



# *CNSC Update on the Darlington New Nuclear Project*

**Sarah Eaton**

Director – Advanced Reactor Licensing Division  
Canadian Nuclear Safety Commission

June 16, 2023



Canadian Nuclear Safety Commission  
Commission canadienne de sûreté nucléaire

Canada



# Objective of Today's Webinar

**To provide an overview of the Canadian Nuclear Safety Commission (CNSC) and Ontario Power Generation (OPG)'s Darlington New Nuclear Project (DNNP).**

## **Presentation outline:**

- CNSC Overview
- DNNP Overview & Licence Application
- Licensing & Hearing Process
- Upcoming events



# Canadian Nuclear Safety Commission (1/2)



Canada's Nuclear Watch Dog for Over 75 Years



# Canadian Nuclear Safety Commission (2/2)

***Regulates all Nuclear-Related Activities in Canada***



Uranium mines  
and mills



Uranium fuel  
fabrication and  
processing



Nuclear power  
plants



Nuclear substance  
processing



Industrial and  
medical applications



Nuclear research  
and educational  
activities



Transportation of  
nuclear substances



Nuclear security  
and safeguards



Import and  
export controls



Waste management  
facilities



# Canadian Nuclear Safety Commission

## *The Commission Tribunal*



Ms. Rumina  
Velshi



Dr. Timothy  
Berube



Mr. Randall  
Kahgee



Dr. Marcel  
Lacroix



Dr. Victoria  
Remenda

## TRANSPARENT, SCIENCE-BASED DECISION MAKING

Quasi-judicial administrative tribunal  
Agent of the Crown (Duty to Consult)  
Reports to Parliament through Minister  
of Natural Resources

Members are independent and part-time  
Commission hearings are public and Webcast  
Staff presentations are public  
Decisions are reviewable by Federal Court



# CNSC Staff Responsibilities

- Implementing Commission decisions
- Developing regulatory requirements recommendations and guidance for the Commission
- Verifying and enforcing licensee compliance
- Engaging the public and Indigenous Nations and communities



# DNNP Overview & Licence Application





# DNNP Overview

- Project proposed by Ontario Power Generation (OPG)
- Construction and operation of up to four new nuclear reactors at the existing Darlington site (up to 4,800 MWe)
- An Environmental Assessment was completed in 2009
- OPG selected the GE-Hitachi BWRX-300 technology and **must demonstrate that the technology fits within the bounds of the 2009 Environmental Assessment**
- OPG submitted a Licence to Construct application to construct one reactor







# DNNP Timeline

Date	Activity
2006	OPG applied for a Power Reactor Licence to Prepare Site (PRSL) and the Environmental Assessment (EA) commenced under CEAA (1992)
2009	OPG submitted an Environmental Impact Statement (EIS) and revised licence application
2012	Licence to Prepare Site issued, valid until 2022
2021	Licence to Prepare Site renewed, valid until 2031 Technology selected (BWRX-300)
2022	OPG submitted Licence to Construct (LTC) application
2023 & 2024	CNSC Technical Review and Commission Proceedings



# BWRX-300 Technology

- Sized to generate 300 MWe on a small footprint using boiling water technology.
- Light water is used as the primary coolant and moderator.
- Uses 3-5% enriched fuel.

The BWRX-300 design has completed Phase 1 and 2 through the CNSC vendor design review (VDR) process.

For more information on the design, visit:  
[BWRX-300 \(gepower.com\)](http://BWRX-300.gepower.com)



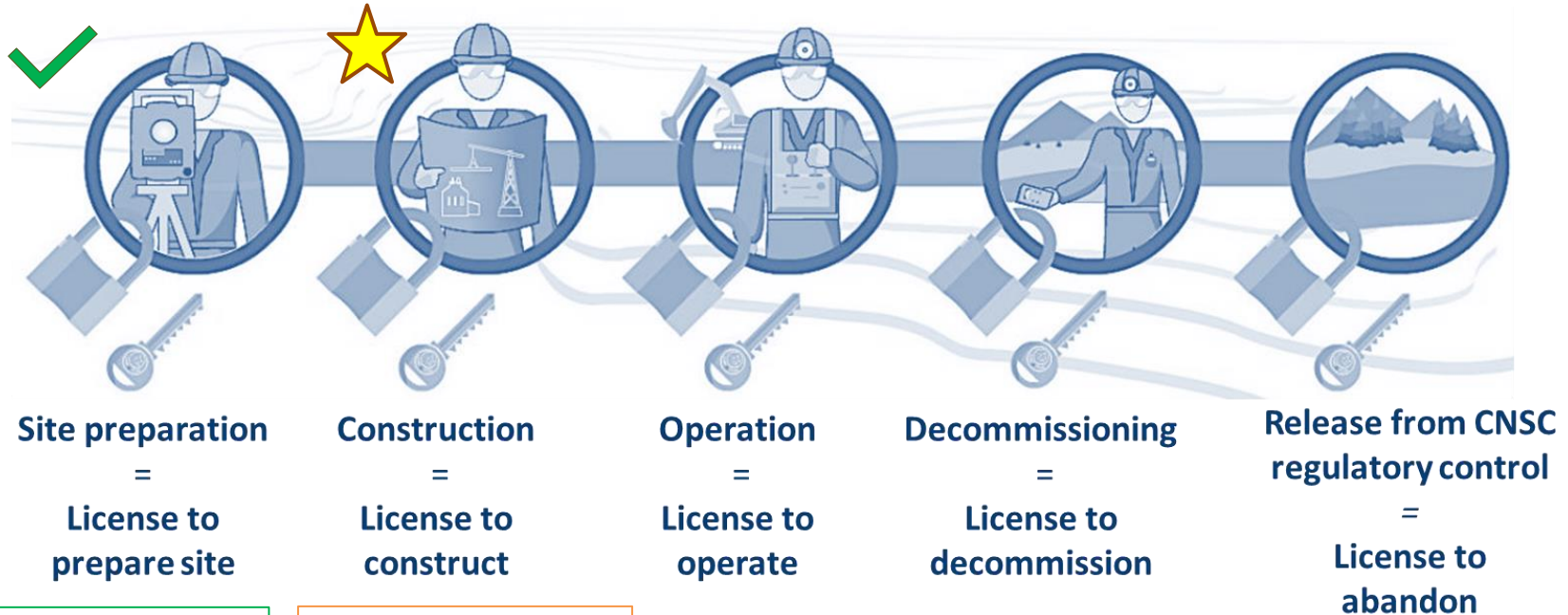
# DNNP Licensing & Hearing Process





# DNNP Licensing & Hearing Process

## *Nuclear Facility Lifecycle Stages*



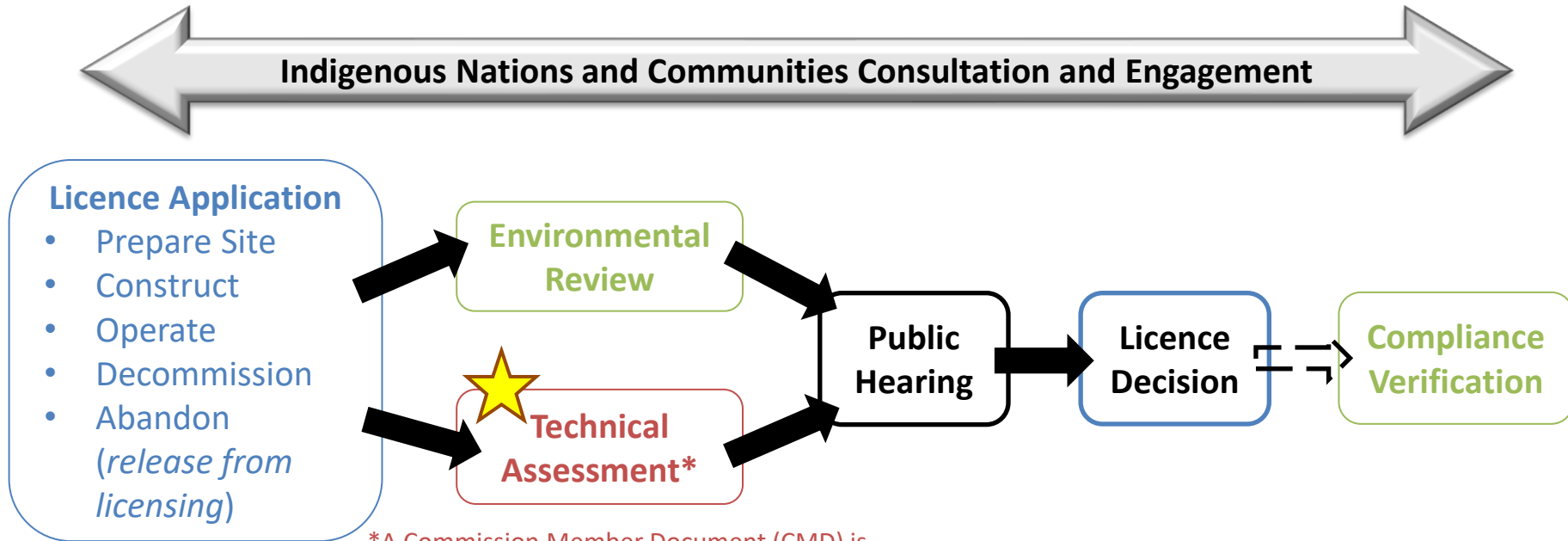
Issued and  
valid until  
2031

Application  
submitted to the  
CNSC in Oct 2022



# DNNP Licensing & Hearing Process

## Licensing Process Overview



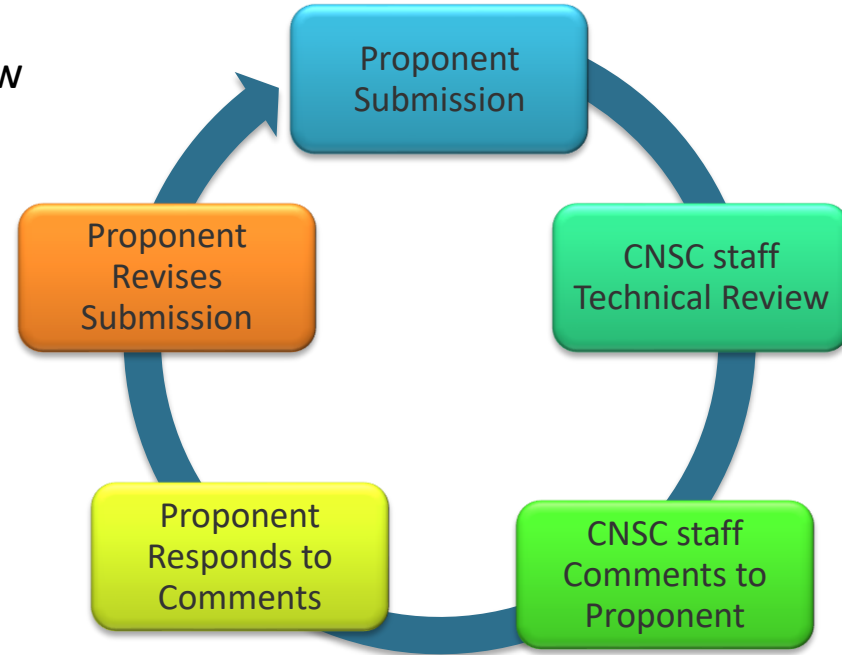
\*A Commission Member Document (CMD) is developed, with the results of the staff's review and recommendations to the Commission. Two CMDs will be developed for this project as two separate decisions are required.



# DNNP Licence Application

## *CNSC Technical Review Process*

- The submission is subject to a technical review
- Assessed against regulations, JRP recommendations, regulatory documents, international guidance, codes and standards, professional judgement
- Topics include safety analysis, radiation protection programs, detailed decommissioning plan, operator training programs, etc.



**Process continues until staff are satisfied all requirements are met**



# DNNP Public Hearings

For OPG's licence application, the Commission is required to make multiple decisions. Two hearings will be held:

Decision	Hearing #	Schedule
Whether the BWRX-300 reactor technology chosen by OPG is within the bounds of the 2009 DNNP Environmental Assessment	1	January 2024
Licence to Construct decision as per subsection 24(4) of the <i>Nuclear Safety and Control Act</i> *	2	<i>Tentative: October 2024</i>

\* Public Hearing #2 dependent on the outcome of Commission decision on Hearing #1



# CNSC Review of OPG's Selected Technology

- Joint Review Panel Recommendation # 1

“The Panel understands that prior to construction, the Canadian Nuclear Safety Commission will determine whether this environmental assessment is applicable to the reactor technology selected by the Government of Ontario for the Project. Nevertheless, if the selected reactor technology is fundamentally different from the specific reactor technologies bounded by the Plant Parameter Envelope, the Panel recommends that a new environmental assessment be conducted.”

- CNSC hosted a virtual workshop in April 2023 to hear directly from PFP recipients, Indigenous Nations and communities, the public and stakeholders regarding OPG's selected technology
- *What We Heard Report* being finalized





# Hearing 1

- CNSC technical review is ongoing and OPG has committed to providing additional information in several areas
- **Stage 2** Participant Funding Program for involvement in the process for Hearing #1, CNSC staff review of the EIS and PPE – **Closed May 26, 2023**
- Upcoming Public Webinars June 20 & 22, 2023 - **REGISTRATION OPEN**
- **Hearing #1:** Week of January 24, 2024 – [Notice of Public Hearing](#) issued on **April 3, 2023**



# CNSC Review of OPG's LTC Application

**OPG's submission will be assessed against:**

***Key regulations:***

- [General Nuclear Safety and Control Regulations](#)
- [Class I Nuclear Facility Regulations](#)

***Licence application to address (some key CNSC REGDOCS):***

- REGDOC-1.1.2, *Licence Application Guide: Licence to Construct a NPP*
- REGDOC-2.5.2, *Design of Reactor Facilities: Nuclear Power Plants*
- REGDOC-2.3.1, *Conduct of Licensed Activities: Construction and Commissioning Program*

Full list of REGDOCS: [Regulatory documents - Canadian Nuclear Safety Commission \(cnsccsn.gc.ca\)](https://www.cnsccsn.gc.ca/regulatory-documents)



# CNSC Review of OPG's LTC Application

The Commission will only issue a licence when the applicant:

- ✓ Is deemed **qualified** to carry on the activity that the licence will authorize.
- ✓ Has demonstrated that they will **protect the health and safety of persons and the environment.**
- ✓ Has demonstrated that they will maintain **national security.**
- ✓ Has confirmed that they will **adhere to international obligations** to which Canada has agreed.



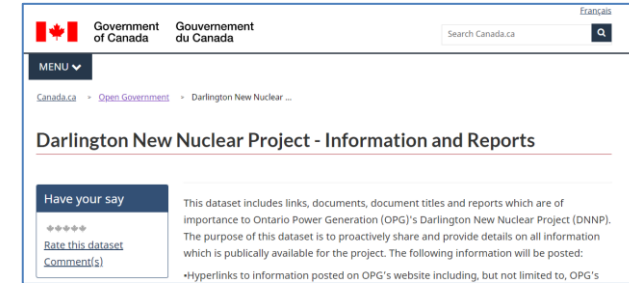
## Hearing 2

- Hearing 2 is dependent on the outcome of Hearing 1
- CNSC technical review is ongoing
- **Stage 3** Participant Funding Program for involvement in the process for Hearing 2, CNSC staff review of OPG's Licence to Construct application – **TIMING TBD**
- **Hearing 2:** Tentatively scheduled week October 2024



# DNNP Outreach and Engagement

- Information is proactively shared on the [Open Government portal](#) and includes hyperlinks to informative posts or websites, documents, document titles and reports which are important to the Darlington New Nuclear Project.
- Multiple Webinars scheduled over the next 2 years – Registration on our website
- Open House – September 26, 2023 - Oshawa
  - Includes all nuclear projects in the area (e.g., CNL, OPG)
- Contact us directly [dnnp-npnd@cnscccsn.gc.ca](mailto:dnnp-npnd@cnscccsn.gc.ca)





Canadian Nuclear  
Safety Commission

Commission canadienne  
de sûreté nucléaire

Canada

# Connect With Us

Join the conversation



**nuclearsafety.gc.ca**



1-800-668-5284

General inquiries: [cnsc.info.ccsn@cnsc-ccsn.gc.ca](mailto:cnsc.info.ccsn@cnsc-ccsn.gc.ca)

Project specific inquiries: [dnp-npnd@cnsc-ccsn.gc.ca](mailto:dnp-npnd@cnsc-ccsn.gc.ca)