

DURHAM NUCLEAR HEALTH COMMITTEE (DNHC) MINUTES

Location

Virtual-Durham Regional Headquarters
605 Rossland Road E, Whitby

Meeting

In an effort to help mitigate the spread of COVID-19, this DNHC meeting was a virtual meeting so that presenters, members, and guests could present and participate without meeting together in the Regional Council Chambers.

Date & Time

June 16, 2023 at 1:00 PM

Members that Participated

Dr. Robert Kyle, Durham Region Health Department (DRHD) (Chair)
Mary-Anne Pietrusiak, DRHD
Phil Dunn, Ministry of the Environment, Conservation and Parks (MECP)
Raphael McCalla, Ontario Power Generation (OPG)
Loc Nguyen, OPG
Veena Lalman, Public Member
Susan Ebata, Public Member
Deborah Kryhul, Public Member
Janice Dusek, Public Member
Jane Snyder, Public Member
Hardev Bains, Public Member
Dr. Lubna Nazneen, Alternate Public Member
Alan Shaddick, Alternate Public Member

Presenters & Assistants

Paulo Correia, DRHD (Secretary)
Dianne San Juan, DRHD (Secretary)
Shannon Lewis, DRHD
Helen Tanevski, DRHD
Leah Wood, DRHD
Anjali Pandya, DRHD
Roger Inacio, DRITD
John Henry, Regional Chair & CEO
Lindsay Hamilton, OPG
John Burta, Canadian Nuclear Safety Commission (CNSC)
Sarah Eaton, (CNSC)
Carol Gregoris, OPG
Tiasi Ghosh, OPG
Cammie Cheng, OPG
Pejman Asgaripour, OPG

Regrets

Dr. Kirk Atkinson, Ontario Tech University (OTU)
Lisa Fortuna, (DRHD)
Matthew Cochrane, Alternate Public Member

Dr. Kyle opened the virtual meeting and welcomed everyone.

Land Acknowledgement by Dr. Kyle.

Dr. Kyle mentioned that observers who have questions concerning presentations today, should email or discuss their requests with Dianne San Juan, DNHC Secretary, at dnhc@durham.ca.

Dianne will follow-up with each of the presenters after the meeting with the observers' questions off-line to prevent any duplication of emails and responses. Dianne will report back to Dr. Kyle the outcomes of the questions received.

1. Approval of Agenda

The Revised Agenda was adopted.

2. Approval of Minutes

The Minutes of April 20, 2023 meeting were adopted as written.

3. Correspondence

3.1 Complete Record of Decision - Canadian Nuclear Laboratories' (CNL's) Application for Renewal of Licence for Port Hope Project; Received April 20, 2023 from the CNSC

3.2 CNSC renews OPG's waste facility operating licence for its Darlington Waste Management Facility; Received April 20, 2023 from OPG

3.3 Update on the Darlington New Nuclear Project (DNNP) – 2022 In Review; Received April 24, 2023 from OPG

3.4 Darlington Nuclear Generating Station (NGS) Community Advisory Council (CAC) January 24, 2023 meeting agenda, presentations, and minutes; Received on May 4, 2023 from Francis Gillis, Pickering NGS CAC

3.5 Pickering NGS CAC January 17, 2023 meeting agenda, presentations, and minutes; Received on May 4, 2023 from Francis Gillis, Pickering NGS CAC

3.6 Darlington NGS CAC March 28, 2023 meeting agenda and minutes; Received May 7, 2023 from Francis Gillis, Darlington NGS CAC

3.7 Pickering NGS CAC March 21, 2023 meeting agenda and minutes;
Received May 7, 2023 from Francis Gillis, Pickering NGS CAC

3.8 Correspondence received from Dr. Barry Neil to advise of his resignation from the DNHC. Paulo Correia thanked him on behalf of Dr. Kyle and the DNHC for his contributions; Received May 9, 2023

4. Presentations

All meeting presentations will be made available on the [Council and Committee Meetings Calendar](#). PDF files for each presentation can be accessed using the addendum HTML link provided for each meeting. A video recording of meetings can be viewed using the webstreaming link provided approximately two weeks after each meeting.

4.1 CNSC Update on the Darlington New Nuclear Project (DNNP)

Presented by Sarah Eaton, Director of Advanced Reactor Licensing Division, CNSC

Highlights of the presentation included:

An overview of the CNSC

- CNSC's mandate is to regulate the use of nuclear energy and materials to protect communities, workers and the environment, ensure peaceful use of nuclear energy, and share objective, scientific, technical and regulatory information to the public.
- CNSC regulates ALL nuclear-related activities in Canada from uranium mines and mills, and processing facilities, the use of nuclear substances and radiation devices, nuclear reactors and nuclear waste facilities.
- Decisions to grant a licence are made by an Independent Commission tribunal – members are independent from staff; proceedings are webcast and publicly available at nuclearsafety.gc.ca
- CNSC will be transitioning to a new president in the coming months
- CNSC staff responsibilities – implement Commission decisions, develop regulatory requirements and guidance, verifying and enforce licensee compliance with regulatory requirements, and communicate with the public and Indigenous Nations and communities through outreach and engagement programs

DNNP overview and licence application

- OPG proposed construction and operation of up to four new nuclear reactors at the existing Darlington site (up to 4,800 MWe)

- Environmental Assessment (EA) completed in 2009; technology was not selected initially; has now selected the BWRX-300 technology and must demonstrate that the technology fits within the bounds of the 2009 EA
- In 2022, OPG submitted a licence to construct application for one reactor
- DNNP timeline discussed (slide 9)
- Currently still in technical review and commission proceedings will be held in January 2024 and tentatively October 2024

BWRX-300 Technology

- Boiling water technology able to generate 300 MWe

DNNP licencing and hearing process

- Licence to construct application submitted in October 2022
- Engagement with Indigenous Nations and Communities, stakeholders and the public is continuous throughout the process
- Licencing application process overview discussed
- Technical review process – 14 safety and control areas, including safety, radiation protection programs, decommissioning, etc.; iterative process where additional information is requested from OPG (licensee) and new information is received and reviewed; process continues until staff are satisfied all requirements are met
- Public hearings – Hearing 1 Jan 2024 (whether the BWRX-300 reactor technology chosen by OPG is within the bounds of the 2009 DNNP EA); hearing 2 (licence to construct decision) depends on outcome of hearing 1
- Joint Review Panel recommendation 1 – the technology selected falls within the bounds of the original EA; if the selected technology is fundamentally different from the technology bound by the Plant Parameter Envelope (PPE), the panel recommends a new EA be conducted
- CNSC created a “What We Heard” report summarizing outcomes of the CNSC April 2023 workshop regarding OPG’s selected technology, this report is being finalized and will be made publicly available on nuclearsafety.gc.ca.

Upcoming events

- CNSC technical review is ongoing
- Public CNSC webinars on the DNNP - June 20 and 22
- Hearing 1 in January 2024

CNSC’s review of OPG’s Licence to Construct application

- OPG’s submission will be assessed against key nuclear regulations – full list available on website <https://www.cnscccsn.gc.ca/eng/acts-and-regulations/regulatory-documents/index.cfm>; staff available if there are questions

- Licence issued when applicant (OPG) is deemed qualified; qualifications discussed – protecting health and safety, national security and adhering to international obligations, etc.
- Hearing 2 – dependent on outcome of hearing 1; tentatively scheduled October 2024; participant funding for involvement in hearing 2 will be opened later this year or early next year; subscribe to email list to hear more
- CNSC Open house on all regional projects in Oshawa Sept 26, 2023

Resources shared:

Staff who work on this project available for questions: Dnnp-npnd@cnsccsn.gc.ca

Open Government link - [Darlington New Nuclear Project - Information and Reports - Open Government Portal \(canada.ca\)](#)

Upcoming webinar [Webinar: Darlington New Nuclear Project – Upcoming licensing review - Canadian Nuclear Safety Commission \(cnsccsn.gc.ca\)](#)

Dr. Kyle questions and comments:

- 1) “What We Heard” report – please send to DNHC via Dianne
- 2) Information for participant funding for hearing 2 also to be shared with Dianne; inquiries can also be emailed

4.2 Progress Report by OPG’s DNNP Team concerning its future development of a Small Modular Reactor (SMR) at the Darlington site

Presented by Carol Gregoris, Project Director, SMR and Cammie Cheng, Senior Manager, Environment Health & Safety, OPG

Highlights of the presentation included:

Presentation began with a territory acknowledgement and treaties statement

Summary of the project and summary of Environment Impact Statement (EIS) review

- location of project: north shore of Lake Ontario, east of existing Darlington NGS
- original EA was based on up to four new nuclear power reactors to produce up to 4,800 megawatts of electrical generating capacity; in 2021, OPG announced going forward with BWRX-300 technology; reviews of the PPE and EIS will confirm that BWRX-300 fits within the original PPE
- Site layout discussed; existing NGS, BWRX-300, waste management facility, exclusion zone (about 914 m for Darlington, for BWRX-300, 350 m)

Technology overview: BWRX-300

- lots of SMRs being developed today, but can be different in fuel formats and how heat moves through
- BWRX – same technology as a lot of other reactors around the world; the fuel design for this reactor has been used in operation for over 15 years
- BWR – boiling water reactor; X – tenth generation of this type of reactor; 300 megawatts of electrical output
- cylindrical reactor building; footprint of facility is approximately the size of a football field

Timelines (pending regulatory approvals from CNSC)

- Site preparation licence to prepare the site (2021), non-nuclear construction activities have started
- Oct 2022 licence to construct application submitted
- Goal: license to operate submit in early 2026; commercial operation 2029
- What's driving the timeline? Reducing reliance on fossil fuels, in Ontario and around the world; electrification demand will increase once we start transferring fossil-based systems to electric; need to move forward quickly and safely for climate change considerations

Environmental Assessment

- EIS submitted by OPG in 2009 – at the time no technology was selected; based on a bounding framework which considered various reactor technologies, known as a PPE
- Commitments report outlines commitments made by OPG during the EA process
- After selection of BWRX-300 technology, OPG committed to an assessment of effects for the BWRX-300 parameters that were not within the PPE and a review of the EIS for the deployment of the BWRX-300 to ensure that the results of the EIS remain valid

Plant Parameter Envelope

- PPE – listing of values that can be used in the EA and licence applications to assist in predicting the potential safety and environmental effects
- The PPE used for the DNNP – 198 design parameters
- BWRX-300 design compared to PPE – 9 parameters outside of original PPE; these were discussed; the EIS review determined the conclusions of the EIS are not impacted and remain valid
- Examples discussed, such as:
 - Deeper embedment of reactor – groundwater impacts reviewed; only impacted during construction phase, no permanent changes to

groundwater flow and levels; BWRX-300 actually has no impacts to original conclusions in EIS

- Activity of isotope of airborne releases and solid radioactive waste – doses found to be within regulatory limits and no impact to conclusions in EIS
- Conclusions of the EIS remain unchanged; PPE report has been updated

Environment Impact Statement Review

- EIS review report considers the environmental impact of deploying up to 4 BWRX-300 SMRs at the Darlington site; EIS review being undertaken to support license to construct application; high level approach discussed
- What are the likely effects of the project? Mitigation measures and design features to reduce or eliminate and effects? Are there residual effects (can be positive or adverse)? If there are adverse effects, these are to be reviewed to determine if significant
- Likely effects of 13 environmental components, including atmospheric, radiation/radiation activity, human and ecological health, effects of the environment (flooding, etc.), malfunctions, accidents and malevolent acts, etc.
- EIS review – summary of results:
 - BWRX-300 has a smaller footprint – smaller physical size and electrical power, less excavation, lower atmospheric emissions, lower noise, able to retain some habitat; additional studies conducted and found residual adverse effects expected to be minor
 - BWRX-300 deployment utilizes once-through lake water cooling; the cooling tower structures considered as options in the original EIS no longer apply
 - no radiological liquid effluent released during normal operation of the facility – a positive change (previous EIS considered emissions to lake)
 - BWRX-300 will require less marine and shoreline works – lake infilling not required, reduced effects for lake water circulation patterns, shoreline processes and temperature at mouth of Darlington Creek; residual effects from vibration and changes to groundwater (GW) flow anticipated to be minor; residual adverse effects for aquatic biota during construction of lake infill and cooling water intake and discharge structures anticipated to be less
- Summary of results discussed; EA follow up and monitoring program remains suitable for BWRX-300 deployment to verify predictions of environmental effects identified in the EA and to determine effectiveness of mitigation measures
- Community engagement efforts discussed; preparing for Jan 2024 hearing with CNSC

Questions:

1) Dr. Lubna Nazneen: Besides being small sized facility what were the other reasons to select the SMR?

Over 100 technologies were reviewed; in 2021, these were reduced to 3 technologies. When evaluated against at least a dozen criteria, established risks and benefits, safety, costs, economic impacts to area, we rated a short list of technologies and based on this, BWRX was selected. The BWR already had a lot of operating experience, GE Hitachi was an experienced designer and had a good safety record.

3 kinds of SMRs were discussed and why they chose a grid scale design for Darlington site

2) Susan Ebata: Will there be any monitoring for community health effects pre and post operation undertaken, besides the environmental monitoring?

We look at concentrations in various environmental media to determine public dose and compared these concentrations to public dose limits. We also conduct environmental risk assessments which look at emissions from the site and compare to health benchmarks to determine effects to human and non-human biota surrounding the facility.

3) Mary-Anne Pietrusiak: Other than waste storage, are there other shared facilities between the current Darlington NGS and the BWRX-300 SMRs?

There will be shared facilities and services. OPG will be looking for options to run facilities as efficiently as possible; the full extent has not been confirmed at this stage.

4) Dr. Kyle: The previous presenter made reference to a “What We Heard” report – is OPG expected to respond to issues raised from this report? What are the impacts to OPG from CNSC’s “What We Heard” report?

OPG will not be responding directly to this report but will be taking the feedback from stakeholders and build it into plans and future communications to provide more clarity.

5) Dr. Kyle: The Independent Electricity Supply Operator (IESO) is the reviewer of electricity supply and demand – does the IESO engage with the public? Can DNHC reach out to inquire on this type of information?

The IESO has a good website; it would be worthwhile to inquire about plans for future generation/supply and demand outlooks.

OPG will continue to provide the DNHC with progress reports on the DNNP. More information is available at opg.com.

4.3 Progress Report by OPG concerning its Refurbishment of the Darlington NGS

Presented by Pejman Asgaripour, Project Director, Darlington Refurbishment, OPG

Highlights of the presentation included:

Update on nuclear refurbishment at Darlington

- Discussed budgets, duration - \$12.8 B Cdn investment; planning took approximately 10 years
- Project adds sizable economic benefits; adds \$89.9 B to Ontario's GDP
- Refurbishment outage schedule discussed
- Started with unit 2 – applied thousands of lessons learned to subsequent units
- Vendor partners discussed; include BWXT, AECON, FOX and Black & McDonald
- June 2020, Unit 2 was reconnected to Ontario's electricity grid, at the height of COVID-19 pandemic; over 4000 lessons learned and will be built into plans for units 3, 1, & 4
- Molybdenum-99 (Mo-99) isotope used in medical diagnostic imaging will be produced in Unit 2 (pending CNSC and Health Canada approval); Unit 2 is the only source in North America
- Unit 3 status update – started in Sept 3, 2020; reactor construction complete; undergoing operational testing and CNSC approvals to return the unit to commercial operations; forecasted to be complete Q3 of 2023
- Cobalt-60 (Co-60) isotope production capabilities have been installed into Unit 3 reactor – medical diagnostics and food preservation; Ontario's CANDU reactors produce 50% of the world's supply of Co-60
- Unit 1 status update – 2nd refurbishment project on site; a first for Darlington to have 2 different units being refurbished at the same time
- Unit 4 – planning phase underway; refurbishment to commence after unit 3 is returned to commercial operation Q3 of 2024
- Refurbishment of all 4 units is on track for completion in 2026

Questions:

No questions or comments received.

The OPG will continue to update the DNHC on the refurbishment of the Darlington NGS. More information is available at opg.com.

5. Communications

5.1 Community Issues at Pickering Nuclear and Darlington Nuclear

Lindsay Hamilton, Senior Manager, Corporate Relations & Projects, OPG, provided an update on Community Issues at Pickering and Darlington and the highlights were:

Operational Performance: Nuclear Update:

- Pickering Units 1, 5, 6, 7 and 8, are operating at or near full power, with Unit 4 in a scheduled maintenance outage.
- Darlington Units 2 & 4 are operating at or close to full power. Units 1 & 3 are currently in refurbishment.

Projects/Site Updates: Revised Evacuation Time Estimates (ETEs)

- Revised ETEs are now finalized and are available on opg.com/nuclearsafety
- Notification emails have been sent to local stakeholders at EMO, Toronto, Durham, Peterborough, OPP, DRPS etc.

Pickering Units 5-8 Operations to 2026:

- OPG submitted a Licence Amendment Application to the CNSC which requests Commission authorization to operate Pickering NGS Units 5-8 to the end of December 2026. The application includes an amendment to the Periodic Safety Review (PSR2). A public hearing will be held at a later date as per Commission procedures.
- As a reminder, the current Pickering Nuclear operating licence includes operations to the end of 2024, followed by safe storage activities to the end of 2028.
- Units 1 and 4 will shut down in 2024 as planned.
- The PSR2 that was completed to support the 2018 license application has been updated for Pickering's Units 5-8 to the end of 2026. The PSR2-B confirmed that the design and operation of structures, systems and components (SSCs) supports the safe commercial operations of Pickering NGS units to the end of 2026.
- Pickering NGS is committed to continuous improvement in safety and has robust comprehensive programs in place that are aligned with industry best practices for ensuring the condition of SSCs are well understood and well maintained.

DNNP - Licence to Construct Application:

- DNNP Workshops: The DNNP team held interactive workshops in support of the current phase of the DNNP. As the first hearing approaches in Jan 2024, the focus was on educating and engaging with key stakeholders on:
 - DNNP Overview and Timelines
 - Environmental Impact Statement Overview
 - Plant Parameter Envelope Overview
- Workshop Dates:
 - June 1: In-person and virtual session for Municipal, regional and provincial stakeholders
 - June 15: virtual session for non-governmental organizations

Nuclear Sustainability Services – Darlington (NSS-D) Waste Management Facility Re-Licencing:

- In December 2021, OPG submitted its licence renewal application to the CNSC, indicating the intent to renew this licence for another 10-year period.
- The public hearing for the licence renewal application took place with/was hosted by the CNSC in January 2023.
- In April of 2023, the CNSC confirmed renewal of the licence for the NSS-D Waste Management Facility.
- The renewed licence is valid from May 1, 2023 to April 20, 2033.

Community Programming:

- Neighbours Newsletter: the latest newsletter went out over the last few weeks.
- Bring Back the Salmon (BBS) Hatchery Launch - Jan. 30: Kickoff BBS Hatchery Launch at DNGS Info Centre for the launch of the salmon hatchery. Over the course of the last four months, as the Atlantic salmon eggs matured into fry, OPG in partnership with Ontario Federation of Anglers and Hunters, Toronto Recreational Conservation Authority and Central Lake Ontario Conservation delivered a 4-tier program to two classes (4/5 & 5/6). The program helps to educate students on the lifecycle of Atlantic salmon through environmental stewardship activities. The final tier included the release of the salmon fry into a couple of local streams, including Bowmanville Creek, this year.
- Tuesdays on the Trail: Pickering and Darlington Nuclear Corporate Relations is pleased to offer another year of high quality and well-attended summer community programming.
 - OPG welcomes families to attend a two-hour program on select Tuesdays in July and August at Centennial Park (Pickering) in the morning and the Darlington Waterfront Trail (specifically the Darlington Lower Soccer Fields) in the afternoon.
 - OPG will collaborate with a different community partner each week to provide a variety of free, educational programs throughout the summer months.
 - Weekly registration will be offered through www.opg.com.

For more information, please contact Carrie-Anne Atkins, Senior Communications Advisor, Corporate Affairs, Pickering Nuclear, OPG. She can be reached at 416-528-7766 or by e-mail at carrie-anne.atkins@opg.com.

Or:

Lindsay Hamilton, Manager, Corporate Affairs, Darlington Nuclear, OPG, at 905-914-2457 or by e-mail at lindsay.hamilton@opg.com.

6. Other Business

6.1 Future Topics for the DNHC to Consider

Dr. Kyle mentioned the next DNHC meeting is scheduled for September 22, 2023. Theme: Annual Environmental Monitoring Results for Pickering and Darlington NGSs

The Draft Agenda will include:

- Progress report by OPG concerning the Results of the 2022 Environmental Monitoring Program (EMP) for Darlington and Pickering NGSs - Margo Curtis, Environmental Advisor, OPG
- Progress report by OPG concerning the Results of the 2022 Groundwater Monitoring Program (GWMP) at Darlington and Pickering NGSs - Ali Esmaeily, Section Manager, Environment, OPG
- Progress report by the CNL concerning the Port Granby Project - Ajit Ghuman, Manager, Port Hope Long-Term Waste Management Facility
- Progress report by the Office of the Regional Chair and Chief Administrative Officer concerning the development of the Durham Nuclear Sector Strategy – Caitlin Rochon, Manager, Corporate Initiatives, Region of Durham

6.2 Scheduled DNHC Meetings in 2023

- September 22 -Virtual
- November 17 -Virtual

6.3 Mary-Anne Pietrusiak, Manager, Health Analytics and Research, DRHD, and staff representative on the DNHC, has announced her retirement from the DRHD.

Mary-Anne left the following message on the meeting chat: “This is my last DNHC meeting before my retirement. Thank you everyone for all your contributions to this committee. Dr Kyle and I have been members of DNHC since 1996. Au revoir!” We wish Mary-Anne all the best in this next chapter.

6.4 New Members

Dr. Kyle indicated the DNHC is preparing an ad to recruit new committee members in the near future.

7. Next Meeting

Location

Virtual Meeting

Durham Region Headquarters
605 Rossland Road East, Whitby

Date & Time

September 22, 2023 at 1:00 PM

8. Adjournment
2:58 PM