



Oral presentation

Exposé oral

**Written submission from
Kinectrics**

**Mémoire de
Kinectrics**

In the Matter of the

À l'égard d'

Ontario Power Generation Inc.

Ontario Power Generation Inc.

Application to extend the operation of
Pickering Nuclear Generating Station
Units 5 to 8 until December 31, 2026

Demande visant à prolonger l'exploitation
des tranches 5 à 8 de la centrale nucléaire de
Pickering jusqu'au 31 décembre 2026

Commission Public Hearing

Audience publique de la Commission

June 2024

Juin 2024



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Commission Secretariat
Canadian Nuclear Safety Commission
280 Slater Street
P.O. Box 1046, Station B
Ottawa, Ontario
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Public Hearing on Ontario Power Generation's Request for Authorization to Operate Pickering Nuclear Generating Station Units 5 to 8 to December 31, 2026

Dear Commission Secretariat,

The purpose of this letter is to express Kinectrics' support for Ontario Power Generation's (OPG) request for authorization to operate Pickering Nuclear Generating Station (NGS) Units 5 to 8 to December 31, 2026.

Kinectrics is a proudly Canadian company committed to sustainable, long-term global growth. We provide complete life cycle management solutions to the electricity industry, working with our customers to fight climate change and save lives through clean electricity generation and medical isotope production. Our headquarters are in Etobicoke, Ontario with offices in Pickering, downtown Toronto, Bruce County, the United States, Germany, Denmark, Romania, the United Kingdom, and India. We operate over 30 laboratories including CNSC-licensed nuclear facilities and employ more than 1,300 staff, 70% of whom have technical, science or engineering degrees.

Kinectrics is committed to the safe operation of nuclear generating stations in Canada and around the world. We share OPG's vision that continued operation of Pickering NGS Units 5 to 8 to the end of 2026 will have many benefits to the province, economy, and environment, including reducing CO₂ emissions, extending the need for skilled jobs, and ensuring a stable supply of the Cobalt-60 medical isotope. Kinectrics is supported by over 100 companies and consultants on our Approved Suppliers List. Combined with our suppliers, Kinectrics' support of OPG contributes to the employment of thousands of high-quality, knowledge-based jobs.



Kinectrics provides a broad range of services to OPG which contribute to the continued safe operation of the OPG stations and has undertaken several projects to support the operation of Pickering NGS Units 5 to 8 to the end of 2026. These projects include:

- Completion of amendments to the previous Periodic Safety Review, referred to as “PSR2”, that was used as input to obtain existing approvals for commercial operation of Pickering NGS until the end of 2024. These amendments correspond to PSR2-A and PSR2-B. The PSR2-A amendment focused on demonstrating the acceptability of extending Pickering NGS Units 5-8 commercial operation until the end of 2025. The PSR2-B amendment focused on demonstrating the acceptability of extending Pickering NGS Units 5-8 commercial operation from the end of 2025 until the end of 2026.

PSR2-A and PSR2-B followed a common methodology, which consisted of the following key steps:

- Reassessing the results of the PSR2 global assessment included in the PSR2 Global Assessment Report.
 - Evaluating new or revised requirements, expectations, and practices since PSR2 was completed.
 - Formulating new global issues and resolution plans for newly identified findings.
 - Evaluating the continued validity of PSR2 conclusions.
 - Revising the Integrated Implementation Plan to incorporate the results of the reassessment.
- Completion of an aging management review in support of PSR2-B. The scope of this project included reviewing 495 Component Condition Assessment Reports to ensure appropriate aging management practices were in place to support safe and reliable commercial operation of Pickering NGS Units 5-8 until the end of 2026.
 - Updating Pickering NGS Units 5 to 8 safety analysis for Loss of Flow, Small Break Loss of Coolant Accident, and Loss of Reactor Power Regulation events to demonstrate there is sufficient margin to applicable acceptance criteria to support commercial operation until the end 2026.
 - Completing or contributing to several key evaluations and initiatives demonstrating Pickering NGS Units 5 to 8 fuel channel fitness for service for commercial operation until the end of 2026. Relevant activities include, but are not limited to:
 - An improved finite element analysis procedure to evaluate the potential impact of elevated levels of hydrogen equivalent concentration, $[H]_{eq}$, in a blip or region of interest on flaw-tip hydrided regions in rolled joints.



- Evaluation of sensitivity of finite element analyses of the potential impact of elevated levels of $[H]_{eq}$ in a blip or region of interest on flaw-tip hydrided regions in rolled joints.
- Establishing approaches to demonstrate pressure tube fitness for-service with elevated levels of $[H]_{eq}$ in the rolled joint regions.
- Development of modernized and code-compliant computer software for probabilistically demonstrating core integrity for pressure tube flaws, pressure tube fracture protection and pressure tube leak-before-break.
- Demonstration of acceptability of core wide fuel channel integrity for pressure tube flaws, fracture protection and leak-before-break to beyond the planned end of commercial life.
- Disposition of all pressure tube dimensional, volumetric and hydrogen isotope concentration inspection findings, to beyond the planned end of commercial life.

In providing these services to OPG, Kinectrics' staff interfaced with OPG staff where we have developed long-standing working relationships. Kinectrics has observed the high degree of attention to detail and rigor that OPG staff have exercised and is confident that a comprehensive and robust basis has been provided to support operation of Pickering NGS Units 5 to 8 to the end of 2026.

Kinectrics is a proud member of the Canadian Council for Aboriginal Business (CCAB), which aims to strengthen the relationship between Aboriginal and non-Aboriginal peoples, businesses, and communities. In this regard, we are pleased to work with OPG, which is also a member of the CCAB and has demonstrated a strong commitment to work towards meaningful engagement with Indigenous peoples and to further Indigenous business involvement in the supply chain. OPG created an Indigenous Opportunities Network (ION) designed to increase the number of Indigenous people working in the nuclear industry by placing them in the building trades on some of OPG's most diverse and innovative projects. OPG also prepared a Reconciliation Action Plan, which functions as a road map for OPG to work in partnership with Indigenous communities, businesses, and organizations to advance reconciliation, and OPG has made meaningful progress on the plan. Kinectrics shares OPG's views in this pursuit and is actively working with Indigenous businesses and Indigenous communities in the regions in which we operate.

In summary, by working closely with OPG over many years and understanding their people, programs, procedures, processes, and safety culture, Kinectrics has observed the commitment to safety and attention to detail which are applied to all OPG projects. Based on these experiences, Kinectrics is confident that OPG has undertaken a rigorous, systematic evaluation to demonstrate that Pickering NGS Units 5 to 8 can continue to operate safely and reliably until December 31, 2026.



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On this basis, we support OPG's request for authorization to operate Pickering NGS Units 5 to 8 to December 31, 2026. If you have any questions or require clarification, please do not hesitate to contact me at 416.207.6511 or david.harris@kinectrics.com.

Sincerely,

David Harris
President and CEO
Kinectrics Inc.