the public, personnel or environment.
- OPG is qualified to carry out licensed activities, and meets all regulatory requirements.
- The PRSL continues to be a significant asset for OPG and the Province of Ontario.
- DNNP supports Canada's goals to reduce climate change impacts by being a springboard for future nuclear projects in other jurisdictions.



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tomorrow begins.**

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