Durham Nuclear Health Committee (DNHC)

Friday, June 21, 2024
1:00 p.m.
Virtual

Please note: All members of the public may view the Durham Nuclear Health Committee Meetings via live streaming at https://www.eventstream.ca/events/durham-region.
All information and materials sent to Durham Regional Committees will become part of the permanent public record. This includes presentations and oral submissions made during meetings. A video recording of the meeting will be posted on our Regional website. If you have any questions about the collection of information, please contact dnhc@durham.ca.

1. Adoption of Agenda

2. Adoption of Minutes

   2.1 Durham Nuclear Health Committee meeting - April 19, 2024

3. Correspondence

   3.1 Commission decision issued on Darlington New Nuclear Project environmental assessment

   Received from the Canadian Nuclear Safety Commission on April 22, 2024, to announce the Commission's decision that the existing environmental assessment for the Darlington New Nuclear Project (DNNP) is applicable to the General Electric Hitachi BWRX 300 reactor, the reactor technology selected by Ontario Power Generation (OPG).

   This information was emailed to DNHC members on April 22, 2024.

   For more information, visit Independent Commission determines environmental assessment for Ontario Power Generation's Darlington New Nuclear Project is applicable to the selected reactor technology - Canada.ca

3.2 Radioactive Wastes: The Questions Multiply with Dr. Gordon Edwards

Received a 2024-04-27 letter from a Durham Region resident named A.J., asking DNHC members to watch this archived webcast video of a 2023-04-21 presentation in Dryden, Ontario by Canadian nuclear expert Gordon Edwards, Ph.D.: https://www.youtube.com/watch?v=-YzHT4c4WCc

Please note: The Durham Region Health Department does not endorse this link.

4. Presentations

4.1 Progress Report by Ontario Power Generation (OPG)'s Darlington New Nuclear Project Team concerning its future development of a Small Modular Reactor (SMR) at the Darlington site

Presented by Dragan Popovic, SVP SMR Execution, OPG

4.2 Progress Report by OPG concerning its Refurbishment of the Darlington Nuclear Generating Station (NGS)

Presented by Abraheem Waraich, Project Director, Refurbishment Execution, OPG

5. Community updates from Pickering and Darlington Nuclear Generating Stations

Presented by Lindsay Hamilton, Senior Manager, Corporate Relations and Projects, Corporate Affairs, OPG

6. Other Business

7. Next Meeting

7.1 September 13, 2024, 1:00 PM

VIRTUAL

8. Adjournment

Darlington New Nuclear Project

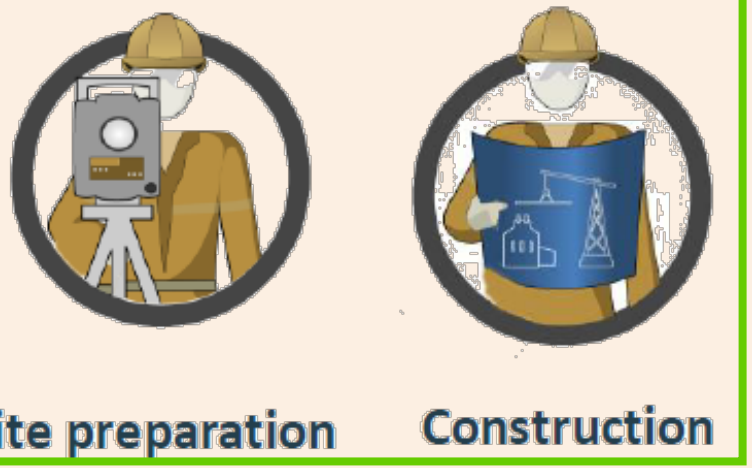
Durham Nuclear Health Committee – June 21, 2024

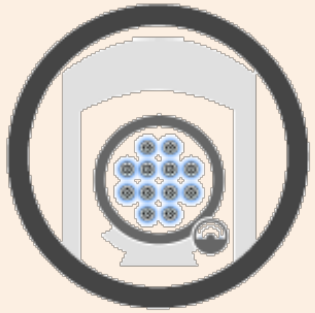
Earth Moving Activities

- Clean, native soil is being excavated and relocated to level out the lands for future construction
- Additional soil will continue to be added throughout the site preparation and construction phases of the project
- Detailed assessments have been conducted of the soil being moved on the site and those have indicated that there are no concerns regarding the quality (or potential impacts) from the stored soil
- The soil structure will ultimately be seeded and planted to blend with the surrounding landscape

Aerial view of recent site preparation activities

Canadian Nuclear Facility Licensing





Licence to Prepare Site – Issued and valid until 2031	Licence to Construct – Application submitted on Oct 31, 2022	Licence to Operate	Licence to Decommission	Licence to Abandon

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

Darlington New Nuclear Roadmap

BIG things start **small.**

2024

CNSC Confirms OPG's Technology Selection Against EA

October 2024: CNSC Public Hearing Part 1 for Licence to Construct

2025

Licence to Construct Issued

January 2025: CNSC Public Hearing Part 2 for Licence to Construct

Unit 1 Construction Begins

2028

Licence to Operate Issued

2028: CNSC Public Hearing for Licence to Operate

2029

Unit 1 Commercially Available

2034

Subject to regulatory approvals, commercial operation of Units 2-4

2036

All dates are estimated based on current project schedules

ONTARIO POWER GENERATION

Scope of LTC Work

- Completion of any remaining activities under the existing **site preparation** licence
- Construction of ***one*** **powerblock**, including the structures, systems and components associated with the:
    - reactor building,
    - control building,
    - turbine building,
    - waste building, and
    - auxiliaries
- Construction of the **support structures** for up to four BWRX-300 units; and
- **Inspection and testing** of equipment, and the commissioning of systems prior to loading fuel in the reactor.

Environmental Protection

- OPG has a robust and mature environmental protection program
- The DNNP Environmental Management Protection Plan (EMPP) implements control measures to eliminate, manage, reduce or mitigate risk to the environment
- Environmental monitoring through the construction phase of the project is established through our environmental assessment follow-up program
- All construction activities will be executed in a manner that conform to the requirements of our environmental policy and EMPP

Conventional & Radiological Safety

- Safety is always our top priority
- As the facility owner, OPG will maintain responsibility and oversight for safety under the construction licence
- Contract partner Aecon will assume the role of constructor under the OHSA
- Both parties will work together to manage the health and safety of workers during construction activities
- There will be no radiological work or nuclear substances associated with this phase of the project
    - Construction activities are not expected to result in any radiation dose to workers or the public

Conclusions

- DNNP site is suitable for the construction of a BWRX-300 nuclear reactor
- A management system is in place to effectively conduct the proposed licensed activities through the license period
- Staff are qualified and competent to carry on the proposed licensed activities
- Nuclear safety will be assured, protecting personnel, the public and environment
- Transparency and appropriate Indigenous and public consultations will continue

Darlington New Nuclear Project

In the community

Where You'll *Find Us* in 2024

Presence and project information at

35+ ***community events***

3 ***Project workshops***

3 ***Public information sessions***

10+

Sponsored ***public swims*** *and* ***skates***

1 BIG Community Power Expo

Join us to learn more about our operations, innovations and projects

ONGOING ***project updates*** to local ***community committees, councils*** and ***stakeholders***

SMR-focused ***energy literacy*** sessions with hundreds of students in classrooms across Durham Region

4 ***Community project kiosks*** for you to get more information and ask questions

Regular updates in our ***Neighbours Newsletter***

Thank you.

Questions?

Darlington Nuclear Refurbishment Project Update

Abraheem Waraich
Project Director| Project Execution, Nuclear Refurbishment

June 21, 2024

Darlington Nuclear

- One of the world's top-performing nuclear stations.
- Four-unit station generates 3,512 megawatts.
- 20% of Ontario's electricity or enough power for about 2 million homes.
- Gold Level certification from the Wildlife Habitat Council (WHC).
- Recognized for performing to exceptionally high levels of safety, operational performance and equipment reliability by the World Association of Nuclear Operators (WANO).
- Only site in Canada licensed for new nuclear build with completed and accepted environmental assessment.

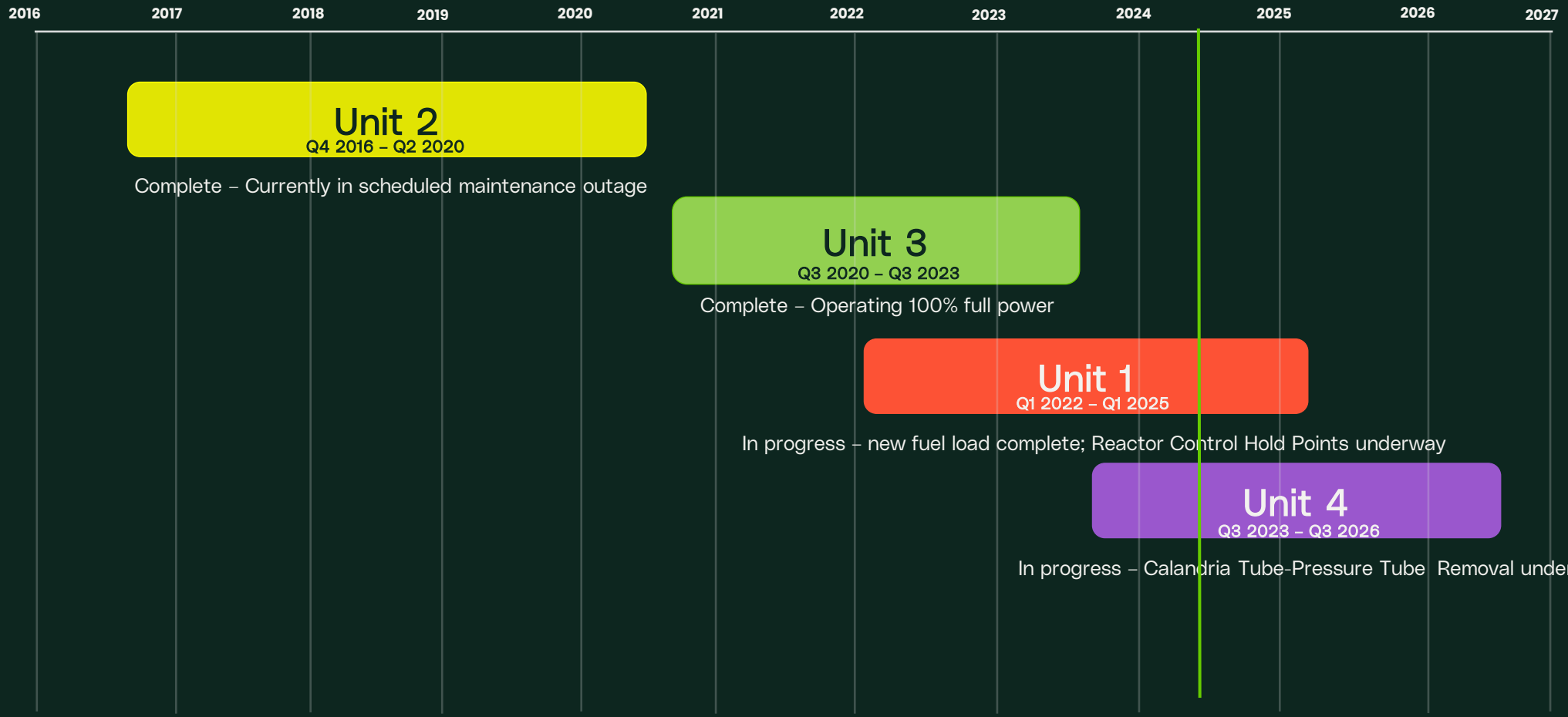
Isotope Production

- The unique design of Darlington's CANDU reactors allow isotopes to be removed while the reactor is still online.
  - Cobalt-60 (Co-60)
  - Molybdenum-99 (Mo-99)
  - Yttrium-90 (Y-90)
  - Helium-3 (He-3)

Darlington Refurbishment

- **$12.8B investment**
- **20-year project: 10 years of planning, 10 years of work. 35-44 months per unit.**
- **14,200 jobs per year.**
- **$89.9B dollars into Ontario's GDP.**
- **96% of expenditures spent within Ontario – revitalized nuclear supply chain.**

Refurbishment Outage Schedule



**Total duration 120 months*

Updated June 10, 2024

Unit 2 – Refurb Complete and Operating at Full Power

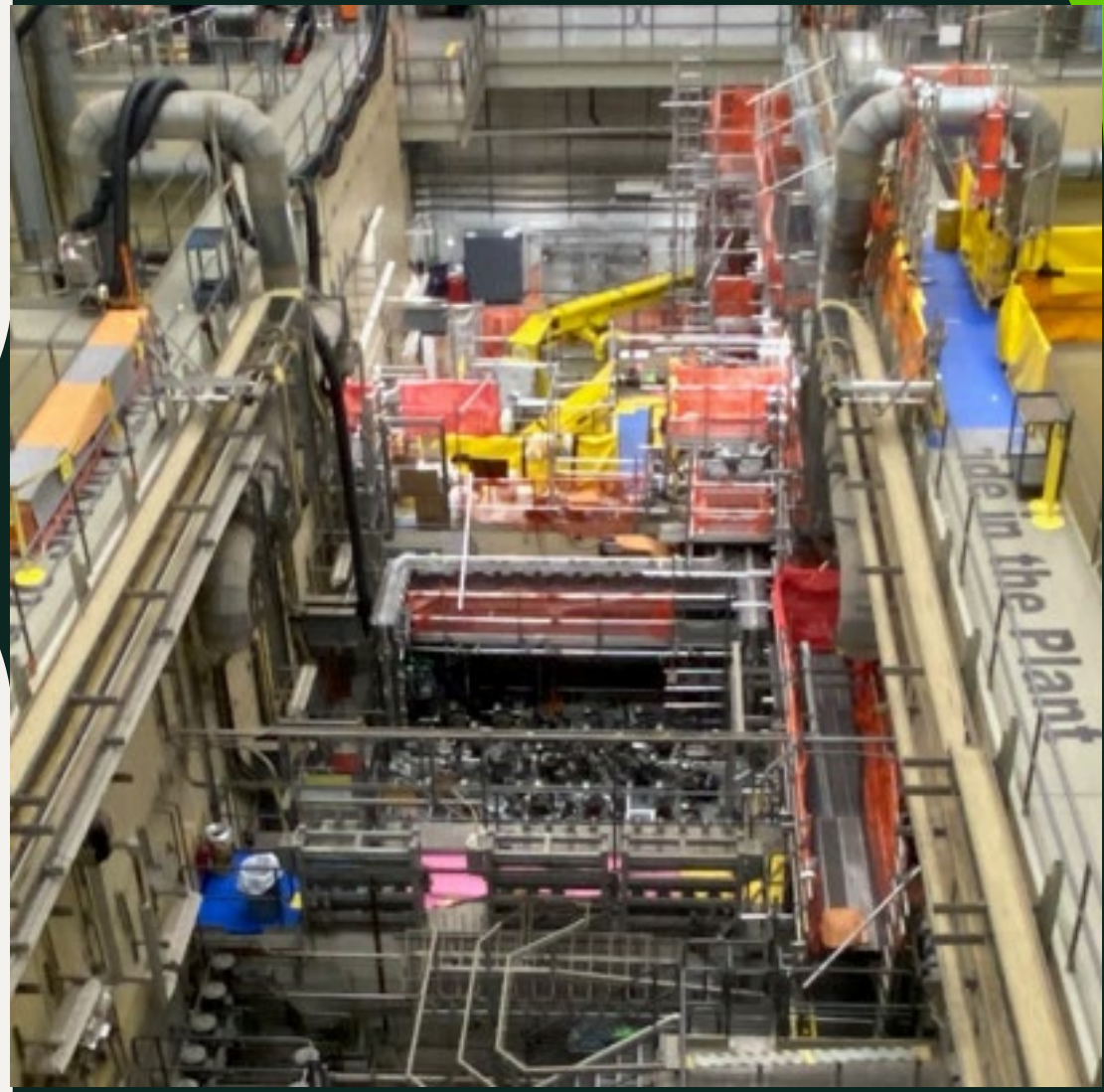
On June 4, 2020, Unit 2 was reconnected to Ontario's electricity grid, after a 44-month refurbishment

Update:

- Over 4,000 lessons learned from the knowledge and experience gained on Unit 2 during planning and execution.
- Ongoing lessons learned built into plans for Units 3, 1 & 4.

Isotope Update:

- Installation of an innovative Target Delivery System by Laurentis Energy Partners and BWXT Medical Ltd. in Dec 2022 - life-saving Molybdenum-99 (Mo-99) and Yttrium-90 (Y-90) isotopes will be produced in Unit 2 reactor (pending CNSC and Health Canada approval)
- A world-first for a commercial power reactor; Unit 2 will be the only source of Mo-99 in North America
- Mo-99 used in 30 million annual diagnostic procedures world-wide; Y-90 used in liver cancer treatment



Unit 3 – Refurb Complete and Operating at Full Power

On July 17, 2023, Unit 3 was reconnected to Ontario's electricity grid, **169 days ahead of schedule**

- Unit 3 Refurbishment started September 3, 2020.
- Execution outage was deferred 3 months to ensure no COVID-19 pandemic-related issues
- Lesson Learned from Unit 2 - Combined Calandria Tube-Pressure Tube Removal series saved 30 days on Critical Path
- Static commissioning of Turbine Control modifications completed Sept 2022; successful first-of-a-kind at Darlington and in the nuclear industry

Isotope Update:

- Cobalt-60 production capabilities have been installed into Unit 3 reactor
- Ontario CANDU reactors produce 50 per cent of the world's supply of Cobalt-60

Unit 1 Status Update

- Breaker opened on Unit 1 (Feb. 15, 2022)
- Marked the halfway point in the Darlington Refurbishment Project **and**
- The refurbishment of two different units at the same time for the first time ever at Darlington (Units 3 & 1)
- Reactor disassembly complete (Apr 2023)
- Reactor reassembly complete (Dec 2023)
  - 960 feeder tubes, 960 endfittings, 480 calandria tubes and 480 pressure tubes
- New Fuel Load complete (May 2024)
- Restart Control Hold Points are underway
- Return to Service in Q4 2024

Unit 4 Status Update

- Breaker opened on Unit 4 (July 19, 2023)
  - One day after Unit 3 Return to Service
- Marked the three-quarter point in the Darlington Refurbishment Project and
- The refurbishment of two different units at the same time for the second time at Darlington (Units 1 & 4)
- Completed work:
  - Reactor Defueled (Sept 2023), Feeder Removal (Feb 2024), Endfitting Removal (May 2024)
- Ongoing work:
  - Combined Calandria Tube-Pressure Tube Removal (early July 2024)
  - Return to Service – late 2025/early 2026

Working with our Community


Autofest 2023

Parasport Games 2023

Tripled our donations to six local shelters

6,500 Trees and shrubs **planted** through community planting initiatives

370 local families *attended* "Tuesdays on the Trail" *programming*

More than **$248,000** donated to **369** local charities through the employee Charity Campaign

Supported **149** non-profit organizations in Durham Region through the Corporate Citizenship Program

Donated life-saving equipment to local hospitals

2,400+ people attended OPG's Community Open House

Released **579** Atlantic Salmon into local streams through the Bring Back the Salmon initiative

Generously supported the Durham Regional Police Service Food and Toy Drive

Donated over **100** meals and winter warmth kits to local Indigenous organizations

3,000 meals donated by employees for Feed the Need Durham

Donated **$11,000** to the Royal Canadian Legion Poppy Campaign

Assembled Holiday care packages for local seniors

63k students registered for Virtual Power Kids

Thank you.

Questions?