

# Plans & Musings for Nuclear Expansion in Canada 2025



## Nuclear Waste Watch February Webinar Series

Theresa McClenaghan, Executive Director

February 25, 2025

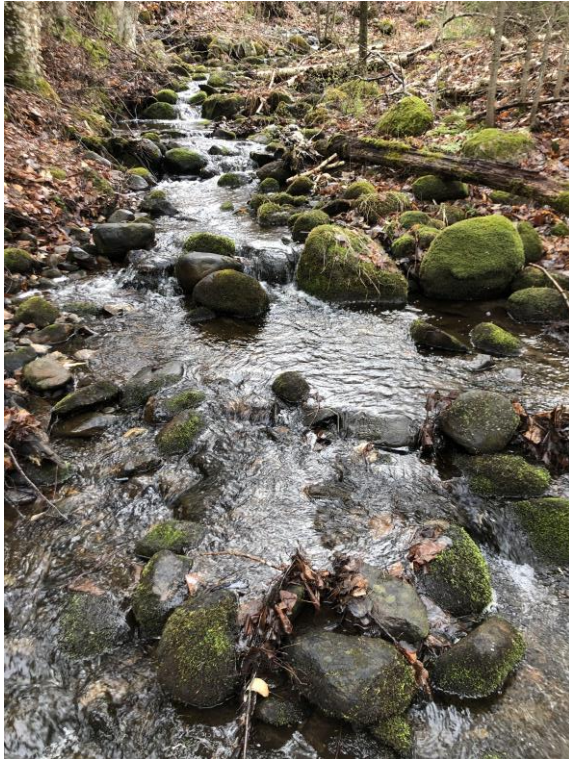


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*Photo: Linda Pim*

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# Canadian Environmental Law Association (CELA)



*Photo: Kelly Mathews*

- Specialty legal aid clinic dedicated to environmental equity, justice, and health
- Founded in 1970, funded by Legal Aid Ontario since 1978
- CELA provides free legal services relating to environmental justice in Ontario, including representing qualifying low-income and vulnerable communities in the courts and before tribunals. CELA also provides free summary advice to the public and engages in legal education and law reform initiatives.



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# Canadian Environmental Law Foundation



Photo: Ghislain Tillard

- Key initiatives include:
  - Canadian Environmental Law Archives
  - Annual fellowship for one aspiring environmental lawyer,
  - Access to Justice for Northern Communities Initiative.
- The Foundation also supports ongoing education and outreach efforts to promote public participation in environmental decision-making.

# Nuclear Expansion Plans and Musings in Canada 2025 Overview

- Darlington Refurbishment
- Bruce Refurbishment
- Darlington New Build
- Bruce New Build
- Pickering Refurbishment
- Port Hope - Wesleyville
- Nanticoke & Lambton
- Saskatchewan
- New Brunswick
- Alberta



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# Darlington Refurbishment



Photo: Fe de Leon

- Existing 4 plants have been undergoing refurbishment since 2016; one left to finish
- Anticipated lifespan thereafter 30 more years
- OPG seeking a 30 year license
- Intervene by May 8 for the June 2025 hearings at <https://www.cnsccsn.gc.ca/eng/the-commission/hearings/participate/>



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# Bruce Refurbishment

- Life Extension and Major Component Refurbishment began in 2020 related to six units <https://www.brucepower.com/life-extension-program-mcr-project/>
- Replacing steam generators, pressure tubes, calandria tubes, and feeder tubes
- Anticipates another 30 year life thereafter “to 2064”



# Darlington New Build

- BWRX 300 proposed as first of up to four units OPG is seeking to build at the existing Darlington site to produce 300 MW per unit; with hope to operate it for 60 years
- Sheltered under the EA from over a decade ago
- OPG had previously obtained a licence to prepare a site
- Now OPG is seeking a licence to construct; hearing held January 2025
- Decision pending from the CNSC
- Intervenors objected to incomplete design and lack of safety systems among other issues, as well as the request for inappropriate delegation of major decisions as the design evolves, from the Commissioners to staff

# Bruce New Build



- Bruce Power has proposed a plan for new nuclear for up to 4800 MW, calling it Bruce C
- A Federal Impact Assessment under the recently enacted / amended IAA is underway at early stages but paused at present
- No technology yet selected; Bruce says it will be “technology neutral” and use a “Plant Parameter Envelope” approach

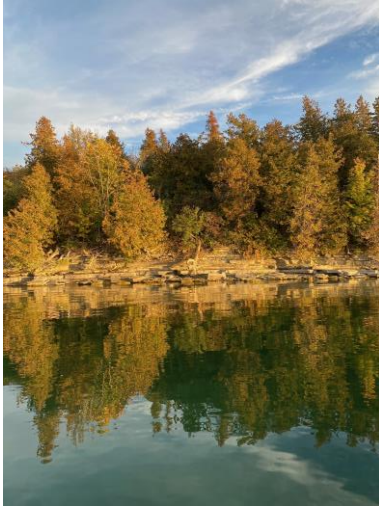
*Photo: Ajman Ladher*



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# Pickering Refurbishment



- Province of Ontario asked OPG for a business case to refurbish Pickering, then in January 2025 asked OPG to begin work on design and engineering toward cost and schedule estimates
- No application yet submitted to CNSC
- EBR Posting titled “Advancing Nuclear Opportunities in Ontario” is open until March 14, 2025  
<https://ero.ontario.ca/notice/025-0130>

*Photo: Rick Lindgren*



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# Province trial balloons other sites



Photo: Breanne Finnigan

- In 2024 Ontario mentioned the possibility of other new large electrical generation sites for gas, nuclear, hydrogen or battery storage
- These included Wesleyville, Nanticoke and Lambton



# Wesleyville

- In January 2025, Ontario asked OPG to “explore opportunities” for new nuclear at Wesleyville and to determine support in local communities and First Nations  
<https://news.ontario.ca/en/release/1005585/ontario-exploring-new-nuclear-energy-generation-in-port-hope>
- OPG maintains the site as it had been planned for electrical generation decades ago but never proceeded; OPG posited it could support up to 10,000 MW of new generation
- In April 2022, the province had blocked a plan for new housing and natural heritage at this site  
<https://www.porthope.ca/en/news/update-on-the-wesleyville-lands-purchase.aspx>

# Nanticoke and Lambton

- Both former OPG coal generation plants; shut down and decommissioned
- OPG states the province has asked them to look at these sites for new generation <https://www.opg.com/projects-services/projects/new-generation-opportunities/>
- Access to transmission grids and ports and zoned for generation; owned by OPG
- Activity at Nanticoke presently includes solar generation and industrial activity as well as nearby wind facilities
- Considering large or small nuclear, gas, hydrogen generation, or battery storage
- Municipal reaction - province offering funds to explore and develop host agreements and will not proceed without willing hosts
- No specific proposals or applications so far; OPG says it is “early stages”



# Other provinces and developments

- Small Modular Reactors (SMRs) Roadmap has seen research underway at Point Lepreau and Chalk River
- Provinces of Saskatchewan and Alberta signed on to the SMR Roadmap and have mused about using SMRs to “decarbonize” oil production
- OPG has a service agreement with SaskPower for a potential BWRX-300 based on “watching Ontario” <https://www.opg.com/releases/ontario-saskatchewan-collaborate-on-clean-electricity/>

# WHY - DRIVERS AND ISSUES

## FOR

- Ontario desire for energy security or even “energy powerhouse” including export
- Having options for new nuclear IESO stating “no regrets” options
- Perceived economic benefit through supply chain
- Powering new demand for electrification, EVs, heating, hydrogen, AI, decarbonizing oil sands

## AGAINST

- Costs & time especially in face of climate risk
- Safety and emergency planning
- Too much concentration on one energy source
- Availability of work force & supply chain
- Perpetuates fossil fuels
- Immature designs with additional safety and nuclear waste risks
- Massive public investment risks losing out on more realistic and sustainable options for a generation or more



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