

Darlington New Nuclear Project

Carol Gregoris
Project Director, DNNP

April 25, 2023

BIG
things
start
small.



ONTARIO**POWER**
GENERATION

Deliver a world-class
SMR, together



Decarbonizing Ontario's electricity System

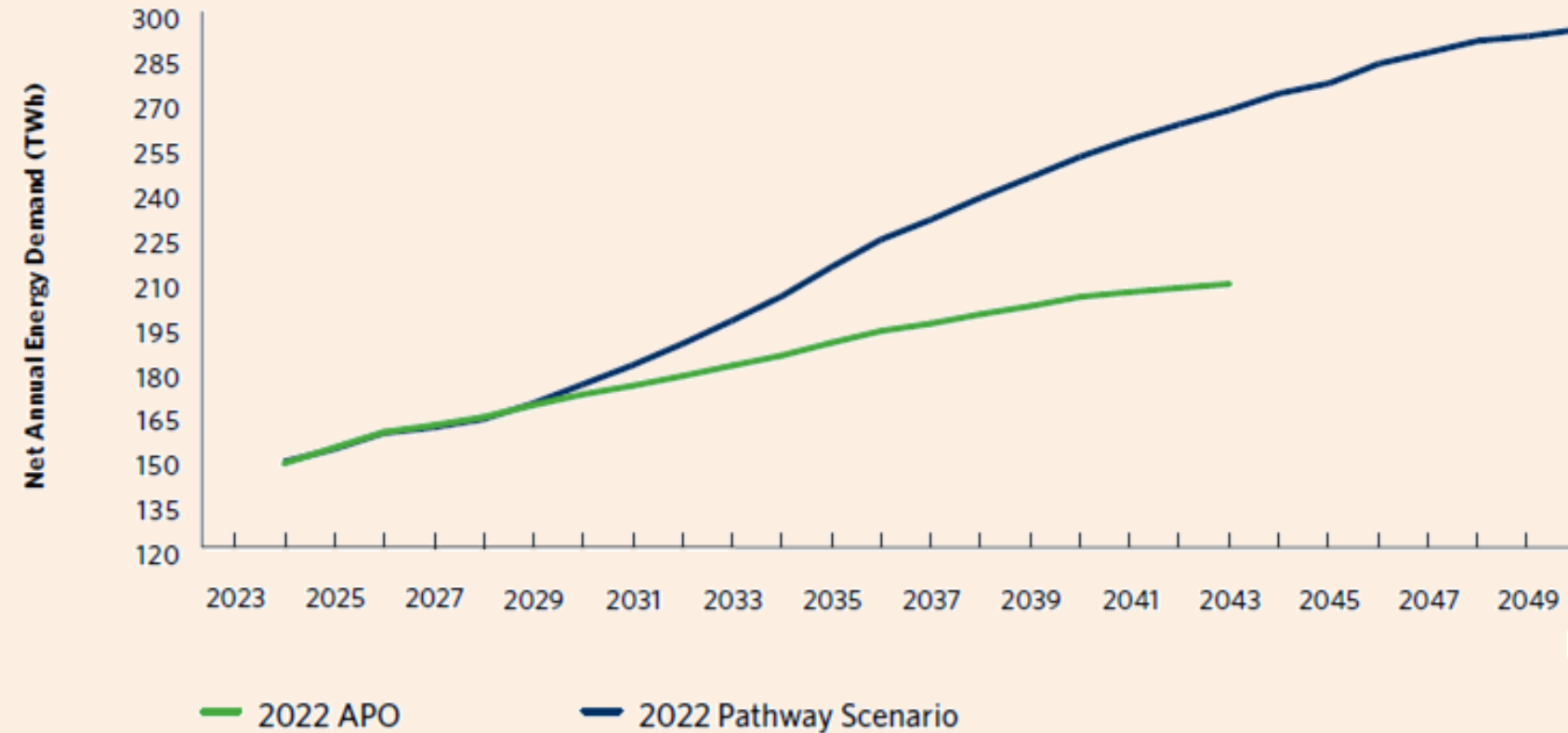
System Capacity Today

42,000
MW

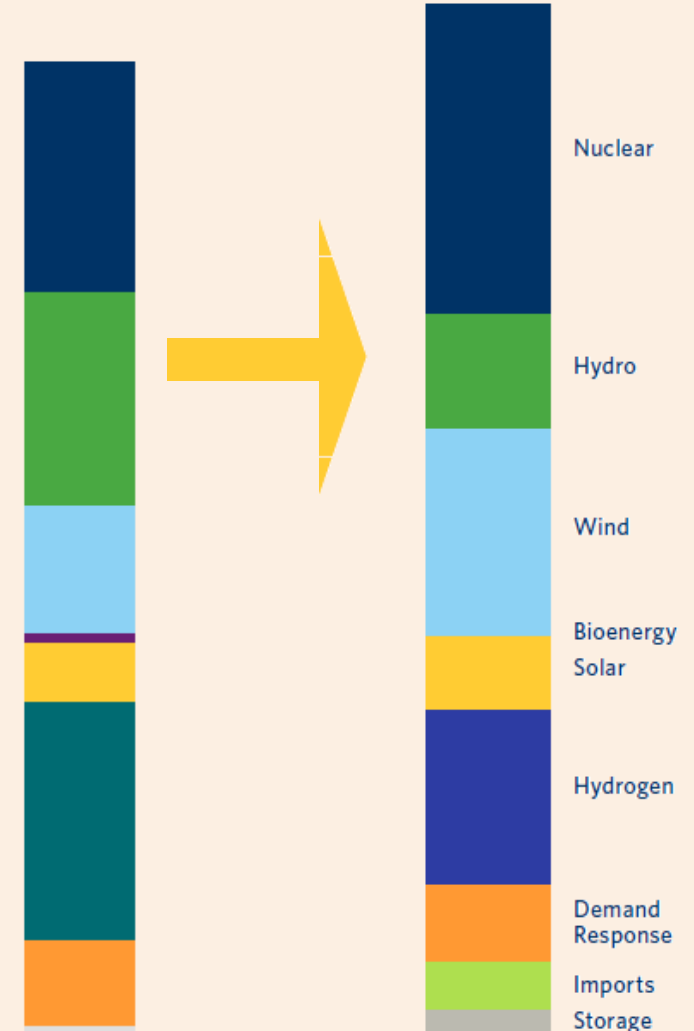
Pathways to Decarbonization
2050 Scenario

88,000
MW

Decarbonizing Energy Demand Forecast

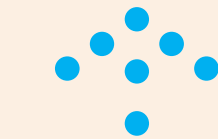


Natural Gas



Source: IESO Pathways to Decarbonization Report (December 2022)

Why Nuclear?



Energy security



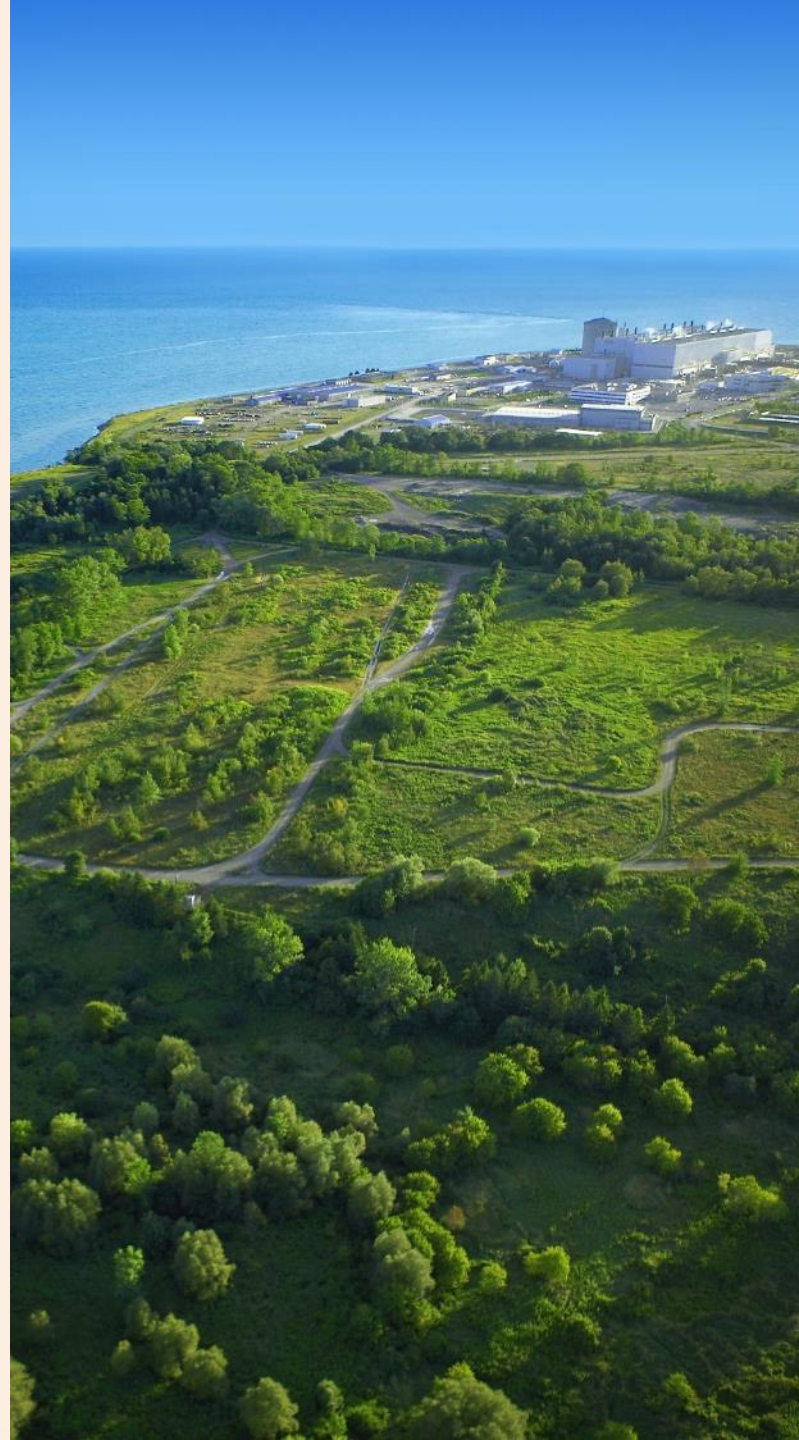
Long-term growth in electricity demand



Advancements in safety



Achieve climate change goals





SMRs
THE NEXT
EVOLUTION
IN NUCLEAR

How Did We Get Here?

- **October 2022**
OPG applies to the CNSC for a Licence to Construct.
- **October 2022**
OPG begins site preparation activities at the Darlington site.
- **May 2022**
The CNSC has approved OPG's revised financial guarantee, outlining our strategy to fund decommissioning activities associated with site preparation work.
- **March 2022**
OPG awarded E.S. Fox Ltd. the contract to complete site preparation activities.
- **December 2021**
OPG selects GEH to further develop the BWRX-300 SMR design, with the mutual goal of constructing Canada's first commercial, grid-scale SMR.
- **October 2021**
After a hearing in June 2021, the CNSC announced approval of OPG's application to renew the existing Site Preparation Licence for a 10-year period.

- **November 2020**
OPG announced resumption of planning activities for future nuclear power generation using a SMR at the Darlington site.
- **June 2020**
OPG submitted an application to the CNSC seeking renewal of the Site Preparation Licence.
- **December 2013**
Citing lower than planned power consumption growth and a strong supply situation, the Government of Ontario requested OPG defer construction of new nuclear reactors but maintain the existing licence for future generation.
- **August 2012**
The CNSC issued the Licence to Prepare Site to OPG for a period of 10 years.
- **May 2012**
The Government of Canada accepted the recommendation of the Joint Review Panel (JRP) and the Environmental Assessment (EA).
- **March 2011**
The JRP hosted 17 days of public hearings on the EA, addressing the project need, purpose and alternatives and potential effects on all aspects of the environment.



Darlington New Nuclear Project



Leading the world in new nuclear development

GE Hitachi: BWRX-300



OPG's SMR technology selection – **December 2021**

Site Preparation Activities Begun – **October 2022**

Submitted a Licence to Construct to CNSC – **October 2022**

Partnered with GE Hitachi Nuclear Energy, SNC-Lavalin, and Aecon to construct North America's first SMR – **January 2023**



Darlington is the only site in Canada **licensed** for new nuclear build with an **accepted environmental assessment**.



Creating **new opportunities** for Ontario's robust nuclear sector and supply chain.



Allows **low-carbon** nuclear energy to continue playing an important role in **Ontario's future** energy mix.



Darlington New Nuclear Project

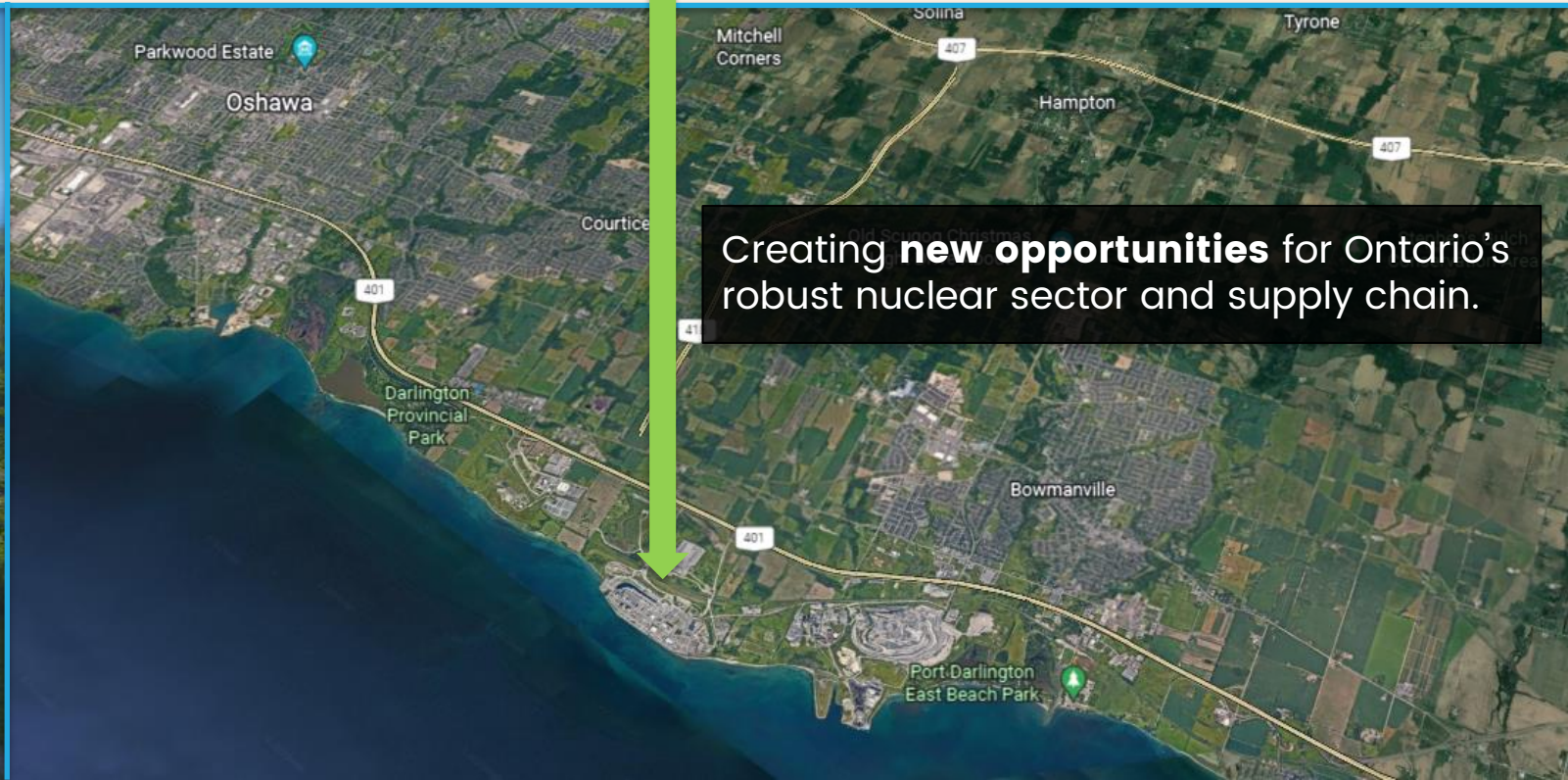
GE Hitachi: BWRX-300

Darlington New Nuclear Site
to the East of the Darlington Station



Darlington Nuclear is the only site in Canada **licensed** for new nuclear build with an **accepted environmental assessment**.

Darlington Site
1 Holt Rd South, Bowmanville ON Canada



Creating **new opportunities** for Ontario's robust nuclear sector and supply chain.

Technology Overview

GE Hitachi: BWRX-300

Designed for a 60-year operational life

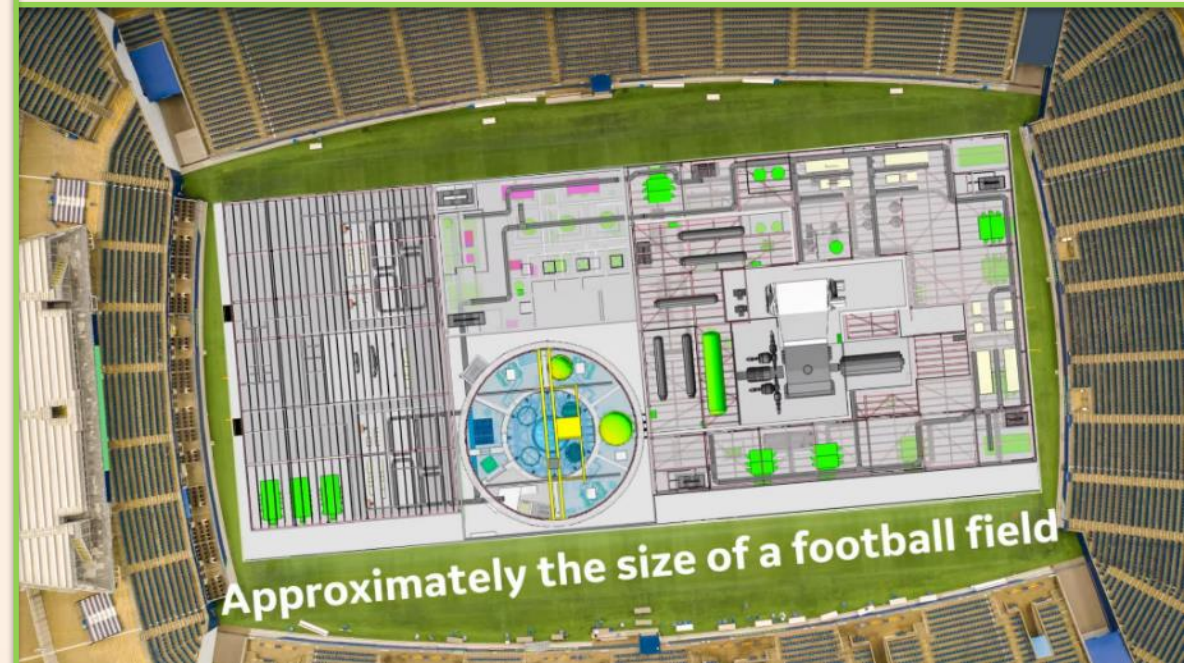
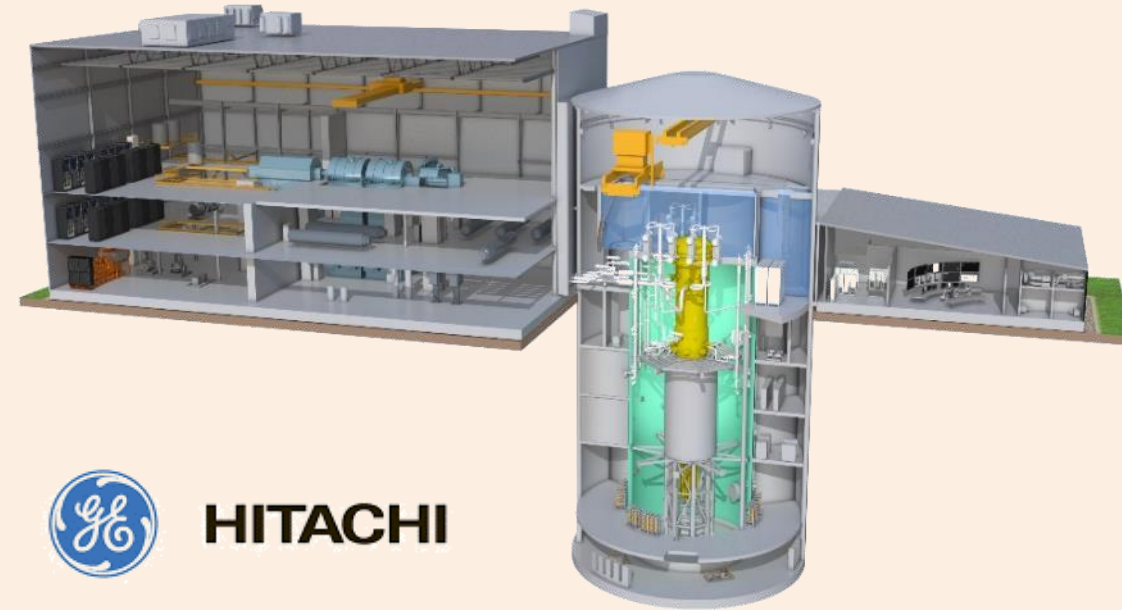
~300 megawatt electrical (MWe)

Light water, boiling water reactor technology

Generation III+ Design

GEH SMR Technologies Canada is the Canadian division of the world-leading provider of reactor technology and nuclear services.

p8



Site Preparation Work

- Renewed **10-year Site Preparation Licence** granted by the Canadian Nuclear Safety Commission in 2021.
- Onboarding, planning and design work continues, while actual site preparation work began at the **end of September**

In-Progress Work

- Vegetation removal (clearing and grubbing), grading
- Construction of temporary laydown, temporary parking, and temporary office areas

Next Steps:

- Permanent domestic water and fire water lines
- Public address and fibre optic to serve construction; infrastructure to support permanent communications and security cabling
- Construction power
- Demineralized water line
- Temporary construction roads and other site road modifications

p9



FUTURE HOME
of Canada's
First Grid-Scale
SMR



HITACHI

Darlington East Waterfront Trail Rerouted



The eastern portion of the Darlington Waterfront Trail will be rerouted starting Feb. 6, 2023 to support the on-going site preparation work for the Darlington New Nuclear Project.



For more information about the Darlington New Nuclear Project, visit opg.com/newnuclear, or scan the QR code below.





Recent
clearing and
grubbing
activity on the
DNNP site

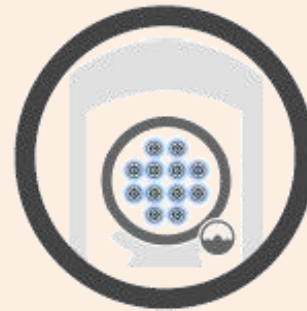


Canadian Nuclear Facility Licensing



**Licence to
Prepare Site –
Issued and
valid until 2031**

**Licence to
Construct –
Application
submitted
on Oct 31,
2022**



Operation

**Licence to
Operate**



Decommissioning

**Licence to
Decommission**



Release
from licensing

**Licence to
Abandon**

REGDOC-3.5.1, Licensing Process for Class I Nuclear
Facilities and Uranium Mines and Mills

CNSC Hearing #1

EIS and PPE

When: week of **Jan. 22, 2024**

What: applicability of the DNNP environmental assessment (EA) to Ontario Power Generation's selected reactor technology.

Where: TBD

How to get involved:

\$100k participant funding available to support development of topic-specific interventions.

Deadline to apply is **May 26, 2023**

p13



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Notice of Public Hearing and Participant Funding

April 3, 2023

Ref. 2024-H-02

CNSC to conduct a public hearing on applicability of the Darlington New Nuclear Project environmental assessment and plant parameter envelope to selected reactor technology

The Canadian Nuclear Safety Commission (CNSC) will hold 2 separate public hearings to consider the application from Ontario Power Generation (OPG) for a licence to construct a reactor facility for its [Darlington New Nuclear Project](#) (DNNP). The first hearing will be held during the week of January 22, 2024 and will focus on the applicability of the DNNP environmental assessment (EA) to Ontario Power Generation's selected reactor technology.

The DNNP is located on the site of the Darlington Nuclear Generating Station in the Municipality of Clarington, Ontario, on t

OPG currently holds a power reactor site preparation licence for the DNNP, which the Commission [renewed in 2021](#).

The purpose of the first public hearing is for the Commission to consider and decide on the applicability of the [DNNP EA](#) with respect to OPG's selected BWRX-300 small modular reactor technology, as per the [Government of Canada response](#) to recommendation #1 of the joint review panel's [2012 report](#). In deciding on the applicability of the DNNP EA, the Commission will consider the information in OPG's environmental impact statement review report along with the updated plant parameter envelope. The Commission will also consider whether the predictions of the EA remain valid.

The scope of this hearing will not include contemplation of a licensing decision under the *Nuclear Safety and Control Act*. A decision on whether to issue a construction licence for the DNNP will be contemplated at a separate future public hearing to be held no earlier than October 2024, and pending the Commission's decision from the first hearing. Details on the second hearing will be provided in a future hearing notice.

Darlington New Nuclear Roadmap

BIG things start **small**.



2021

2022

2024

2028



2023 Look-ahead



Early site preparation work continues



Further integration of **Integrated Project Delivery** partnership



Public Engagement on Licence to Construct Application, incl. **Stakeholder workshops**



Continue collaboration with GE Hitachi on SMR design, engineering, planning and licencing.





Questions?

ONTARIO **POWER**
GENERATION

Where a brighter
tomorrow begins.