



CMD 25-H2.55

Date: 2025-05-08

**Written Submission from the
Canadian Nuclear Association**

**Mémoire de l'
Association nucléaire canadienne**

In the matter of the

À l'égard d'

Ontario Power Generation Inc.

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

Ontario Power Generation Inc.

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

May 8, 2025

Senior Tribunal Officer, Commission Registry
Canadian Nuclear Safety Commission
280 Slater St.
PO Box 1046 STN B
Ottawa, Ontario K1P 5S9

Re: Submission to the Canadian Nuclear Safety Commission for the Ontario Power Generation Inc. – Application to renew the power reactor operating license for the Darlington Nuclear Generating Station (Part 2)

The Canadian Nuclear Association (CNA) is pleased to provide this intervention in support of Ontario Power Generation's (OPG) application for the renewal of the Darlington Nuclear Generating Station (NGS) Power Reactor Operating License PROL 13.04/2025 for a 30-year license term from December 1, 2025, to November 30, 2055. We would like to take this opportunity to highlight: OPG's safety and operational excellence, their commitment to meaningful engagement with Indigenous Nations, and relevant work regarding CNA's nuclear workforce planning which OPG is a partner in.

The CNA has over 115 members, representing more than 89,000 Canadians employed directly or indirectly in exploring and mining uranium, generating electricity, advancing nuclear medicine, and promoting Canada's worldwide leadership in nuclear science and technology innovation. Our organization supports our members in numerous ways in advocating for the industry. This includes the provision of comprehensive policy research and advice on many aspects of nuclear energy, through domestic and international collaboration with a wide spectrum of stakeholders, including industry, government, civil society, and Indigenous Nations and communities. We work to ensure that the public has access to reliable and accurate information, fostering a greater understanding of the industry's contributions to clean, reliable energy, economic growth, and a sustainable future. We support the industry through activities such as those related to building the nuclear workforce of tomorrow – namely our Nuclear Workforce Initiative for which OPG has been a key financial and data contributor. With this project the CNA is addressing the lack of data and strategy regarding the future workforce in the sector, and exploring avenues towards realizing the Canadian nuclear workforce's full potential. This work would not have been possible without the support of OPG.

With regards to the application for license renewal presented before you today, it is increasingly recognized that nuclear energy is a safe, reliable, and non-emitting power source that plays a crucial role in meeting global electricity demands and addressing climate change. Upon analysis of Ontario's electricity and energy needs, the Independent Electricity System Operator (IESO) has concluded that a mix of technologies, including nuclear, will be needed to meet both our climate change and energy security objectives.



The Darlington NGS plays a significant role in Ontario's climate change plans via the Refurbishment Project currently underway, and the investment in the plan for new small modular reactors (SMRs) at the Darlington NGS site. Additionally, OPG also plans to use the Darlington NGS reactors to support the commercial production of medical isotopes such as Yttrium-90 (Y-90) and Lutetium-177 (Lu-177), which are used to treat specific cancers. Advancing nuclear projects through license extension approvals such as this are critical, providing crucial benefits on social, economic and environmental grounds.

Darlington NGS is a top quartile performing nuclear power plant, with more than three decades of operating experience. The requested 30-year licence term coincides with station operational objectives achieved through the refurbishment of the Darlington NGS units.

Darlington NGS continues to operate safely as evidenced by the Canadian Nuclear Safety Commission's (CNSC) assessments of findings from compliance verification activities in each of the 14 CNSC Safety and Control Areas. These ongoing assessments support the fact that Darlington NGS made adequate provisions for the protection of the health, safety and security of persons and the environment during the current license term. Ongoing investments, innovations and committed personnel continue to maintain OPG's strong safety and operational performance, ensuring they meet all its rigorous requirements and standards. At OPG public and environmental safety is not just a top priority, but rather it is an essential part of who they are.

The CNSC continues to play an important role in assuring the safety and operational performance of the Darlington NGS. As part of its continuous regulatory oversight, which is independent of license length, the CNSC has included important provisions that are key considerations in the request for this license extension. Through the annual Regulatory Oversight Report (ROR), the CNSC provides the public and the commission with summarized assessments of the overall state of power plant compliance and safety performance. The CNSC conducts regular inspections, evaluations, and other compliance verifications activities that provide needed assurances of the ongoing compliance and safety performance of licensees. Under REGDOC-3.1.1 (*Reporting Requirements for Nuclear Power Plants*), the CNSC requires licensees, such as OPG, to submit quarterly and annual reports on different subjects which are then reviewed by the CNSC. Notably, during the current license term, there were no significant events that affected the conduct of licensed activities at the Darlington NGS.

Throughout its current license term, OPG, with the aforementioned measures in place, has maintained its strong reputation as an exemplary licensee, making adequate provisions to protect the health, safety and security of persons and the environment, and maintain national security and measures required to implement international obligations.

The diligence and passion for excellence that OPG commits to allowed them to keep collective and individual worker doses well below administrative and regulatory dose limits, and has kept environmental emissions to air and water typically well below 1% of the Derived Release Limits. Similarly, dose to the public from operation of the Darlington NGS site continued to be a very small fraction of both the annual regulatory dose limit and the annual natural background radiation in the area. Tritium concentrations in groundwater were also consistently low, indicating that the potential for adverse impacts to off-site groundwater quality from the Darlington NGS site is low to Negligible.

OPG received the Electricity Canada President's Award of Excellence for Employee Safety – Generation, 9 times in the last 10 years. The award recognizes OPG's achievement of being in the top quartile for both total recordable injury frequency and lost time injury severity rates.

Next CNA would like to highlight OPG's commitment to meaningful engagement with Indigenous Nations. The CNA commends OPG's commitment to engaging with Indigenous Nations and communities regarding its nuclear operations. Pertaining to this specific application, OPG is committed to building an engagement plan with Indigenous Nations and communities to increase collaboration and deepen engagement with respect to the Darlington NGS. CNA understands that OPG intends to develop a framework for both the license renewal application process as well as ongoing engagement after a licensing decision is made. OPG understands that meaningful indigenous engagement begins with relationship building, establishment of trust, openness and transparency.

Finally, we would like to draw attention to the future of the nuclear sector as it pertains to the need for strong, predictable workforce planning.

OPG is well aware of the importance of a strong workforce to support its day to day activities and maintain its standard of excellence. Having said that, the CNA would like to highlight that in addition to OPG's continuous process of workforce planning within their organization, OPG is a key financial and data contributor to the CNA's initiative to prepare the future nuclear workforce in the country, which considers the entire scope of industry and the nuclear life story for decades to come. The CNA's Nuclear Workforce Initiative seeks to address three systemic gaps in solutions for growing and sustaining the workforce: lack of knowledge-sharing, lack of data, and lack of a cohesive, nation-wide strategy.

The CNA is addressing lack of knowledge sharing by bringing members together at events and during regular meetings of our Nuclear Workforce Council to share resources, lessons learned, and project models that were successful in long-term recruitment and training.

The CNA is addressing lack of data and lack of strategy through our nuclear workforce planning project. The project consists of three phases. Phase 1, which is complete, involved the development of three potential nuclear energy buildout scenarios from present to 2050, which

depict low (predictable) growth, moderate growth, and accelerated (ambitious) growth. These scenarios accounted for a variety of factors, including the sector's recent growth, and projects that have been confirmed or strongly signalled, as well as growth in the nuclear output that would be required to meet future energy demands. OPG's nuclear power plants (current and planned) accounted for a significant portion of Ontario's future nuclear growth projections.

Phase 2, which is currently in progress, involves the development of a model that can project the workforce requirements for each of the three nuclear energy buildout scenarios developed in Phase 1. The model is built upon extensive data provided by the various nuclear organizations that make up the sector in Canada; this includes OPG, who supplied us with a significant portion of the data, including highly granular information on the Darlington Nuclear Generating Station and confidential workforce planning related to its first of a kind SMR project at the Darlington New Nuclear Plant (DNNP). The model answers many questions regarding future nuclear workforce requirements, such as the potential number of employees needed in various job types (such as skilled trades), and provides further into explaining the required competencies, education and training requirements for each job family. The model also allows for some insights into regional requirements; for example, it can differentiate between the potential workforce needs in Ontario versus New Brunswick at a high level.

Phase 3, which is also in progress and projected for completion by July, focuses on the development of a national, industry-wide strategy to meet the workforce needs depicted in Phase 2. Through frequent engagement with industry and partners, including academia, government, utilities such as OPG, labour groups and unions, the strategy will aim to be realistic and action-oriented. Key pillars of the strategy will include recommendations for: recruitment and training highly skilled people over the next three decades, how to address knowledge transfer under the pressures of attrition and growth, and how to ensure that Canada's youth remain interested in science, technology, engineering and math (STEM), such that they are directed towards pathways that result in qualifications for nuclear jobs. OPG will be a key player in ensuring the strategy is realized to its full potential to grow the Canadian nuclear workforce.

In summary, as the largest nuclear power plant operator in Canada, OPG has demonstrated a history of safe operations and project management success through 100 years of electricity production and more than 50 years of nuclear operating experience. Under its current license term, OPG has shown it continues to be qualified to carry on the activities to be licensed and continues to make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed. OPG remains committed to fostering collaboration with Indigenous Nations and communities, stakeholders and members of the public in its work towards supporting a cleaner environment all while meeting the electricity needs of Ontario.

Considering their excellent track record, the CNA believes OPG can be trusted to receive this 30-year license extension with which they will continue to build upon their positive reputation for safe and reliable operations.

Thank you for the opportunity to offer our views on this matter.

Sincerely,



George Christidis
Interim President and CEO
Canadian Nuclear Association