
INITIAL PROJECT DESCRIPTION OSPE RESPONSE

New Nuclear at Wesleyville (NNW) Project | May 2026

EXECUTIVE SUMMARY

OSPE has reviewed the Impact Project Description (IPD) for the New Nuclear Wesleyville (NNW) project submitted by Ontario Power Generation (OPG) to the Impact Assessment Agency of Canada (IAAC). This document consolidates OSPE's formal responses to key sections of the IPD, reflecting the technical expertise and policy perspectives of Ontario's engineering community.

OSPE's comments include:

- **Thermal Energy Underutilization** — OSPE argues that the IPD's framing of NNW exclusively as an electricity asset represents a significant omission. Nuclear plants produce substantial thermal output that, if captured through cogeneration or district energy systems, could decarbonize Ontario's heating sector. OSPE urges IAAC to expand the IA scope to evaluate the NNW site as a strategic thermal energy asset.
- **Environmental Equity & Air/Noise Quality** — OSPE flags the absence of continuous air quality monitoring near the NNW site and calls for baseline characterization with sufficient spatial resolution and demographic sensitivity. Noise characterization should go beyond standard thresholds to incorporate community-engaged methods that capture how disruption intersects with lived experience.
- **Hydrogeology, Soil & Aquatic Environment** — OSPE supports requiring verification by a licensed Professional Engineer for all systems affecting local hydrogeology, groundwater quality, and Lake Ontario.
- **Indigenous Rights & GBA+** — OSPE supports meaningful involvement of Rights-holding First Nations and MS-WTFNs-led studies throughout all phases of the NNW project. OSPE endorses the use of Gender-Based Analysis Plus (GBA+) as an essential tool for inclusive and equitable engineering assessment. OSPE also recommends that the Impact Statement present a complete GHG accounting under the SACC framework, including a scenario analysis of avoided emissions with and without thermal energy recovery.

RESPONSE TO SECTION 1.5.2 — KEY ISSUES SUMMARY (TABLE 2)

In response to the Table 2 summary of key issues raised by the public and other groups in the IPD, OSPE's members advocate for the addition of waste heat as a concern.

Nuclear plants produce substantial heat beyond what is converted to electricity. In electricity-only operation, this thermal output is wasted. OSPE's position is that the Table 2 issues list should explicitly capture waste heat utilization as a concern, so that it is carried into the formal IA scope. OSPE's full technical argument is set out in its response to Section 2.2 below.

PART B — PROJECT INFORMATION

OSPE Response to Section 2.2

Section 2.2 defines the project's purpose and need exclusively in terms of electricity generation: megawatt capacity targets and Ontario's projected electricity demand. OSPE argues this framing contains a significant omission. A large-scale nuclear generating station does not produce only electricity. It produces heat, in large quantities, and in electricity-only operation that heat is rejected to the environment as waste. The IPD's own cooling water section (Section 2.3.2) confirms this: all four cooling options being considered are designed to discharge thermal energy, either to Lake Ontario via once-through cooling or to the atmosphere via cooling towers. OSPE's position is that the purpose and need statement, and by extension the IA scope, should require OPG to demonstrate why thermal energy utilization is not feasible, rather than treat its omission as a default. The case for expanding the scope is not speculative. Finland's Loviisa nuclear plant has supplied district heating to the town of Hankasalmi since the 1970s. More directly relevant: in 2023, Fortum's nuclear plant at Loviisa produced approximately 140 GWh of district heat, supplying a majority of the surrounding community's heating demand. Switzerland's Gösigen nuclear plant supplies heat to a local district heating network, and the Swiss government has cited nuclear cogeneration in its long-term heating strategy. Ontario's heating sector accounts for roughly 40% of the province's total final energy demand. Thermal networks, including district energy, geo-exchange, and waste-heat recovery, offer a route to decarbonize that demand faster and at lower cost than electrification alone, while simultaneously reducing pressure on the electricity grid during peak periods. It is recommended that future nuclear generation planning give explicit consideration to both the scale and siting of new generating units, with a view to ensuring that all such facilities are designed to be combined heat and power (CHP) ready from the outset.

The IPD acknowledges that large-scale nuclear infrastructure requires 10 to 15 years to develop, and that early planning decisions are consequential. This is precisely the point. If the NNW site is designed from the outset without thermal offtake infrastructure, retrofitting it later will be prohibitively expensive or physically impossible. OSPE urges IAAC to require OPG to include thermal energy utilization in the alternatives analysis and in the IA scope before the assessment proceeds further. OPG's own Climate Change Plan references investment in new low-carbon energy technologies as a stated organizational strategy. Evaluating thermal cogeneration at NNW is consistent with that commitment. Excluding it is not.

OSPE Response to Section 2.3

OSPE notes that Section 2.3 describes nine alternative means categories, ranging from reactor design and cooling water technology to radioactive waste management and decommissioning approaches. At this stage of planning, OPG has appropriately applied the Plant Parameter Envelope (PPE) approach rather than selecting a preferred reactor technology. OSPE supports this approach as consistent with the CNSC's REGDOC-1.1.1 and with prior practice at the Darlington New Nuclear Project. On cooling water alternatives, OSPE draws IAAC's attention to the thermal energy recovery opportunity embedded in this choice. Once-through lake water cooling maximizes waste heat discharged to Lake Ontario. Closed-loop cooling towers reduce thermal discharge but also reduce the temperature and pressure of recoverable heat. OSPE recommends that the alternatives analysis in the Impact Statement explicitly evaluate whether any of the four cooling water configurations can be paired with cogeneration infrastructure, and at what thermal recovery efficiency. This analysis is relevant not only to the assessment of Section 2.3.2 alternatives but to the project's overall GHG profile under Section 5.9.

OSPE notes that the MS-WTFNs have identified nuclear waste storage and transportation as a priority concern, and that OSPE shares the view that waste management decisions must involve Rights-holding First Nations throughout the assessment process, not only at final decision points.

RESPONSE TO SECTIONS 3.4.1.1.2–3.4.1.1.3 — AIR QUALITY & NOISE

OSPE notes that the scoping documentation acknowledges the absence of continuous air quality monitoring stations at or near the NNW site, with the nearest stations located approximately 40 kilometres away in Oshawa and Peterborough.

This monitoring gap is a significant concern from an environmental equity standpoint. Port Hope and the surrounding area includes communities that may already bear cumulative environmental burdens from existing industrial land uses.

OSPE urges IAAC to ensure that baseline air quality characterization is conducted with sufficient spatial resolution and demographic sensitivity to understand how pollution exposure overlaps with income, housing tenure, and other vulnerability indicators in the project area.

Research demonstrates that marginalized and lower-income communities disproportionately bear the burden of poor air quality, and that those least able to protect themselves — like renters, newcomers, seniors, children, and individuals with pre-existing respiratory conditions — face the greatest health risks from long-term exposure to air pollutants.

A project of the scale and duration of the NNW development, encompassing years of construction activity generating dust, diesel emissions, and heavy traffic on local roads already identified as air quality influences, has the potential to impose meaningful cumulative burdens on nearby residents. The IA must evaluate these impacts through a demographic and equity lens, including the use of localized monitoring tools to map how pollution exposure intersects with socioeconomic status in the project area.

The impacts of infrastructure projects are experienced differently across communities, and assessments must be designed to capture those differences rather than apply a single uniform standard.

Noise characterization for the NNW Project should go beyond standard decibel thresholds and receptor modelling to include community-engaged approaches that capture how noise disruption intersects with the lived experiences of nearby residents. For instance, as was identified by the MS-WTFNs review, how noise pollution impacts Relatives, relationships, and ways of knowing and being. OSPE urges IAAC to require that noise impact assessments for the NNW Project reflect this broader understanding, and that community-engaged noise monitoring be integrated into baseline characterization and ongoing construction-phase monitoring.

Engineers have both the technical tools and the professional responsibility to design noise mitigation measures such as sound barriers, setback zones, and construction scheduling protocols that prioritize the protection of the most affected communities from the earliest stages of site preparation onward.

RESPONSE TO SECTIONS 3.4.1.2.7–3.4.1.2.8–3.4.1.2.11 — HYDROGEOLOGY, SOIL & GROUNDWATER

OSPE notes that the hydrogeological conditions at the NNW site are more complex than a standard industrial development site, and that this complexity warrants a correspondingly rigorous assessment framework. The IPD's own Section 3.4.1.2.7 identifies three main aquifer systems at the site: an upper sand aquifer, a middle sand aquifer, and a bedrock aquifer. Groundwater flows generally southward toward Lake Ontario at a gradient of approximately 3%. On the west side of the site, artesian conditions have been documented. Areas in the central and southern portions of the site overlap with provincially designated Highly Vulnerable Aquifers (HVA) and Significant Groundwater Recharge Areas (SGRA) under Ontario's Clean Water Act. HVAs are by definition aquifers susceptible to surface contamination with limited filtration capacity. The presence of both HVAs and SGRAs on a site proposed for large-scale nuclear infrastructure is a material concern that the IA must address with specificity. OSPE recommends that the Impact Statement be required to include a peer-reviewed hydrogeological conceptual model, prepared and stamped by a licensed Professional Engineer or geoscientist with demonstrated hydrogeological expertise, that characterizes groundwater flow pathways, aquifer interconnectivity, and contaminant transport risk under both normal operating and accident scenarios. The model should explicitly address the artesian conditions on the west side of the site, the HVA and SGRA designations, and the potential for upward hydraulic gradients to create preferential pathways for contaminant migration. This model should be made available for public and Indigenous community review before the Impact Statement is finalized.

Section 3.4.1.2.8 of the IPD also documents the presence of detectable PFAS concentrations at two locations on the east side of the site, likely from historical firefighter training, at concentrations that exceeded applicable guidelines. OSPE recommends that the Impact Statement include a site-wide PFAS characterization study covering both the developed and undeveloped portions of the site, prior to any additional soil disturbance from site preparation activities. This is a pre-condition for establishing a credible soil and groundwater baseline against which construction-phase and operational impacts can be measured.

RESPONSE TO SECTION 3.4.2 — BIOLOGICAL ENVIRONMENT / AQUATIC ENVIRONMENT

For project activities including site preparation, construction, waste storage, and decommissioning, OSPE supports requiring verification by a licensed Professional Engineer to ensure systems meet accepted standards and do not pose unintended environmental or public health risks. OSPE recommends that IAAC require OPG to define minimum Professional Engineer qualifications for each project phase, specify the use of standardized checklists, and ensure that field notes, models, and monitoring data are retained and accessible for independent review.

Where public safety or complex multi-disciplinary engineering design is implicated, OSPE recommends that the Impact Statement require professional oversight with a clear line of accountability. Any proposed exemptions from this requirement should be supported by technical evidence demonstrating minimal cumulative impact and compliance with applicable standards, reviewed by a qualified independent engineer. OSPE draws particular attention to the aquatic environment conditions documented in Section 3.4.2.4 of the IPD. Aquatic surveys conducted between 2003 and 2023 recorded 35 fish species in Lake Ontario near the Wesleyville site, 17 species in Wesleyville Marsh Creek, and 15 species in Wesleyville Creek. The riparian area within 50 metres of these creeks is already affected by anthropogenic pressures including agriculture, culverts, and habitat fragmentation, which have degraded fish habitat and contributed to sedimentation. The NNW Project will add water intake operations with associated impingement and entrainment risk, thermal discharge to Lake Ontario (depending on the cooling water technology selected), construction-phase sedimentation from site preparation, and long-term operational effects on wetland hydrology and creek water quality. These are cumulative pressures on ecosystems that are already stressed. OSPE recommends that

the Impact Statement require a baseline aquatic monitoring program, updated from the 2023 data, that characterizes fish community health, benthic invertebrate communities, and water quality at Wesleyville Creek, Wesleyville Marsh Creek, and nearshore Lake Ontario before any site preparation begins. This baseline must be established with input from MS-WTFNs monitors, who have documented fish species not captured in provincial survey data. It should be maintained as a living dataset throughout all project phases to enable adaptive management.

RESPONSE TO SECTION 3.5 — SOCIAL, HEALTH, AND ECONOMIC CONTEXTS

OSPE notes OPG's commitment to applying Gender-Based Analysis Plus (GBA+) to engage with Rights-holding First Nations and interested Indigenous communities, and to inform inclusion strategies for plant construction and operation. OSPE supports this commitment and urges IAAC to ensure it is applied with rigor to the socioeconomic data already present in the IPD itself, which reveals conditions that should directly shape how project impacts are assessed and mitigated.

The IPD's own Section 3.5 data point to pronounced socioeconomic disparities in the project area. In the Municipality of Port Hope, Indigenous workers earned an average employment income of \$52,000 compared to \$74,500 for the total population, a gap of \$22,500. Indigenous unemployment in Northumberland County stood at 12.9%, versus 10.9% overall; in Peterborough County, the gap widened to 21.0% for Indigenous workers against 12.8% for the total population. Indigenous workers are concentrated in lower-wage occupations: sales and service, and trades and transport account for the majority of Indigenous employment in the region, with near-zero representation in senior management and natural and applied sciences. These are not background statistics. They describe the population that will live through years of construction activity, face the most precarious housing options in a tight regional market, and have the least capacity to absorb adverse health or economic impacts without support. A GBA+ application that does not start from these numbers is not doing the analytical work the tool is designed to do.

OSPE recommends that the Impact Statement be required to disaggregate all socioeconomic impact projections by gender, Indigeneity, income quintile, and housing tenure. This is particularly important for air quality and noise impacts during construction: renters, low-income households, and individuals with limited mobility are less able to relocate or take protective measures, and they are disproportionately represented in the communities adjacent to the NNW site. OSPE has applied GBA+ in its own engineering community workshops in partnership with White Ribbon, and recognizes from that experience that inclusive analysis does not happen automatically through process compliance. It requires structured data collection, disaggregated reporting, and accountability mechanisms built into the IA conditions. OSPE urges IAAC to require these mechanisms explicitly.

PART E — REAL AND POTENTIAL IMPACTS OF THE PROJECT (PRELIMINARY)

Emphasized multiple times throughout this document is that input like socioeconomic priorities and real and potential adverse impact on Rights, relatives and communities from the MS-WTFNs are preliminary. OPG has yet to present detailed plans, including designs, location of infrastructure, nuclear waste storage and transportation.

MS-WTFNs identifies additional MS-WTFN-led studies are required, including an impact assessment, for fulsome input. OSPE supports right-holding First Nations and interested Indigenous communities advocating

for involvement in all aspects of NNW, since their meaningful involvement is necessary to fully understand the project risks and ensure public safety is upheld.

Additionally, the list of studies outlined in Table 33 represents OPG's preliminary list of studies. This list does not include MS-WTFNs-led studies, which will be required. OSPE supports further study, since as was noted appropriate studies will be identified following further scoping discussions among MS-WTFNs and through community engagement.

OSPE RESPONSE TO SECTIONS 5.9–5.10 — GHG IMPACTS

OSPE supports the IPD's preliminary GHG emissions estimate as a necessary starting point, but recommends that IAAC require a more complete accounting framework in the Impact Statement. The IPD applies the Strategic Assessment of Climate Change (SACC) methodology, using lifecycle emission factors from peer-reviewed literature and avoided emissions derived from IESO's 2025 Annual Planning Outlook. OSPE endorses this approach and recommends the following refinements.

First, OSPE notes that the avoided emissions calculation in the IPD is based exclusively on displaced electricity generation. Because thermal energy recovery is excluded from the current project scope, the avoided emissions from fossil fuel-displaced heating are not credited. If cogeneration or district energy systems were incorporated into the NNW design, the lifecycle GHG benefit of the project would be substantially larger. OSPE recommends that the Impact Statement include a scenario analysis that quantifies avoided emissions under both electricity-only and combined heat-and-power configurations.

Second, the IPD acknowledges that construction-phase GHG emissions are estimated using reference lifecycle values rather than project-specific construction methodologies, which are not yet defined. OSPE supports requiring that OPG provide a project-specific construction emissions estimate once reactor technology and construction approach are selected, rather than relying solely on generic lifecycle benchmarks.

Third, OSPE observes that the IPD correctly identifies natural gas combustion turbines as the most likely alternative to new nuclear capacity at this scale. Ontario's electricity demand is forecast by IESO to grow significantly through 2050, driven by electrification, population growth, and economic expansion. At a capacity of approximately 10,000 MW, the NNW Project's avoided domestic GHG emissions are estimated to be substantial. A facility of this scale, if it displaces natural gas generation, could avoid on the order of 40 megatonnes of CO₂ equivalent per year. This positions the NNW Project as one of the largest potential single-project GHG mitigation opportunities in Ontario's energy planning horizon. OSPE recommends that IAAC require the Impact Statement to clearly present this avoided-emissions figure alongside direct and acquired emissions, consistent with Equation 1 of the SACC framework, so that the net climate value of the project is fully transparent to decision-makers and the public.

OSPE also notes a typographical error in the current draft: the phrase "greenhose gas emisisions" should read "greenhouse gas emissions."

OSPE therefore supports the NNW Project's potential to deliver significant net GHG reductions for Ontario, provided the Impact Statement presents a complete and transparent accounting that captures the full range of direct, acquired, and avoided emissions under the SACC framework.

OSPE RESPONSE TO THE SUMMARY OF ISSUES (SOI) — NEW NUCLEAR AT WESLEYVILLE PROJECT

OSPE has reviewed the Summary of Issues (SOI) prepared by the Impact Assessment Agency of Canada (IAAC) for the New Nuclear at Wesleyville (NNW) Project. The SOI consolidates public, Indigenous, and governmental input received during the January-February 2026 comment period. OSPE's responses below are intended to complement, not repeat, the section-specific technical comments earlier in this document. Where OSPE has already addressed a topic in depth (for example, thermal energy utilization, PE verification requirements, or GBA+ application), this section cross-references that commentary and builds on it rather than restating it. OSPE's responses below reflect the technical expertise of Ontario's engineering community and OSPE's ongoing commitment to evidence-based energy policy.

Biophysical Environment — Groundwater, Surface Water, and Aquatic Ecosystems

OSPE recognizes that the NNW site's proximity to Lake Ontario, Wesleyville Creek, and provincially significant wetlands creates a complex hydrological environment. The concerns raised about thermal discharges, water intake operations, fish impingement and entrainment, and potential contamination of groundwater and surface water are well-founded from an engineering standpoint. OSPE urges OPG to retain licensed Professional Engineers with demonstrated hydrogeological expertise to verify that proposed mitigation systems meet current standards and do not introduce unintended cumulative risks to downstream ecosystems.

On the matter of cooling infrastructure and warm-water discharge, capturing waste heat for district energy or industrial co-generation reduces the thermal load returned to Lake Ontario, directly mitigating one of the most frequently cited ecological concerns in the SOI. OSPE reiterates its position that the IA scope should be expanded to evaluate thermal energy utilization.

Acoustic, Atmospheric, and Visual Environment

OSPE supports the concerns raised about air quality and noise, particularly during the construction phase, which is expected to span many years and generate substantial diesel emissions, dust, and heavy vehicle traffic on local roads.

As noted in OSPE's response to Sections 3.4.1.1.2-3.4.1.1.3 above, baseline air quality monitoring must be established and capture localized exposure in communities adjacent to the site.

With respect to greenhouse gas contributions, OSPE welcomes public interest in understanding the project's GHG profile. Nuclear generation produces among the lowest lifecycle GHG emissions of any electricity source, and its contribution to Ontario's decarbonization targets is material.

However, OSPE cautions that a GHG accounting framework that considers only electricity output will understate the project's true climate value if thermal energy recovery is excluded from the scope. A complete lifecycle GHG analysis that credits avoided emissions from fossil-fuel-displaced heating should be incorporated into the impact statement.

Socio-Economic Conditions — Workforce, Housing, and Regional Development

With respect to regional economic development, OSPE sees significant potential for the NNW project to catalyze a cluster of co-located advanced manufacturing, low-carbon energy, and engineering services industries in the Northumberland region. Realizing this potential requires early and coordinated planning

between OPG, municipal governments, and economic development agencies. OSPE encourages the IA process to include an economic opportunity mapping exercise that identifies the conditions under which supply chain localization and regional industrial co-location can be maximized.

OSPE supports the use of GBA+ throughout the socio-economic assessment to ensure that these impacts are disaggregated by gender, age, income, and Indigeneity, and that mitigation strategies are tailored accordingly. OSPE also supports proponent commitments to community benefit agreements that establish local and Indigenous hiring targets, apprenticeship pathways, and enforceable community investment obligations.

Infrastructure and Services

OSPE shares the concerns raised about strain on regional transportation networks, water supply, wastewater management, and emergency services. OSPE recommends that the impact statement include a phased infrastructure capacity assessment, prepared by licensed engineers, that maps projected demand against existing service capacity and identifies specific upgrade requirements and funding mechanisms at each project phase.

Accidents, Malfunctions, and Emergency Preparedness

OSPE endorses the SOI's emphasis on emergency preparedness and the co-development of evacuation and emergency response plans with host municipalities, neighbouring communities, and First Nations. Engineers play a central role in the design of safety systems, failure mode analysis, and emergency response infrastructure. OSPE recommends that the IA require a publicly disclosed probabilistic risk assessment, prepared by qualified nuclear engineers, that covers the full range of design-basis and beyond-design-basis accident scenarios, and that emergency response planning exercises be conducted with community participation before construction begins.

Cumulative Effects and Climate Resilience

The cumulative effects concerns raised in the SOI are technically well-founded. The NNW project will operate within a regional nuclear corridor that already includes existing facilities at Darlington and Pickering, and its effects on air quality, groundwater, lake health, and community wellbeing must be assessed in that cumulative context. OSPE recommends that the cumulative effects assessment draw on a regionalized baseline integrating existing monitoring data from all nuclear facilities in the corridor, updated dynamically throughout the project lifecycle.

On climate resilience, OSPE urges OPG to demonstrate that the NNW site design accounts for projected changes in Lake Ontario water levels, increased frequency and intensity of extreme weather events, and seismic risk, as part of a formal climate risk and adaptation assessment. Given that the facility is expected to operate for 60 or more years, design assumptions grounded in historical climate norms will be increasingly inadequate.

Indigenous Rights and Consultation

OSPE strongly supports meaningful, early, and ongoing consultation with the Michi Saagiig Anishinaabeg Communities of the Williams Treaty First Nations, Saugeen Ojibway Nation, and all other First Nations and Indigenous communities whose Rights are affected by the NNW project or are interested.

The engineering profession's responsibility to protect public safety and the environment cannot be fulfilled without a full understanding of the cumulative impacts on Indigenous Peoples, and that understanding can only be achieved through early, ongoing, meaningful engagement that the submissions from MS-WTFNs are requesting.

OSPE urges OPG to support MS-WTFNs-led impact assessments as well as any further assessment and testing required for free, prior, and informed consent to be a governing principle throughout the project lifecycle. OSPE further recommends that IAAC require OPG to establish a staged information-sharing protocol with the MS-WTFNs, structured around defined project milestones. The MS-WTFNs have clearly stated that their ability to assess real and potential adverse impacts is limited by the absence of detailed project plans, including reactor design, infrastructure siting, and nuclear waste storage and transportation approaches. This is an inherent limitation of the current IPD stage, but it should not become a structural barrier to meaningful Indigenous participation. A staged protocol would require OPG to share design information with MS-WTFNs at defined intervals, for example upon reactor technology selection, upon finalization of site layout, and upon development of waste management plans, with sufficient lead time for MS-WTFNs communities to review the information, update their impact assessments, and provide input before those decisions are locked in. OSPE recommends that this protocol be established as an IA condition rather than left to a goodwill commitment, and that the MS-WTFNs have a defined role in determining what constitutes adequate disclosure at each stage.