



Date: 2025-06-10

Supplementary Information

Renseignements supplémentaires

**Presentation from
Ontario Power Generation Inc.**

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

In the matter of the

À l'égard d'

Ontario Power Generation Inc.

Ontario Power Generation Inc.

Application to renew power reactor
operating licence for the Darlington
Nuclear Generating Station

Demande concernant le renouvellement
du permis d'exploitation d'un réacteur de
puissance pour la centrale nucléaire de
Darlington

**Commission Public Hearing
Part-2**

**Audience publique de la Commission
Partie-2**

June 24-26, 2025

24-26 juin 2025

OPG Proprietary

June 10, 2025

CD# NK38-CORR-00531-26127 P

Ms. Candace Salmon
Commission Registrar
Canadian Nuclear Safety Commission
P.O. Box 1046
280 Slater Street
OTTAWA, Ontario, K1P 5S9

Dear Ms. Salmon:

Darlington NGS – Supplemental Update in support of the renewal of the Darlington Nuclear Generating Station Power Reactor Operating Licence (CMD 25-H2.1C)

As per CNSC Notice of Public Hearing 2025-H-02, the purpose of this letter is to submit OPG's presentation as part of supplemental Commission Member Document (CMD) 25-H2.1C.

OPG's presentation is provided in Attachment 1 and is in support of the renewal of the Darlington Nuclear Generating Station Power Reactor Operating Licence (PROL) provided in written submission CMD 25-H2.1 (Reference 1). The material will be presented by OPG at Part 2 of the Commission Public Hearing scheduled June 24 to 26, 2025.

Reference 1 consisted of items discussed in OPG's original renewal application submitted in Reference 2 and the supplemental to the application submitted in Reference 3.

Recently there was an amendment to Darlington NGS PROL 13.05/2025 to PROL 13.06/2025 via CNSC Record of Decision DEC 25-H100 in Reference 4. The amendment consisted of the inclusion of the production of additional isotopes using the Target Delivery System (TDS).

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OPG also submitted an application for amendment to the PROL to allow the installation of a TDS on additional units at Darlington NGS (Reference 5). The Commission's decision for that application is pending, and OPG recognizes that the implementation of a TDS on additional units during the proposed licence term is dependent upon the Commission's decision on this PROL renewal.

Should you have any questions please contact Ms. Aditi Bhardwaj, Senior Manager, Regulatory Affairs at (289) 387-2110 or at aditi.bhardwaj@opg.com.

Sincerely,



Allan Grace
Senior Vice President
Darlington Nuclear
Ontario Power Generation Inc.

Attach.

cc: CNSC Site Supervisor - Darlington
A. Viktorov - Ottawa
A. Mathai - Ottawa
forms-formulaires@cnscccsn.gc.ca
registry-greffe@cnscccsn.gc.ca

- References:
1. OPG letter, A. Grace to C. Salmon, "Darlington NGS – Notice of Participation at CNSC Public Hearing 2025-H-02 and Written Submission in support of the renewal of the Darlington Nuclear Generating Station Power Reactor Operating Licence", February 25, 2025, CD# NK38-CORR-00531-25966.
 2. OPG letter, A. Grace to C. Salmon, "Darlington NGS – Application for Renewal of the Darlington Nuclear Generating Station Power Reactor Operating Licence 13.03/2025", May 30, 2024, CD# NK38-CORR-00531-25450.
 3. OPG letter, A. Grace to C. Salmon, "Darlington NGS – Supplemental Update in Support of the Power Reactor Operating Licence Renewal Application", December 18, 2024, CD# NK38-CORR-00531-25844.
 4. CNSC Record of Decision DEC 25-H100, "Application to Amend Darlington Nuclear Generating Station Power Reactor Operating Licence 13.05/2025 for the Production of Additional Isotopes using the Target Delivery System", May 23, 2025, e-Doc 7523693 (PDF).
 5. OPG letter, A. Grace to C. Salmon, "Darlington NGS – Application for Amendment to the Darlington NGS Power Reactor Operating Licence 13.04/2025 to Approve Installation and Operation of Target Delivery Systems (TDS) on Additional Units", January 23, 2025, CD# NK38-CORR-00531-25802.

ATTACHMENT 1

OPG letter, A. Grace to C. Salmon, "Darlington NGS – Supplemental Update in support of the renewal of the Darlington Nuclear Generating Station Power Reactor Operating Licence (CMD 25-H2.1C)"

CD# NK38-CORR-00531-26127 P

OPG Presentation

**Darlington Nuclear Generating Station
Power Reactor Operating Licence Renewal**

CMD 25-H2.1C

(24 pages; embedded video link)



Electrifying life in one generation

Hearing Part 2





*Electrifying
life*

Darlington Nuclear *Generating Station*

Power Reactor Operating Licence Renewal

CMD 25-H2.1C

Request to renew the Darlington Nuclear Generating Station Power Reactor Operating Licence for a 30-year term

*December 1, 2025 to
November 30, 2055*



Darlington NGS has been safely and reliably operating for **decades** and is recognized as a **top-performing** nuclear generating station.



The concept of a 30+ year licence is **common in the international community**.



CANDU reactors have a strong track record of reliability and are a **robust technology with multiple safety features**.



The **Darlington Refurbishment Project** will enable continued safe and reliable operations through 2055.



A **Periodic Safety Review** will be performed every 10 years.

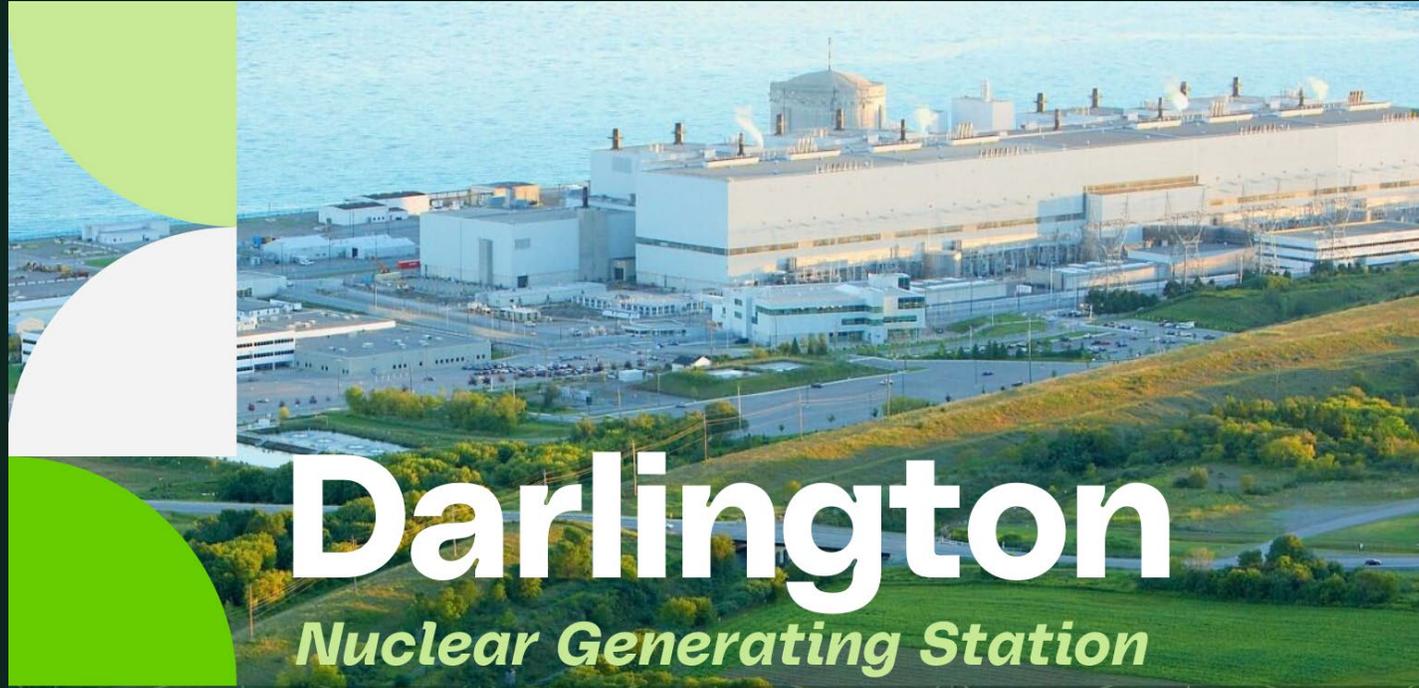


The CNSC's **continuous regulatory oversight** of compliance and safety performance at Darlington NGS is independent of licence length.

Darlington Nuclear *Generating Station*

- Four-unit CANDU station provides **3,512 megawatts**
- ~ 20% of **Ontario's electricity**
- Tritium Removal Facility
- Isotopes: generating more than just **power**
- Safely and reliably operating **for over 30 years**

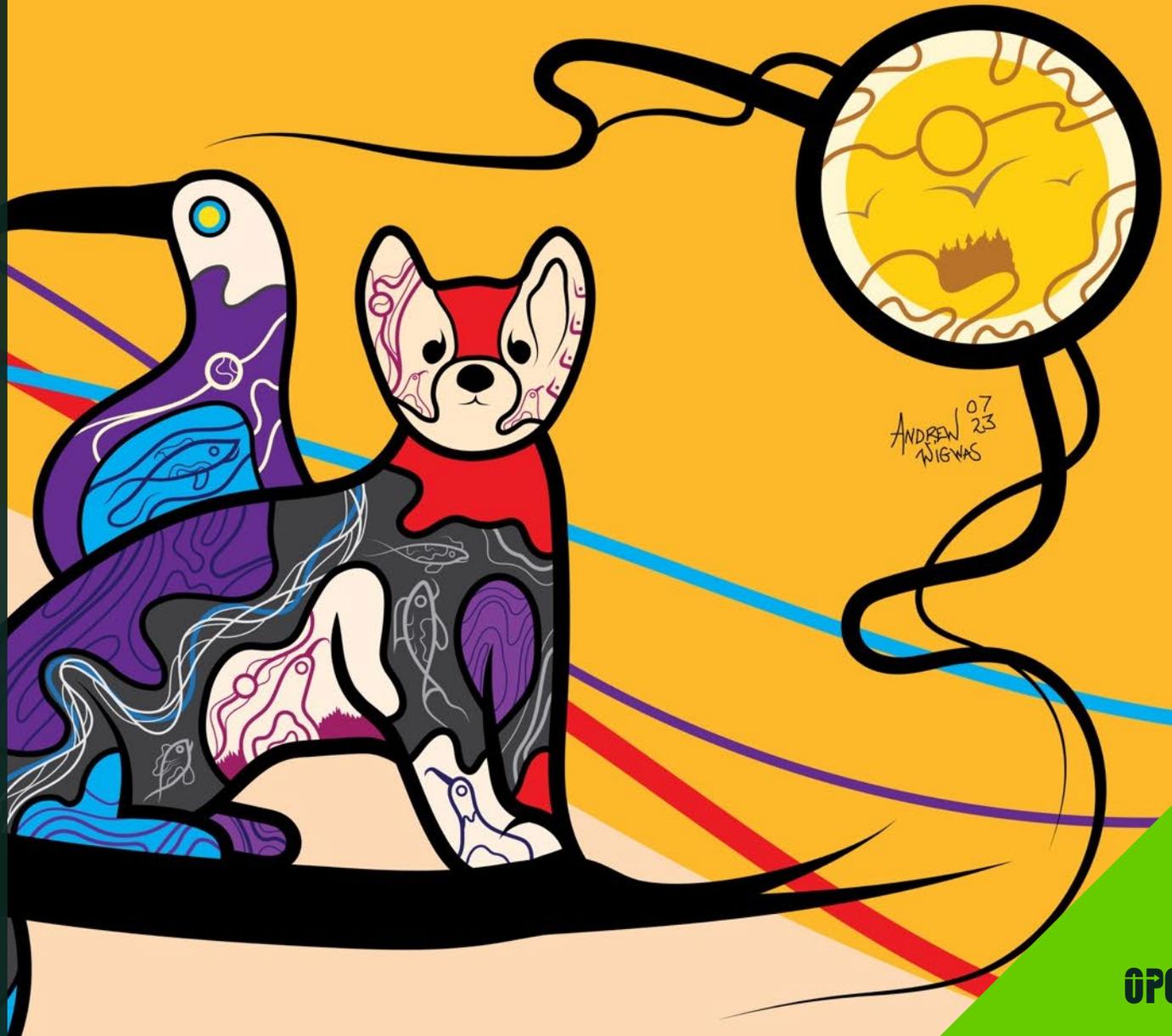




Darlington Nuclear Video

OPG's *Reconciliation* *Action Plan*

- **Leadership** accountability for tracking progress on the plans' commitments
- Building positive and mutually beneficial **Relationships** based on respect
- Increasing representation of Indigenous **People** at all levels across the company
- Advancing **Economic Empowerment** for Indigenous communities and businesses
- Being a trusted partner in **Environmental Stewardship**



Commitment to Indigenous Nations and Communities

- OPG is steadfast in its commitment to supporting meaningful engagement during and after the licensing application process.
- We strive to build relationships based on the principles of respect, integrity and mutual responsibility.
- While we have made progress, we recognize we have more work to do as our relationships continue to evolve.





Indigenous *Engagement*

- Overall, sustained efforts to **strengthen** engagement on operations over the licensing period
- Engagement activities for this application guided by an **Indigenous Engagement Plan**, informed by Indigenous Nations and communities
- Since August 2023, OPG has sought to **understand and address** Indigenous interests and concerns raised by this application.

The Michi Saagiig Nations are interested in deepening operational engagement. We will continue to be responsive to interests and priorities of the Michi Saagiig Nations by:

- supporting ongoing engagement by maintaining Framework Agreements with the Michi Saagiig Nations
- advancing discussions and nurturing collaboration on priority topics (e.g. emergency management, environmental monitoring and sharing reportable events)
- supporting Michi Saagiig Nations' progress on the Indigenous Knowledge Study
- strengthening the incorporation of Indigenous Knowledge, wherever possible
- negotiating and finalizing a Long-Term Relationship Agreement.

OPG looks forward to working with the Michi Saagiig Nations to develop a Darlington specific Indigenous Engagement Plan.



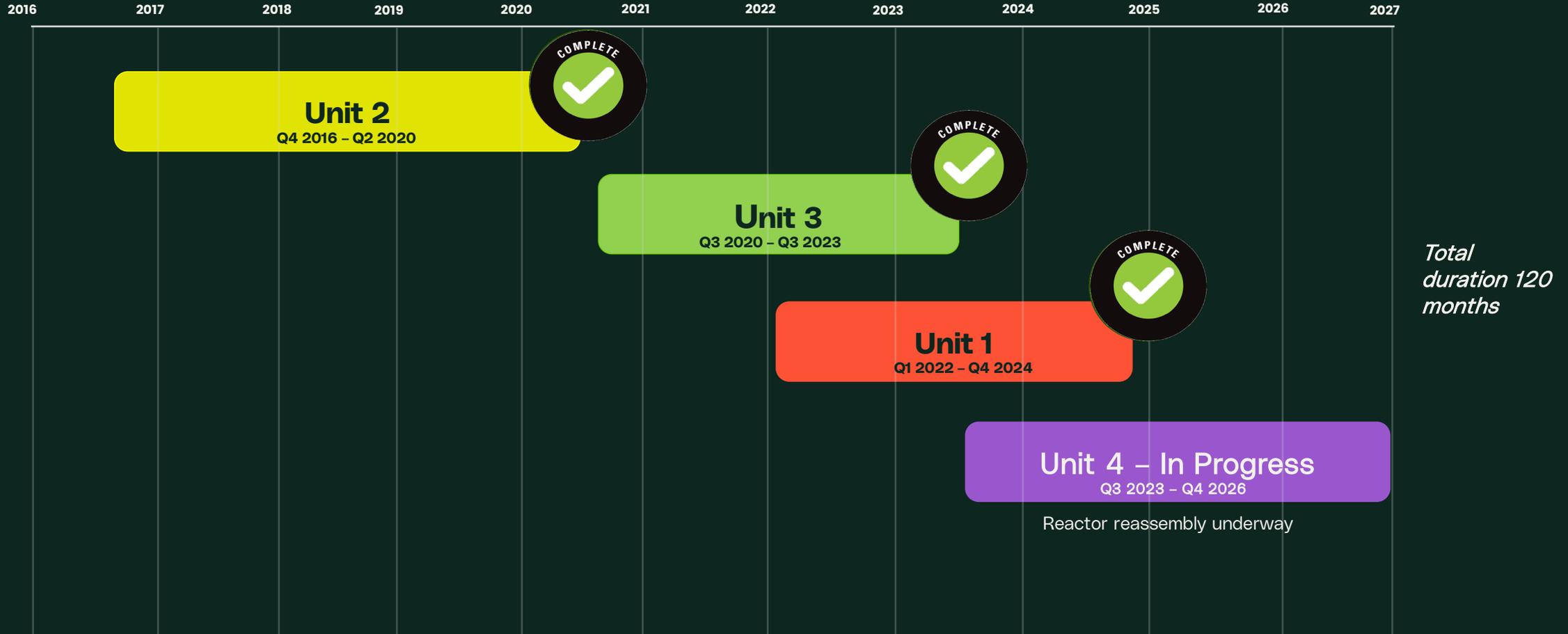


Ready for the
next *30 years*





Darlington *Refurbishment* Project



Darlington will provide *another 30-years of safe, clean, low-cost and reliable electricity* for Ontario.

**Every
5 years**

**Probabilistic Safety
Assessment**



REGDOC-2.4.2

Systematic way to look at and address
any kind of radiological risk in the
station

**Every
5 years**

**Environmental Risk
Assessment**



REGDOC-2.9.1

To assess potential human health and
ecological risks to exposure
from radiological and conventional
stressors present in the environment

**Every
10 years**

Periodic Safety Review



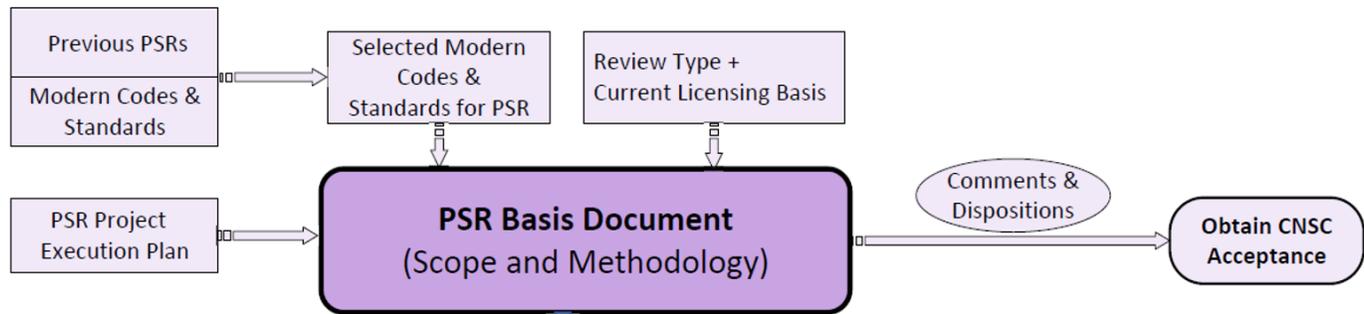
REGDOC-2.3.3

Systematic and comprehensive review
performed of the design, condition and
operation of the facility against modern
codes and standards

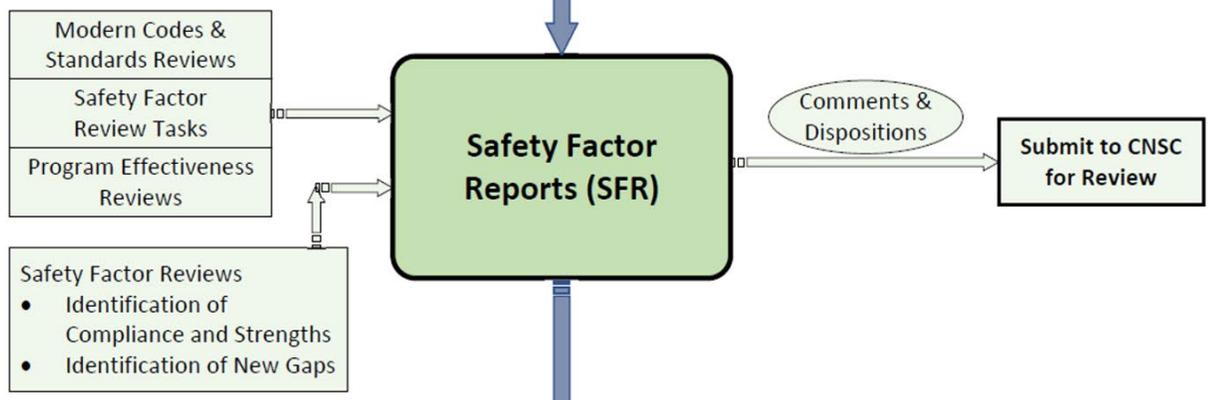
Periodic Safety Review (PSR) Process Flowchart

Periodic Safety Review Process

PSR Basis

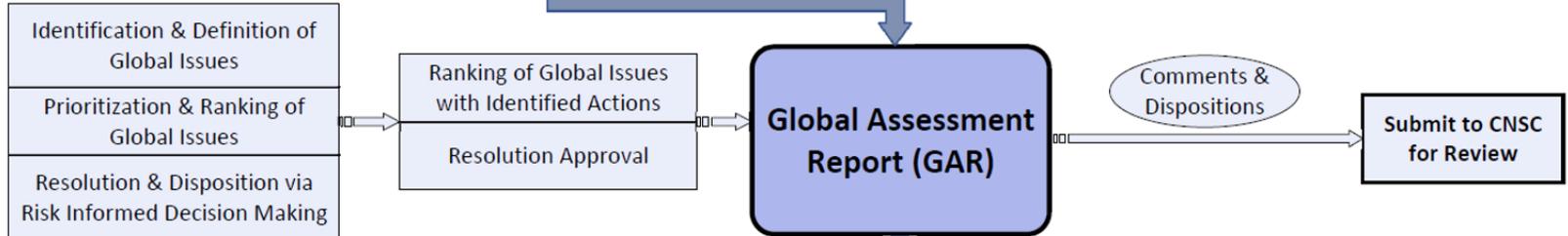


Safety Factor Reports



Subject Area	Safety Factor	
The Plant	SF1	Plant Design
	SF2	Actual Condition of Structures, Systems and Components (SSCs) Important to Safety
	SF3	Equipment Qualification (Environmental and Seismic)
	SF4	Aging
Safety Analysis	SF5	Deterministic Safety Analysis
	SF6	Probabilistic Safety Assessment
Performance and Feedback from Operating Experience	SF7	Hazard Analysis
	SF8	Safety Performance
	SF9	Use of Experience from other Plants and Research Findings
Management	SF10	Organization, the Management System and Safety Culture
	SF11	Procedures
	SF12	Human Factors
	SF13	Emergency Planning
Environment	SF14	Radiological Impact on the Environment
Radiation Protection	SF15	Radiation Protection

GAR Process



IIP



Examples of *Integrated Implementation Plan* Enhancements

- Replaced feeders and fuel channels on all units
- Installed a connection between Emergency Service Water and Heat Transport System
- Replaced Shutdown System Computers
- Installed Auxiliary Shutdown Cooling Pumps
- Completed REGDOC-2.4.1, “Deterministic Safety Analysis” implementation activities
- Inspected the Tritium Removal Facility structures per the updated Periodic Inspection Plans
- Transitioned to CSA N285.7-21, “Periodic inspection of CANDU nuclear power plant balance of plant systems and components”

Operational Excellence

- Nuclear Safety and Security is prioritized above all else
- A culture of continuous learning and improvement
- Continued investment in equipment, training and personnel
- Comprehensive and mature programs that are aligned with industry best practices

OPG is the recipient of Electricity Canada's prestigious President's Award of Excellence for Employee Safety.



Staffing and *Training*

- Internal and external recruitment programs to attract a diverse and high performing workforce.
- Succession planning and knowledge transfer to ensure necessary talent and skills will be available when needed.
- Effective training program to ensure workers are trained and qualified with the appropriate knowledge, skills and behaviours.



Environmental Protection

- OPG has comprehensive Environmental Protection Programs.
- The Environmental Monitoring Program regularly samples water, air and soil, and results are posted on opg.com.

The Darlington Nuclear site has maintained Wildlife Habitat Council Gold-Level Certification since 1997.





Emergency *Management*

- OPG has effective nuclear, conventional and fire emergency preparedness and response programs
- Our stations operate to the strictest of standards and regulatory requirements to ensure our employees, the public and the environment are always safe
- A variety of methods are used to engage and inform the public on OPG's operations and nuclear Emergency Preparedness

Waste *Management*

- OPG has been a world-leader in safe and environmentally-sound radioactive waste management for over 50 years.
- OPG's proven programs and resources ensure safe management of the waste and by-products associated with Darlington operations.
- The nuclear industry is the only energy source that accounts for, manages and fully funds the safe, long-term management of all waste.



Medical *isotopes* for the world

Production of isotopes at Darlington includes:

- **Cobalt-60**
- **Molybdenum-99**
- **Yttrium-90**
- **Lutetium-177**

OPG also harvests **Helium-3**

Investing in *Innovation*

OPG embraces innovation to improve safety, efficiency and to evolve with changing technologies.

- Virtual tours and 3D scanning technology
- Robotics
- Simulators to enhance operator proficiency
- Remotely piloted vehicles (drones/submersibles)



Community *Engagement*

OPG continuously engages with the local community through its comprehensive public outreach and communications program.

- Committees and councils
- Tours and presentations
- OPG educational programs and events
- Community partnerships



Conclusions



Darlington has a **proven history** of safe and reliable performance.



The **Darlington Refurbishment Project** enables continued safe operation through the next 30 years.



OPG values the relationships it has built with Indigenous Nations and communities and our stakeholders, including host communities and members of the public and is **committed to continued collaboration and engagement**.



OPG continues to be **qualified** to carry-on our licensed activities.



Darlington will **continue to operate safely and reliably through 2055**, allowing OPG to meet the growing energy needs expected in the province.

Electrifying life

OPG

Summary of Regulatory Commitments, Regulatory Obligations and Regulatory Management Actions Made/Concurrence Requested

CD# NK38-CORR-00531-26127 P

Submission Title: Darlington NGS – Supplemental Update in support of the renewal of the Darlington Nuclear Generating Station Power Reactor Operating Licence (CMD 25-H2.1C)

Regulatory Commitments (REGC):

No.	Description	Date to be Completed
	None	

Regulatory Management Action (REGM):

No.	Description	Date to be Completed
	None	

Regulatory Obligation Action (REGO):

No.	Description	Date to be Completed
	None	

Concurrence Requested: None.