Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

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Written Submission from the Canadian Association of Nuclear Host Communities

Mémoire de la Canadian Association of Nuclear Host Communities

In the matter of

À l'égard de

Ontario Power Generation

Ontario Power Generation

Application to refurbish Pickering Nuclear Generating Station and to renew licences for the Pickering Nuclear Generating Station and Waste Management Facility

Demande concernant la réfection de la centrale nucléaire de Pickering et le renouvellement de ses permis pour la centrale et l'installation de gestion des déchets

Commission Public Hearing
Part 2

Audience publique de la Commission
Partie 2

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Canada

CANADIAN ASSOCIATION OF
NUCLEAR HOST COMMUNITIES
www.canhc.ca

August, 10, 2026

Pierre Tremblay
President and Chief Executive Officer
Canadian Nuclear Safety Commission
280 Slater Street
Ottawa, Ontario K1P 5S9

Dear President Tremblay and Members of the Commission:

Re: CANHC Intervention – OPG Application to Renew and Consolidate the Pickering Nuclear Generating Station and Pickering Waste Management Facility Licences

On behalf of the Canadian Association of Nuclear Host Communities (CANHC), I am pleased to submit our intervention regarding Ontario Power Generation's application to renew and consolidate the Pickering Nuclear Generating Station Power Reactor Operating Licence and the Pickering Waste Management Facility Waste Facility Operating Licence for a ten-year term.

CANHC represents municipalities that host, or are preparing to host, nuclear facilities and related activities across Canada. Our members bring direct experience with the opportunities, responsibilities and long-term implications of hosting nuclear facilities throughout their full lifecycle.

The City of Pickering is a founding and active member of CANHC and has hosted nuclear operations for more than five decades. Pickering's experience demonstrates the importance of a strong, respectful and ongoing relationship among the operator, regulator and host community. We understand that the City's relationship with OPG is excellent and continues to expand through regular discussions, economic development initiatives, infrastructure planning and other activities intended to ensure that the community shares in the benefits associated with the refurbishment.

With support from the CNSC's Participant Funding Program, CANHC commissioned an independent review of OPG's licence application. That review, prepared by Kirk Atkinson of SMR Insights, accompanies this letter and provides CANHC and its municipal members with an informed assessment of the proposed refurbishment, continued operation of the Pickering Waste Management Facility and concurrent decommissioning activities at Pickering A.

Based on this review, CANHC supports OPG's application. We recognize the importance of Pickering Nuclear Generating Station to Ontario's electricity system, Canada's clean-energy objectives, local and regional employment, the nuclear supply chain and the continued economic development of the host community. We also recognize OPG's extensive nuclear operating and refurbishment experience and its longstanding relationship with the City of Pickering and Durham Region.

CANHC's support is accompanied by several forward-looking expectations that we believe are important to the successful implementation of the licence.

Continued regulatory engagement during a longer licence term

CANHC understands the rationale for longer and more consolidated nuclear licences. However, a ten-year licence term creates fewer formal opportunities for host communities to appear before the Commission, hear directly from the regulator and licensee, and raise evolving municipal concerns.

A longer licence term should not result in less engagement with the host community. Throughout the licence period, the CNSC shall maintain regular, meaningful and accessible engagement with the City of Pickering, Durham Region and other affected municipal partners. This engagement should extend beyond formal licensing hearings and include timely briefings on regulatory oversight, refurbishment milestones, environmental performance, emergency preparedness, waste management and other matters of municipal interest.

Regular opportunities for host communities to engage directly with the CNSC will help maintain public understanding and confidence throughout refurbishment, renewed operations, waste management and decommissioning.

Ongoing engagement between OPG and host communities

OPG shall continue its early, regular and transparent engagement with the City of Pickering, Durham Region and surrounding municipalities throughout the licence term. Municipal governments have responsibilities for emergency management, public health, infrastructure, transportation, land-use planning, economic development, environmental protection and community well-being.

Municipalities are therefore not simply members of the general public or stakeholders in these processes. They are government partners with defined responsibilities and direct, long-term interests in the decisions made throughout the lifecycle of a nuclear facility.

CANHC encourages the continued implementation and strengthening of the positive arrangements already established between OPG and the City of Pickering, including the Municipal Infrastructure and Servicing Agreement and ongoing economic development and community-planning discussions.

Municipal capacity and participation funding

Nuclear licence applications and refurbishment projects are lengthy, complex and highly technical. Meaningful municipal participation requires significant staff time, coordination across municipal departments and, at times, access to specialized independent expertise.

The participant funding provided to CANHC for this review demonstrates the value of making technical capacity available to host communities. CANHC recommends that the CNSC, OPG and senior levels of government work with nuclear host communities to establish fair, predictable and transparent funding or cost-recovery arrangements that support municipal participation in regulatory, policy and project-specific processes.

Such support shall preserve municipal independence and shall not limit the ability of host communities to raise concerns, provide advice or take positions in the interests of their residents.

Lifecycle planning and host-community interests

Throughout the licence term, continued attention should be given to:

- emergency preparedness, exercises, public awareness and inter-agency coordination;
- transparent reporting on environmental performance and the protection of Lake Ontario;
- the design, construction and monitoring of any new cooling-water infrastructure;
- management of local infrastructure, transportation and construction impacts;
- safe interim storage and progress toward long-term solutions for used fuel and intermediate-level radioactive waste;
- planning for the eventual transportation of radioactive waste from the site;
- Indigenous engagement and the consideration of Indigenous rights, knowledge and stewardship perspectives;
- long-term planning for the decommissioning and beneficial reuse of the Pickering A lands; and

- local employment, procurement, workforce development, economic investment and other tangible host-community benefits.

CANHC recognizes that many of these matters extend beyond the CNSC's direct regulatory jurisdiction. Nevertheless, they are interconnected with public confidence, community readiness and the enduring relationship among the operator, regulator and host community.

The Pickering refurbishment represents a significant investment in Ontario's electricity system and in the future of the City of Pickering and Durham Region. CANHC is pleased to support the application and looks forward to continued collaboration with the CNSC, OPG, the City of Pickering and Durham Region throughout the proposed licence term.

CANHC also supports the attendance of municipal representatives at the Commission hearing. Direct participation by experienced host-community leaders provides the Commission with valuable practical insight into the responsibilities, benefits and challenges associated with hosting nuclear facilities.

Thank you for considering CANHC's intervention.

Sincerely,

Mayor Adrian Foster
Chair
Canadian Association of Nuclear Host Communities
Mayor, Municipality of Clarington

Enclosure:
Independent Review of OPG's Application to Renew and Consolidate the Pickering Nuclear Generating Station and Pickering Waste Management Facility Licences, prepared by SMR Insights

Letter from Kevin Ashe, Mayor of Pickering

City of PICKERING

Office of the Mayor

August 11, 2026

Canadian Nuclear Safety Commission
280 Salter Street
Ottawa, ON K1P 5S9

Subject: Letter of Support
- Ontario Power Generation Application to Renew and Consolidate the Pickering Nuclear Generating Station and Pickering Waste Management Facility Licences

File: A-1000-002

Dear President Tremblay and Members of the Commission,

I am pleased to provide this letter in support of Ontario Power Generation's (OPG) application to renew and consolidate the Pickering Nuclear Generating Station (PNGS) Power Reactor Operating Licence and the Pickering Waste Management Facility Operating Licence.

Accompanying this letter is an independent technical review prepared by SMR Insights and commissioned through the Canadian Association of Nuclear Host Communities (CANHC). The review provides an independent assessment of the technical and regulatory considerations associated with OPG's application and has helped inform the City's position and submission to the Commission.

Pickering has proudly served as the host community for PNGS for more than five decades. Since the station began operation in 1971, it has played a critical role in supplying safe, reliable, and low-carbon electricity to Ontario while supporting thousands of highly skilled jobs and generating significant economic activity throughout our City, the Durham Region, and the province. The proposed refurbishment of Units 5 through 8 represents a generational investment that will extend the life of this important asset and help meet Ontario's growing electricity needs for decades to come.

The City recognizes the importance of the CNSC's independent review and oversight role. While the accompanying SMR Insights report focuses on the technical merits of the application, the City wishes to emphasize several host-municipality considerations that are important to our community and that inform our support for the application.

First, Pickering recognizes the substantial economic benefits associated with refurbishment and continued operation of PNGS. The project will create thousands of direct and indirect employment

opportunities, support local businesses and suppliers, strengthen Ontario's nuclear supply chain, and provide long-term economic stability for our community. As the host municipality, the City encourages OPG and its contractors to maximize opportunities for local procurement, workforce development, apprenticeship programs, skilled trades participation, and the involvement of Pickering-based businesses throughout the refurbishment program.

Second, the City places significant importance on the protection of Lake Ontario. As a source of drinking water, recreation, environmental value, and community identity, Lake Ontario is one of our most important natural assets. We appreciate OPG's commitment to environmental monitoring and protection measures related to the proposed Deep Water Intake system and expect continued transparency regarding construction activities, monitoring results, fish habitat protection measures, and overall environmental performance throughout implementation.

Third, while the City acknowledges OPG's strong record of safely managing used fuel and radioactive materials at the Pickering Waste Management Facility, we share the view that interim storage facilities should remain interim in nature. We continue to encourage progress by the Nuclear Waste Management Organization, federal and provincial governments, and industry partners toward permanent disposal solutions for used fuel and intermediate-level waste. Long-term certainty regarding waste disposition remains an important consideration for host communities such as Pickering.

The City also wishes to highlight the importance of continued engagement with Williams Treaties First Nations and other Indigenous Nations throughout the licence term. Meaningful consultation and collaboration regarding refurbishment activities, waste management, environmental stewardship, Lake Ontario, cultural heritage resources, and future site planning remain essential components of responsible project implementation. We encourage OPG to continue its efforts to engage Indigenous communities in a meaningful and respectful manner.

As the host municipality, Pickering has responsibilities that extend beyond the boundaries of the station site. These responsibilities include emergency preparedness, infrastructure planning, land use considerations, environmental stewardship, economic development, and community well-being. The City values the strong working relationship that exists with OPG and recognizes the importance of continued collaboration throughout refurbishment, operation, waste management, and decommissioning activities. The recently executed Municipal Infrastructure & Servicing Agreement between the City and OPG further reflects a shared commitment to addressing the broader municipal impacts and opportunities associated with the refurbishment project.

The City also remains interested in the long-term future of the Pickering site and encourages ongoing dialogue regarding future opportunities associated with Pickering A lands, including clean energy development, innovation, research, medical isotope production, and other strategic employment uses that could continue to benefit our community for generations to come.

In conclusion, we support OPG's application to renew and consolidate the PNGS and PWMF licences. We do so recognizing the critical role that PNGS plays in Ontario's energy future, the significant economic and employment benefits provided to our community, and the conclusions of the independent technical review that the application has been adequately justified from a licensing perspective. At the same time, we look forward to ongoing collaboration with OPG and other partners

to ensure continued attention to environmental protection, meaningful and respectful relationships with Indigenous Nations, emergency preparedness, long-term waste management solutions, municipal infrastructure considerations, and host-community benefits throughout the licence term.

Thank you for your consideration.

Yours truly

Kevin Ashe
Mayor, City of Pickering

Enclosure

Copy: Adrian Foster, Chair, CANHC
Clare Churchill, Executive Director, CANHC

Members of Council
Marisa Carpino, Chief Administrative Officer
Fiaz Jadoon, Director, Economic Development & Strategic Projects

REVIEW

Application from Ontario Power Generation to renew and consolidate the Pickering Nuclear Generating Station (PNGS) Power Reactor Operating Licence (PROL 48.04/2028) and Pickering Waste Management Facility (PWMF) Waste Facility Operating Licence (WFOL-W4-350.02/2028) for a 10-year term.

Introduction

In June of 2025, Ontario Power Generation (OPG) submitted to the Canadian Nuclear Safety Commission (CNSC) a licence application to renew and consolidate the Pickering Nuclear Generating Station (PNGS) Power Reactor Operating Licence (PROL 48.04/2028) and Pickering Waste Management Facility (PWMF) Waste Facility Operating Licence (WFOL-W4-350.02/2028) for a 10-year term from January 1, 2027, to December 31, 2036. This licence renewal, if granted, will replace both extant licences 20 months early to facilitate commencement of refurbishment activities to meet the timeline required by the Province of Ontario to have the station reconnected to the grid.

This review summarises any significant findings resulting from a review of OPG's Licence Application (and related documents), highlighting any pertinent strengths, weaknesses, shortfalls, and potential impacts to the host community (City of Pickering), if apparent. An explanation of technical details suitable for a layperson is provided where necessary. Unless stated otherwise, the base reference for this review is the Licence Application.

As the host municipality for the Pickering Nuclear Generating Station and Pickering Waste Management Facility, the City of Pickering's interests extend beyond nuclear safety and licensing. It has responsibilities related to land use planning, emergency preparedness, infrastructure, economic development, environmental stewardship and community well-being. The City has also recently entered into a Municipal Infrastructure and Servicing Agreement (MISA) with OPG that recognizes the municipal impacts and community benefits associated with the refurbishment project. Accordingly, the review considers both the technical merits of OPG's application and the broader interests of the host community.

Background

Pickering NGS currently operates four [4] Canada Deuterium Uranium (CANDU) reactors, a domestic pressurised heavy water reactor (PHWR) design. These units, numbered 5-8, are all part of the newer Pickering B; all the original Pickering A units (1-4) having since been permanently retired. Each reactor is housed in its own reinforced concrete containment building. Containment buildings are connected to a shared vacuum building held at negative pressure. This is a safety feature. The reactor (core) itself is assembled within a calandria, a large steel tank filled with heavy water at low temperature and pressure. Heavy water acts as a moderator, a material that slows down fast-moving

neutrons (uncharged subatomic particles) emitted during energy-releasing nuclear fission reactions so they can be more easily captured in the nuclei of uranium atoms in nuclear fuel, allowing further fissions to occur. It is this self-sustaining chain reaction that is controlled within a nuclear reactor. The fuel itself comes in the form of a cylindrical bundle of uranium dioxide fuel pins. Bundles, roughly 50 cm long and 10 cm in diameter, are inserted into pressure tubes, which are themselves inserted into horizontal tubes within the calandria (calandria tubes). Part of the reactor's closed loop primary circuit, in each pressure tube flows pressurised heavy water that, along with it moderating neutrons, removes the heat energy from fission, cooling the fuel. This hotter water is pumped out of the core, through a steam generator (to produce steam to drive turbines that generate electricity), losing heat and re-entering the core cooler. As the pressure tubes are much hotter than the calandria tubes surrounding them, spacers are utilised to keep the two separated. Insulating carbon dioxide gas fills the intervening gap. A combined calandria tube-pressure tube assembly comprises a fuel channel (FC). There are 380 fuel channels in each reactor, each filled with twelve fuel bundles when operating.

Pickering units 5 to 8 (Pickering B) were commissioned into service in sequence, one per year, from 1983 to 1986. Unlike the older Pickering A units 1 and 4, units 5-8 have never been refurbished and, having had successive licence extensions, as of September 2026, will have been in power operation for 40 years or longer. Consequently, the systems, structures and components (SSCs) in B units 5-8 will have been in service beyond their expected design lifetimes and only through refurbishment can their operations be safely continued significantly into the future.

Findings

Safety and Control Areas

In previous licence applications OPG has addressed the Safety and Control Areas (SCA) in the Nuclear Safety and Control Act (NSCA) separately for PNGS, PWMF, and Pickering A decommissioning. These 14 SCA's are: Management System; Human Performance Management; Operating Performance; Safety Analysis; Physical Design; Fitness for Service; Radiation Protection; Conventional Health and Safety; Environmental Protection; Emergency Management and Fire Protection; Waste Management; Security; and Packaging and Transport. As a large and long-established operator, OPG, unsurprisingly, has mature systems and governance in place for all 14 areas, meeting all the necessary regulatory requirements and standards. This licence renewal application consolidates these, along with the planned refurbishment work, by adding sub-sections that capture the additional scope. There are no obvious shortfalls in OPG's addressing of the SCA's.

Refurbishment

Pickering NGS, the oldest operating nuclear generating station in Canada, has a rich and complicated history. Previously operated as two separately licenced sites, the older four-unit Pickering A and newer four-unit Pickering B, reflecting distinct builds and somewhat

different designs, they were combined under a single site operating licence in 2010. Additionally, a third licenced site, the Pickering Waste Management Facility (PWMF) has been in operation since 1995. Collectively all three licensed sites are adjacent and, in various ways, either directly connected or interdependent. This makes refurbishment of the Pickering B units, approval for which is requested in the application, in tandem with the decommissioning of Pickering A and while managing wastes from both, a significant endeavour unlike any previously undertaken by OPG. That said, OPG has developed highly relevant expertise through its recently completed major refurbishment activities at the nearby Darlington Nuclear Generating Station (DNGS), and the decommissioning and waste management activities have been ongoing for some time, meaning the challenge is really one of coordination rather than competence. This is especially true since the refurbishment will be undertaken in parallel fashion with necessary staggering of activities such that units can be brought back online, one per year, in sequence from 2031.

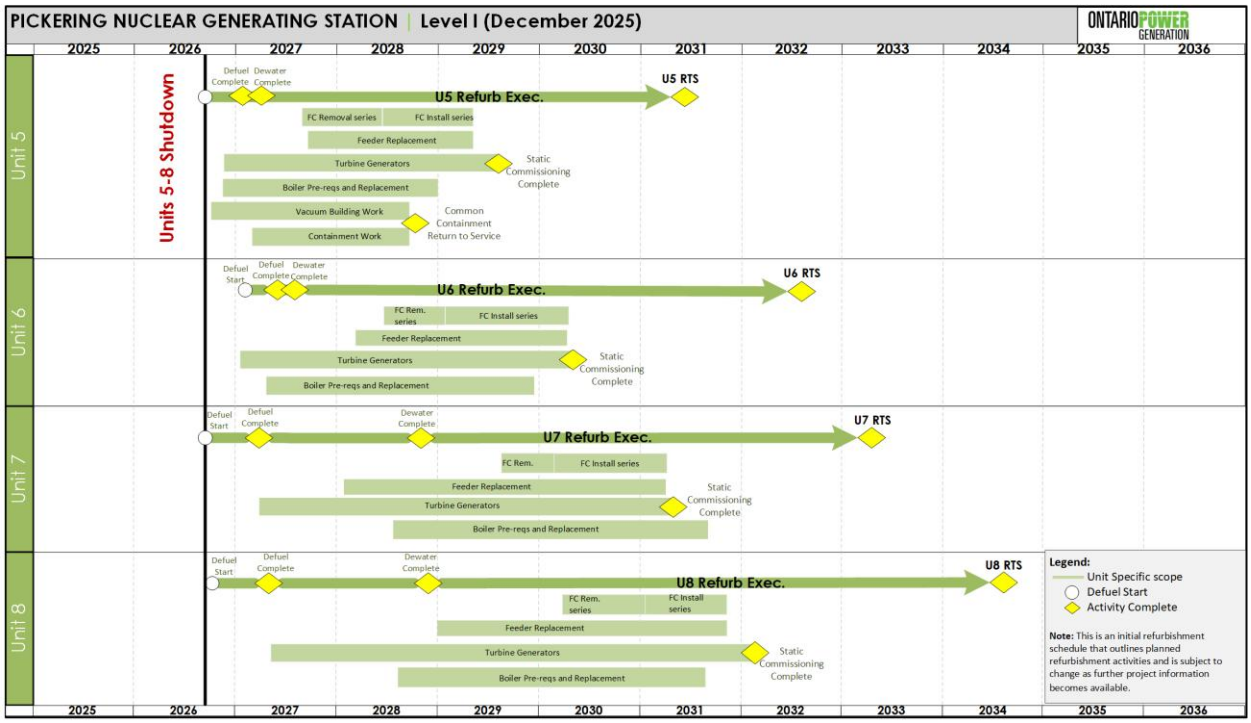

Figure 1: Timeline for refurbishment of PNGS units 5-8 as provided in the licence application.

Refurbishment itself will involve removal and replacement of aged key components in each reactor. To prevent delay, with the province having approved initiation of the project in January 2024, its project definition a year later in January 2025, and the go-ahead to execute in November 2025; OPG has proactively, and on risk, commenced the necessary procurements and begun prerequisite works ahead of receiving licence approval. This is a prudent move given the aggressive timeline for delivery. Once Pickering B units 5-8 are shutdown in September 2026, per the extant PROL, they will be defueled and dewatered to allow the various refurbishment stages to commence.

Refurbishment activities

With the reactors defueled and depressurised, nuclear safety is ensured for the duration of the refurbishment leaving mainly radiological, due to activation or contamination of reactor materials, and more conventional safety concerns to manage and mitigate. This will make refurbishment more straightforward. The main refurbishment activities include fuel channel and feeder replacement; boiler replacement; turbine generator refurb; and deep-water intake construction; along with a series smaller upgrades and opportunistic safety improvements.

Fuel channel and feeder replacement

Each Pickering B reactor has 380 fuel channels through its calandria, each having two feeder tubes. Whilst the calandria itself does not need replacement as it is not subject to elevated temperatures or pressures that could have degraded it since initial build, it is well recognised that pressure tubes (PTs) will suffer from sag and embrittlement. The expected lifetime of such components is circa 30 years and hence they are now beyond the end of their anticipated life. Whilst analysis has previously shown they remain safe now; their replacement is essential to ensure another 30 years of commercial operation. Components on contact with PTs are also subject to reactor conditions and thus will suffer similar or derivative aging effects and consequently calandria tubes, end fittings, feeders and annulus spacers will also be replaced.

Boiler replacement

The boilers (steam generators) provide the interface between the primary circuit (primary pressure boundary) that includes PTs, feeders and primary pipework, and the secondary circuit that feeds the turbines with steam to turn them. Each reactor unit in Pickering B has 12 boilers, all of which have worked near continuously at pressure for 40 years or more, that require replacement. The challenge with boiler replacement in this case is the fact that the reactor containment was essentially built around the reactor, thus making large component replacement difficult or impossible without destructive means. To achieve this engineered access points will be cut in the reactor containment buildings (the iconic concrete domes) to facilitate boiler removal by crane. The access points will be closed and made good once replacement work is complete. The new boilers will be manufactured from better, more corrosion resistant materials, thus allowing operating margins – and potentially output – to be increased.

Obviously, by cutting holes in the concrete structures designed to contain the reactor there exists potential to weaken said structures in the longer term. Reassurance should be provided to ensure this is mitigated. Similarly, lifting operations involving heavy objects present the risk of damage through dropped loads. Beyond the plant itself, cutting actions could produce dusts and particulates of concern to the public.

Note: With the replacement of the pressure tubes, feeders and boilers, the Heat Transport System Aging Management Strategy (HTS-AMS) in the extant PROL is made redundant.

Turbine generator

To increase the electrical output per unit, all turbine generators will be refurbished. This activity is not of nuclear or radiological safety significance and has no significant impact on the public or environment.

Deep water intake

Cooling of condensers used to return steam to its liquid state in the secondary circuit is provided by lake water at PNGS (and other CANDU stations in Ontario). Due to its lake water intakes being near-surface and close to shore, PNGS, like other nuclear generating stations with similar systems, are negatively impacted by impingement of debris, algae and fish, along with larger swings in seasonal temperatures. DNGS, on the other hand, pulls cooling water further from shore, and from greater depths, where conditions are more consistent and predictable. Benefits from this type of deep-water intake (DWI) are multifold, especially given the consequences of climate change that will likely exacerbate negative impacts on near-surface intake reliability, but will require significant engineering and costly excavation to realise. Given this is the approach used at nearby Darlington, including for the Darlington New Nuclear Project, it would seem inconsistent that support and consent for this from stakeholders in Durham could not be gained during the licence term requested by OPG.

A DWI will likely reduce near-shore impacts at the Pickering shoreline, such as excessive growth of algae or non-human biota that thrive in warmer water, whereas OPG's fallback position of an improved near-surface intake likely would not. Either option can provide sufficient condenser cooling water safely. It should be noted that the DWI would extend into parts of Lake Ontario not currently within the PNGS site boundary. Whilst cognizant of the engineering and operational considerations, the City has a strong interest in the protection of Lake Ontario as a source of drinking water, and of its recreational and ecological value. Continued transparency regarding construction activities, environmental monitoring results, fish habitat protection measures and post-construction performance of the DWI will be important in maintaining public confidence throughout implementation.

Additional upgrades

All six standby generators will be replaced to further improve the reliability and availability of backup Class III electrical power, a system important to nuclear safety. Obsolete digital control computers will be replaced with modern equivalents to increase reliability. Replacement or refurbishment of fuel handling equipment will limit fueling interruptions. Fire protection systems will be updated to comply with CSA N293 standards. Finally, emergency power generators will be maintained and/or overhauled.

Opportunistic safety improvements

Six opportunistic safety improvements will be made during refurbishment. Emergency core cooling will be improved in three ways. Firstly, an alternate water supply will be

established for the units 5-8 Heat Transport System (HTS) and/or moderator that utilises the diesel firewater pump system to pull from existing service water infrastructure. Secondly, an Emergency Water Supply System will provide Enhanced Emergency Water Supply (EWS) Supply to the Boilers, HTS, and moderator for both design basis accidents and beyond design basis accidents. Changes will allow the moderator to be directly fed by the EWS to provide a long-term heat sink and single points of failure eliminated to enhance system reliability. Finally, Alternate Water Supply to the moderator (i.e., to provide heat sink diversity) will be established to mitigate the need rely on the units 1-4 Service Water system post-refurbishment. Containment will be enhanced in two ways, through the installation of a filtered venting system that on containment overpressure will reduce airborne contaminant release during beyond design basis accidents and via installation of Shield Tank Overpressure Protection (STOP) on the end shield/calandria vault to improve the safety margin in event of rapidly progressing accidents. Additionally, external hazard protection, in particular windborne missile resistance that could lead to core damage, will be improved by reinforcing the metal-clad portion of the Unit 7 Control Equipment Room exterior wall with a masonry block.

Approach to implementation

Satisfying a licence condition in its extant PROL and intended to demonstrate that units 5-8 will be safe to operate for a further three decades; OPG is conducting a full Periodic Safety Review (PSR3) per REGDOC-2.3.3 and other applicable guidance and standards. It has also undertaken Predictive Environmental Risk and a Climate Change Resilience Assessments, the latter recognising that previous certainty around local climate and weather continuing to follow historic trends can no longer be assumed when making safety-significant judgements. This is a prudent measure with which the Canadian public will likely find resonance. OPG projects that the impacts of climate change will be gradual rather than sudden, challenging operating limits (like has been at nuclear power stations during heatwaves in France, increased condenser water temperatures can necessitate the reactor power being reduced so not to exceed environmental release temperature limits). Such things can be captured through existing component management and surveillance programs and preventive maintenance.

Pulling everything together and providing an overarching review of station safety while ensuring project objectives are met, the Global Assessment Report concluded that issues are adequately “understood, prioritized, and managed” and that OPG has “strong, demonstrated safety performance,” “robust defense in depth” and “minimal residual risk.” The Global Assessment Report is the basis for OPG’s Integrated Implementation Plan (for delivery of safety enhancements and improvements) is expected in Q3 of 2027.

Continued operation of the Pickering Waste Management Facility

In terms of continued operation of the Pickering Waste Management Facility (PWMF), the facility used to store PNGS used fuel bundles in Dry Storage Containers (DSCs), the licence application has limited bearing in the near-term (including the ten-year licence

term). This is because used fuel bundles from CANDU reactor must be stored in light water, in irradiated fuel bays (wet bays), for a decade after removal from the core (with some small number exceptions). Hence, even if all the defueled bundles were to be discarded (it is not clear from the application whether this is the case), they would not exit the wet bays until a subsequent licence term. PWMF activities would therefore continue as now, with no added risk, albeit with movement constraints necessary to account for the other activities happening onsite. A consequence of the refurbishment and continued future operation of PNGS, captured proactively by OPG, is the need to build an additional storage building (SB5) to accommodate the additional used fuel resulting from units 5-8 operating until the 2060's. The is not a novel concept given onsite used fuel dry storage has been increased over time already, but with a requested capacity of 1,410 DSC's (the original design allowed 1,200), the proposed building is relatively large in comparison with some of the others. As the safety of DSCs is well-proven, and as the total number of them largely invariant in terms of consequences, the impacts of the expansion of storage beyond that with extant approval would appear to really be one of construction. Obviously, if projecting impacts of the project past the requested licence term, the eventual transport of a greater number of DSCs to a future Deep Geological Repository (DGR) will mean significantly more (heavy) nuclear material transports, perhaps a 50% or so increase over those that will be needed due to PNGS operations to date. Depending on how this will be facilitated, it may have impacts on transport infrastructure local to the City of Pickering.

OPG has demonstrated, in its Safety Report, that through a combination of engineered controls (like adequate filtering of air) and processes, dose rates and emissions from the PWMF under normal and abnormal operating conditions and postulated accidents are within regulatory limits, and its continued operation presents an acceptably low risk to the public, workers, and the environment. The City recognizes OPG's strong record of safely managing radioactive materials at the PWMF. Nevertheless, the City shares the view that interim storage facilities remain interim in nature and encourages continued progress by the Nuclear Waste Management Organization, federal and provincial governments, and industry partners, toward permanent disposal solutions for used fuel and intermediate-level waste. Long-term certainty regarding waste disposition remains an important host-community interest.

Interim waste storage during refurbishment

Having received an approval to construct in July 2025, the Pickering Component Storage Structure (PCSS), when finished, will permit the interim storage of low and intermediate level wastes (LLW and ILW) resulting from refurbishment and decommissioning activities onsite at PNGS. This is like the existing storage in PWMF of wastes resulting from unit 1 and unit 4 refurbishment (with ILW in Dry Storage Modules in the Retube Component Storage area), previously, with similar considerations. Because ILW materials will give rise to significant dose rates, these materials require shielding and hence will be stored in Retube Waste Containers (RWC). RWCs, like the DSMs used previously, will also provide the necessary shielding during transport, including across site, mitigating what

would otherwise be a hazard to personnel. It is anticipated that RWCs will be stored in the PCSS for 30 years before disposal, allowing delay and decay tactics to reduce activity.

Ongoing decommissioning of Pickering A

In terms of decommissioning activities, the licence application has little bearing on what activities have previously been approved. Purely speculating, the most likely impacts, if any, will probably be administrative in nature and stemming from how well OPG manages the concurrent yet different complex projects on the same site. During the proposed term, Storage with Surveillance (SWS) of retired units will continue as now (and, in the case of units 1 and 4, commence) and dismantling of selected non-nuclear components and outbuildings will proceed. By the end of the requested licence term, in 2036, it is planned that all used fuel bundles (over 200,000) will have been removed from the irradiated fuel bay A (IFB A) and the auxiliary irradiated fuel bay (AIFB) and transferred to DSCs. This activity will allow progress to be made with fuel bay decommissioning, progress with IFB A running ahead of that with the AIFB. More details are available in CNSC staff-accepted Detailed Decommissioning Plans, which are revised, at minimum, every five years, in accordance with regulatory requirements.

Managing interfaces between A and B units

Now that PNGS units 1 and 4 are permanently retired, the entirety of Pickering A will be decommissioned. This work will continue during refurbishment of Pickering B, and raises some safety-significant challenges, especially where shared services or systems exist. To manage this, OPG will define a clear boundary between the two, identifying overlaps, and effecting their separation. If separation activities were being undertaken whilst unit 5-8 were operational, this could lead to significant risks. However, by refurbishing B units in parallel, this work can be undertaken more safely and at greater pace. Following OPG's Engineering Change Control (ECC) process, as older CANDU stations are connected and share a vacuum building, a large part of the separation process involves activities that decouple the retired units from stations' shared containment systems. Less visible shared systems, like some involving supplies of water or electrical power, deemed by OPG to be of lower priority in terms of separation, may remain once units 5-8 refurbishment has concluded and will be maintained accordingly. Whilst seemingly of lower nuclear safety significance, the rationale for not separating everything is not clearly explained and raises questions over whether their future separation could have implications for units 5-8 safe operation once back in service.

Deviations in certification of personnel

One surprising finding is that OPG are requesting authorisation to deviate from REGDOC-2.2.3, Personnel Certification, Volume III: Certification of Reactor Facility Workers, Version 2, Subsection 20.5.4, Work under supervision, which states: "For operations personnel, the worker must have successfully performed the duties of the pertinent designated position under the supervision of a qualified worker certified for employment

in the same designated position, and for a number of complete shifts deemed sufficient by the licensee to confirm that the worker can perform said duties competently and safely." At first glance this would appear to suggest that station personnel will no longer be certified to an equivalent level to today, which of course would seem to be a reduction in safety. However, such a request may be understandable given the station will not be operating at power for several years, and hence personnel may not be able to exercise the full scope of the duties associated with their role until the station is returned to service (some personnel may be placed in an inactive status for the intervening period). Gaps in certification would, under those circumstances, be unavoidable but would still be deemed a non-compliance. Getting ahead of this through this request hence seems reasonable.

Learning from experience

Noting that refurbishment (or decommissioning) activities can be undertaken more quickly and effectively, reducing dose burden to workers, through training (as evidenced during the DNGS Refurbishment and Bruce NGS Major Component Replacement projects); it is encouraging to see OPG making use of an off-site Training and Mock Up Facility as well as the retired unit 2 at PNGS.

Host community considerations

Municipal Infrastructure & Servicing Agreement

Whilst the mandate of CNSC is focused on safety, security and environmental protection, the City notes that OPG and the City have recently entered into a Municipal Infrastructure & Servicing Agreement (MISA) associated with the refurbishment project. Through this agreement, OPG has committed to infrastructure investments, property tax stabilization measures, road improvements, community funding contributions and ongoing municipal coordination. Although these commitments fall outside the CNSC's licensing jurisdiction, they demonstrate an acknowledgment by OPG of the broader responsibilities associated with operating a major nuclear facility in a growing host municipality. The City encourages continued implementation of these commitments throughout the licence period.

Economic development and host community benefits

The refurbishment project represents a significant opportunity for local economic growth. In addition to employment at the station, the City of Pickering encourages OPG and its contractors to maximize opportunities for local procurement, participation by Pickering-based businesses, supply chain growth, creation of apprenticeship programs, skilled trades participation, workforce development initiatives and partnerships with local post-secondary educational institutions. The City also encourages opportunities that allow Pickering businesses and the broader community to participate directly in the economic benefits associated with long-term nuclear investment.

Future site planning

While refurbishment will extend the operating life of Pickering B well into the future, the City remains interested in long-term planning for the eventual reuse of lands associated with Pickering A. The City seeks and encourages continued dialogue with OPG regarding future opportunities for clean energy development, research and innovation, medical isotope production, employment uses and other strategic initiatives that support the long-term economic future of Pickering.

Emergency preparedness and municipal coordination

The City of Pickering acknowledges the strong emergency preparedness framework that exists between OPG, Durham Region, the Durham Regional Police Service, Pickering Fire Services, provincial emergency management agencies and the CNSC. Continued support for emergency exercises, public awareness initiatives, potassium iodide distribution programs, emergency communication systems and inter-agency coordination should remain a priority throughout the refurbishment and operating periods. Regular municipal engagement on emergency preparedness matters will continue to be important.

Indigenous engagement

The City recognizes the significant efforts undertaken by OPG to engage the Williams Treaties First Nations and other Indigenous Nations regarding the refurbishment and decommissioning at PNGS, waste management and environmental assessments. The City supports continued meaningful engagement throughout the licence period and acknowledges the importance of Indigenous perspectives regarding Lake Ontario, environmental stewardship, cultural heritage resources, and long-term site planning.

Conclusions

The ten-year licence renewal is founded on refurbishment PNGS units 5-8 in the first five years followed by their return to full power operation in the second. Decommissioning of Pickering A and operation of the Pickering Waste Management Facility will continue in parallel. The refurbishment effectively represents a total rebuild of the reactor primary circuit (pressure boundary), resetting the clock on aging its management, leaving what is essentially a new reactor with a 30-year lifetime ahead of it. This effort will add $17B to provincial GDP in the process, a figure that will grow to $38.2B by end of commercial operations. Providing 10% of current provincial electricity needs and 20% of global cobalt-60 production and noting that IESO projects a 65% rise in electricity demand by mid-century, PNGS is an asset too important to lose.

Before embarking on the refurbishment work that would allow continued operation of the station into the 2060's and remembering that decommissioning and storage would need to continue anyway; to allay concerns of indigenous stakeholders and the wider public, OPG has done a detailed assessment of its impacts over the term of the licence, and beyond. Its has considered radiation risks from the refurbishment and operation of units 5-8 and the dismantling and demolition units 1 to 4, along with dust, noise and particulates from construction activities, the environmental impact of building and running a deep-

water intake. Aside from some limited non-nuclear impacts during construction, in the most part potential impacts are no worse than those that were considered in the extant licence, are of limited rather than sustained duration, and can be mitigated in various ways. Moreover, apart from the Deep-Water Intake, activities will happen on an existing licenced site rather than a green field one, meaning there is no significant increase in land use. There is no meaningful change in the radiological risk profile.

For the City of Pickering and its residents, station refurbishment allowing operations long into the future is a net benefit. Due to the nature of decommissioning, the PNGS site would not be available for redevelopment for decades to come and hence would provide more limited opportunities for economic gain. In contrast, the refurbishment will lead to a significant increase in onsite jobs for the duration of the refurbishment project and sustain jobs comparable to today beyond that. As is always the case, each well paid job provides several others in the surrounding community. Of course, with increased staffing and material movements, there may be impacts, such as wear and tear, or congestion, on local roads, but this one of the few differences to today that people in the city will see. A growth in the partnership between the City and OPG might help address such things.

Despite the complexity of running concurrent large but different projects, OPG is qualified to carry on licensed activities at PNGS including operating a power reactor and waste management facility, and progressing Pickering A decommissioning, whilst refurbishing units 5-8, in compliance with the NSCA and associated regulations. Noting that SMR Insights is only offering opinions or advice and has not undertaken any independent safety analysis (or seen or been involved in any of the assessment activities described herein), after reviewing the application, it appears that OPG has adequately justified their case for licensing. Based on this review, the City of Pickering can reasonably support OPG's Licence Renewal and Consolidation Application,

In supporting the application, the City recognizes the important role that Pickering NGS plays in Ontario's electricity system, local employment and economic development. The City further expects ongoing collaboration with OPG throughout refurbishment, operation, decommissioning and waste management activities, including continued attention to environmental protection, Lake Ontario stewardship, emergency preparedness, Indigenous engagement, municipal infrastructure impacts, long-term waste management solutions and host-community benefits.

References

CD# P-CORR-00531-23980 “Renewal Application for Pickering Nuclear Generating Station Power Reactor Operating Licence and Pickering Waste Facility Operating Licence”, OPG, 2025.

CD# P-CORR-00531-24304 “Submission of Commission Member Document in support of Pickering Licence Application for Pickering NGS and Waste Management Facility”, OPG, 2026.