Ontario Power Generation

New Nuclear at Wesleyville in Port Hope

Summary of the Initial Project Description

OPG

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Abbreviations and Short Forms

ANSI	Area of Natural and Scientific Interest
AOC	Area of Concern
APO	Annual Planning Outlook
CN	Canadian National Railway
CNL	Canadian National Laboratories
CNSC	Canadian Nuclear Safety Commission
CO_2	Carbon Dioxide
CP	Canadian Pacific Railway
CSA	Canadian Standards Association
DFO	Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
EPR	Evolutionary Pressurized Reactor
FNIGC	First Nations Information Governance Centre
FPIC	Free, Prior and Informed Consent
GCS	Geographic Coordinate System
GHG	Greenhouse Gas
GLWQA	Great Lakes Water Quality Agreement
GRCA	Ganaraska Region Conservation Authority
GW	Gigawatts
ha	hectares
HLW	High Level Waste
IA	Impact Assessment
IAA	Impact Assessment Act
IESO	Independent Electricity System Operator
ILW	Intermediate Level Waste
IMTLR	Information and Management of Time Limits Regulations
IPD	Initial Project Description
IS	Impact Statement
ITC	Investment Tax Credits
kV	kilovolts
kt CO_2-eq	Kilotonnes of Carbon Dioxide equivalent
L&ILW	Low and Intermediate Level Waste
LLW	Low Level Waste
LTC	Licence to Construct
LTPS	Licence to Prepare Site
LTO	Licence to Operate
MBCA	Migratory Birds Convention Act
MCM	Ministry of Citizenship and Multiculturalism
MECP	Ministry of the Environment, Conservation, and Parks
MNR	Ministry of Natural Resources
MS-WTFNs	Michi Saagiig Anishinaabeg Nations of the Williams Treaties First Nations
MTO	Ministry of Transportation
MWe	Megawatts electric
MWth	Megawatts thermal
NNW	New Nuclear at Wesleyville in Port Hope
NOAA	National Oceanic and Atmospheric Administration
NO_X	Nitrogen Oxides
NRCan	Natural Resources Canada
NSCA	Nuclear Safety and Control Act

NWMO	Nuclear Waste Management Organization
OCAP®	ownership, control, access, and possession
OPG	Ontario Power Generation
PFAS	per-and polyfluoroalkyl substances
PHAC	Public Health Agency of Canada
PHAI	Port Hope Area Initiative
PPE	Plant Parameter Envelope
PRHC	Peterborough Regional Health Centre
PSW	Provincially Significant Wetland
SACC	Strategic Assessment of Climate Change
SAR	Species at Risk
SARA	Species at Risk Act
SO_2	Sulfur Dioxide
The Agency	Impact Assessment Agency of Canada
TRF	Tritium Removal Facility
TWh	Terrawatt hours
UNDA	United Nations Declaration on the Rights of Indigenous Peoples Act
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UTM	Universal Transverse Mercator
WTFNs	Williams Treaties First Nations

Introduction by Ontario Power Generation

This document is a summary of the Initial Project Description (IPD) from the perspective of Ontario Power Generation (OPG) as the proponent. OPG has not summarized collaborative inputs provided by Rights-holding First Nations and interested Indigenous communities. This summary provides OPG's understanding of the provided inputs and next steps (shown in boxed text).

OPG strongly encourages you to read the full version of the IPD document. The complete text includes the *Michi Saagiig Anishinaabeg* Nations of the Williams Treaties First Nations (MS-WTFNs) perspectives and stories from MS-WTFNs' voices that enrich the discussion and offer a more nuanced and respectful understanding of the NNW site.

By reading the full IPD document, you will gain a broader and more informed perspective that honours the significance of MS-WTFNs' contributions.

OPG is committed to ongoing, meaningful engagement and to building respectful, mutually beneficial relationships with Rights-holding First Nations and interested Indigenous communities.

1. GENERAL INFORMATION

General Project Information

The Ontario Government has asked OPG to explore opportunities for new nuclear generation at the approximately 540 hectare (ha), OPG-owned Wesleyville site for the potential development of new nuclear power generation. The project is called New Nuclear at Wesleyville Project or NNW Project, in Port Hope.

The NNW site has been municipally zoned and maintained for electricity generation for over 50 years. The NNW site has close access to transmission, rail, and road infrastructure, and is in a region of the province experiencing significant growth. The proposed generating capacity of the NNW Project is up to approximately 10,000 megawatts electric (MWe), which is enough to power the equivalent of ten million homes. OPG has identified the potential to construct and operate nuclear generating stations on both the eastern and western portions of the NNW site. OPG acknowledges that Port Hope and the NNW site are within the shared traditional and treaty territory of the Chippewa and Michi Saagiig Anishinaabeg, collectively known as the Williams Treaties First Nations (WTFNs).

The Municipality of Port Hope, as the host community for the proposed new nuclear generating station, has expressed support for exploring the early stages of project planning and related Impact Assessment and began working in conjunction with OPG's project team in early 2025. OPG is partnering with the Municipality of Port Hope to understand the priorities of the community. As a valued and important stakeholder, the Municipality will continue to play an active role in the future design and development of the project.

Sector	Energy
Proponent	Ontario Power Generation (OPG)
Location	2655 Lakeshore Road, Port Hope, Ontario (see Figure 1)

Figure 1: OPG-owned Wesleyville site

Proponent Information	OPG is wholly owned by the Province of Ontario with a core business of producing clean, reliable, safe, and low-cost electricity through the operation of a diverse portfolio of electrical generating stations. OPG generates approximately 50% of Ontario's electricity needs, with nuclear power contributing approximately 50% of OPG's energy mix.
Corporate Contact:	Margaret Mervin, Program Owner Cammie Cheng, Nuclear Environment Projects Support Ontario Power Generation 1908 Colonel Sam Dr, Oshawa, ON, L1H 8P7 Wesleyville@opg.com
Project website	https://www.opg.com/projects-services/projects/new-generation-opportunities/wesleyville/
Toll-free Contact Number	1-800-461-0034
Rights-Holding First Nations	The following is a preliminary list of Rights-holding First Nations. For the purposes of the NNW Project, the WTFNs have established and asserted

Aboriginal and Treaty rights and authority[1] in their treaty territories. The WTFNs include:

The Mississauga communities of:

- Alderville First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation

The Chippewa communities of:

- Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama First Nation

Through the United Nations Declaration on the Rights of Indigenous Peoples Act S.C. 2021, c.14 (UNDA), the Government of Canada has affirmed the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) as a universal international human rights instrument with application in Canadian law. The federal government has stated that UNDRIP provides a framework for reconciliation, healing and peace, as well as harmonious and cooperative relations based on the principles of justice, democracy, respect for human rights, non-discrimination and good faith.[2] The UNDA sets out a statutory framework for the implementation of UNDRIP into federal law. The Supreme Court of Canada has stated that it is "through this Act of Parliament that [UNDRIP] is incorporated into the country's domestic positive law.[3]

OPG is closely monitoring the federal government's efforts, in consultation with Indigenous peoples, to implement UNDRIP and to ensure that the laws of Canada are consistent with UNDRIP. Further, over the past several years, Canadian courts have begun to consider and interpret the impact of the UNDA on the constitutional principles of consultation and the Honour of the Crown.

OPG has engaged extensively with the MS-WTFNs to understand their interpretation of how the UNDA and UNDRIP affect the decision-making processes under this IA. In particular, OPG has heard the WTFNs' perspective on the importance of the concept of Free, Prior and Informed Consent (FPIC), as a

[1] 'Authority' is used here to acknowledge the MS-WTFNs' articulation of their inherent jurisdiction, sovereignty, laws, and decision-making responsibilities within their homelands and treaty territories, including the lands and waters where the NNW Project is proposed.

[2] *Backgrounder: United Nations Declaration on the Rights of Indigenous Peoples Act.*

[3] Reference re An Act respecting First Nations, Inuit and Métis children, youth and families, 2024 SCC 5 at para 15.

mechanism to enable their meaningful participation in decisions that may impact their treaty and traditional territories. With respect to FPIC, the WTFNs have expressed the view that Articles 29(2) and 32(2) of UNDRIP introduce an Indigenous consent requirement for certain government decisions, particularly for decisions authorizing the storage of hazardous materials in the territories of Indigenous peoples.

OPG acknowledges that any decision statement issued under this IA process must meet the applicable legal and constitutional requirements, and that the government must act consistently with the Honour of the Crown – and if those requirements are not met, any shortcomings may be addressed in court. OPG intends to continue to engage collaboratively with the WTFNs to understand their perspective on those requirements, and to ensure that any decision ultimately complies with the law and Canada's constitution.

Moreover, OPG is committed to developing a collaborative relationship and process with the WTFNs that exceeds minimum legal requirements, resulting in mutually beneficial outcomes that reflect such a relationship and process. As part of that, OPG will continue to have meaningful discussions with the WTFNs and incorporate their views and perspectives into the Project. OPG's overarching goal is to advance the Project collaboratively and with the support of WTFNs, based on listening to the WTFNs' perspectives and concerns, and incorporating that feedback in a meaningful way. OPG looks forward to advancing the NNW Project as partners.

Regulatory Context

A new nuclear power project in Ontario will require licences, permits, and approvals from multiple jurisdictions, including federal, provincial, and municipal authorities.

Federal: The following is a preliminary list of federal authorities that have (or could have) powers, duties, or functions related to the assessment of real and potential environmental impacts[4]:

- Impact Assessment Agency of Canada (the Agency)
- Canadian Nuclear Safety Commission (CNSC)
- Environment and Climate Change Canada (ECCC)
- Transport Canada
- Fisheries and Oceans Canada (DFO)
- Natural Resources Canada (NRCan)

[4] Throughout this IPD summary, OPG has used the language 'real and potential impacts' based on feedback received from the MS-WTFNs. This language is intended to reflect OPG's acknowledgement that the MS-WTFNs have identified that portions of the NNW site were subject to previous uses which has caused impacts to their communities.

- Health Canada

Provincial: The following is a preliminary list of provincial authorities that have (or could have) powers, duties, or functions related to the assessment of real and potential environmental impacts:

- Ministry of Environment, Conservation and Parks (MECP)
- Ministry of Natural Resources (MNR)
- Minister of Solicitor General
- Ministry of Citizenship and Multiculturalism (MCM)
- Ministry of Transportation (MTO)

Municipal: The following is a preliminary list of municipal authorities that have (or could have) powers, duties, or functions related to the assessment of real and potential environmental impacts:

- Northumberland County
- Municipality of Port Hope

Other Local Authorities: The following is a preliminary list of other local authorities that have (or could have) powers, duties, or functions related to the assessment of real and potential environmental impacts:

- Ganaraska Region Conservation Authority (GRCA)

Regional Assessments

OPG is not aware of any ongoing or planned regional assessments, as defined under sections 92 and 93 of the IAA, which would include the NNW site.

Although not considered regional assessments, two environmental assessments under the Canadian Environmental Assessment Act (1992) for low-level radioactive waste management facilities in Port Hope and Port Granby were completed in 2007 and 2009 respectively.

Environmental studies completed within the Port Hope region approximately 10-15 km from the NNW site which may be relevant to the NNW Project are:

- Environmental Protection Review Report: Port Hope Area Initiative (PHAI) (Canadian Nuclear Safety Commission, 2022).
- Lake Ontario Canadian Nearshore Assessment, 2019 (Environment and Climate Change Canada, 2022).

The Environmental Protection Review Report for PHAI details the results of environmental monitoring and assessment related to the cleanup and long-term management of historic low-level radioactive waste (LLW) in the Port Hope areahttps://www.canada.ca/content/dam/eccc/documents/pdf/nearshore-

assessment/En164-71-3-2019-1-eng.pdf. The 2019 Lake Ontario Canadian Nearshore Assessment was conducted to evaluate environmental health and identify potential pollution sources along the north shoreline of Lake Ontario. This included regions around Port Hope.

Strategic Assessments

The Strategic Assessment of Climate Change (SACC) provides documents and guidelines to quantify the Greenhouse Gas (GHG) emissions throughout all project phases. These guidance documents include:

- Strategic Assessment of Climate Change (Environment and Climate Change Canada, 2020).
- Draft: Technical Guide Related to the Strategic Assessment of Climate Change (Environment and Climate Change Canada, 2021) Guidance on quantification of net GHG emissions, impact on carbon sinks, mitigation measures, net-zero plan and upstream GHG assessment.
- Draft Technical Guide Related to the Strategic Assessment of Climate Change: Assessing Climate Change Resilience (Environment and Climate Change Canada, 2022).

OPG is not aware of any other strategic assessment relevant to the proposed NNW Project that has been conducted under section 95 of the IAA.

2. PROJECT INFORMATION

Overview

An overview of the NNW Project's purpose, need, and schedule including all project works and activities has been provided below. The description of the design features of the NNW Project as it relates to the Physical Activities Regulations under the IAA, and alternative means of carrying out the NNW Project are also described.

Project Design Under the Physical Activities Regulations

The site preparation, construction, operation, and decommissioning of a new nuclear reactor over 200 MW thermal (MWth) on an unlicensed site for a Class IA nuclear facility is a designated project listed on the Physical Activities Regulations (under item 27 in the Schedule) under the IAA. Additionally, the construction and operation of a new facility for the storage and management of irradiated nuclear fuel or nuclear waste on an unlicensed site is also a designated project listed on the Physical Activities Regulations (under item 28 of the Schedule) under the IAA. Designated projects are required to submit an IPD to the Agency that meets the requirements of the Information and Management of Time Limit Regulation (IMTLR).

The NNW Project is considered a designated project and could require an IA. The NNW Project could generate up to a total of approximately 10,000 MWe which equates to over 30,000 MWth and is located on a site not currently licensed for an existing Class IA nuclear facility. Additionally, OPG is considering alternatives for the on-site storage of irradiated fuel, which would require additional consideration within the overall IA process.

Project Purpose and Need

Canada has committed to reaching net-zero GHG emissions by 2050. To achieve this, the government is implementing policies such as carbon pricing, phasing out coal-fired electricity, investing in renewable energy, and supporting clean technology innovation. These efforts are designed to transform Canada's economy towards sustainability while ensuring competitiveness and energy security.

The NNW Project directly supports Canada's Net Zero goal by providing reliable, non-emitting electricity to help decarbonize Ontario's grid and meet growing energy demands. Ontario, guided by the Integrated Energy Plan and working with the Independent Electricity System Operator (IESO), aims to maintain a clean, reliable, and affordable electricity grid through investments in nuclear, renewables, and emerging technologies. Ontario's Integrated Energy Plan *Energy for Generations* (2025) emphasizes the need for expanded clean electricity generation, electrification of key sectors, and innovation to meet climate targets and ensure energy security. The IESO's *Pathways to Decarbonization* study outlines scenarios for achieving a net-zero electricity grid by 2050, emphasizing the roles of nuclear power, renewables, and energy storage in meeting both provincial and national climate commitments.

The NNW Project is tied to provincial initiatives for decarbonizing Ontario's electricity system by 2050 as outlined in the provincial Independent Electricity System Operator (IESO) *Pathways to Decarbonization* (Independent Electricity System Operator, 2022) and supported by Ontario's Integrated Energy Plan. The IESO report adopted a holistic

approach to evaluate and consider multiple low-carbon technologies that could satisfy the projected growth of Ontario's future energy needs. The assessment led to the recommendation of a diverse energy mix, where nuclear power is just one component among several. The report highlights the importance of integrating various low-carbon options, including renewable sources like wind and solar, as well as energy storage solutions, to achieve a reliable and resilient grid. The evaluation of alternatives affirms that the IESO has thoroughly considered the overall energy mix to meet Ontario's decarbonization goals effectively.

Ontario's *Energy for Generations* and IESO's *Pathways to Decarbonization* report recognizes nuclear energy as a reliable and clean energy source with a high energy density and a small footprint, making it an ideal candidate to help meet Ontario's projected need for additional capacity by 2050. Given that large-scale infrastructure projects like hydroelectric and nuclear facilities, as well as transmission infrastructure, require 10 to 15 years to develop, the report advocates for the initiation of planning, siting, and environmental assessments now to ensure these options are viable by the 2030s and beyond.

Preliminary Schedule

The preliminary project timeline as expected at the time of submission of the IPD is provided in Table 1 below. These timelines are subject to change as the NNW Project advances. The NNW Project will require the acquisition of several licences including the Licence to Prepare Site (LTPS), Licence to Construct (LTC) and Licence to Operate (LTO). The specific timing for these will vary based on the expected timing to construct and operate the reactors. In connection with an IA process, the LTPS application would be included with the Impact Statement (IS) submission.

Many nuclear generating stations, including the NNW Project, are constructed of multiple units. Each unit is typically designed to be able to operate independent of adjacent units, which allows for substantial chronological overlap of NNW Project phases. One unit could be constructed and operating while a physically adjacent unit is still under construction. Similarly, each unit has an operating period of approximately 70 years, thus, based on their commissioning in-service date several of the units may be shutdown and placed into safe storage while others are still operating (i.e., first commissioned unit could become operational in 2040 and be placed in safe storage in 2110). Project phase overlap is reflected in the table below, in addition to the estimated phase durations for one individual unit. Once all reactors have been successfully shutdown, the facility will enter the decommissioning phase. OPG does not anticipate that there will be an expansion of the NNW Project.

Table 1: Preliminary NNW Project Timeline

Project Phase	Estimated Start for First Unit	Estimated Finish for Last Unit	Estimated Phase Duration for All Units (Years)	Estimated Phase Duration for One Unit (Years)
Site Preparation	2030	2037	7	3[1]
Construction	2033	2048	15	7
Operation and Maintenance	2040	2118	78	70
Decommissioning	2110	2160	50	42
Site Closure and Release from Regulatory Control	2160 and beyond		Not Applicable	

1. Site preparation for the NNW Project is site based and not unit based, and the duration refers to the estimated time to prepare the east and west sides of the property.

Alternatives to the Project

As noted, the NNW Project supports the findings of Ontario's Integrated Energy Plan, *Energy for Generations* (2025) and the findings of IESO's *Pathways to Decarbonization* (2023) report. IESO's approach also included evaluating different approaches to decarbonization including contributions from new nuclear, conservation, demand response, renewables, and emerging low carbon generating technologies.

The IESO 2025 Annual Planning Outlook (APO) cites nuclear power as an important resource to help in meeting the increasing demand while providing a reliable source of baseload supply. Nuclear power is a low-emitting source of power, therefore, contributions from new nuclear power projects will be critical in achieving decarbonization objectives.

In the case of a nuclear energy project, an assessment of energy mandates established through federal and provincial legislation or policy may not be within the scope of the IA[5] (Impact Assessment Agency of Canada, 2025). No alternatives to the project are being considered.

[5] The Ontario Government asked OPG to explore opportunities for new nuclear generation at its Wesleyville site on January 15, 2025. The potential development of the NNW Project is also acknowledged in Ontario's first Integrated Energy Plan, Energy for Generations released in June 2025.

Alternative Means of Carrying out the Project

Overview

On November 27, 2024 the Ontario Government asked OPG to begin discussions with leadership of Rights-holding First Nations and interested Indigenous communities, as well as with community and municipal leaders on its existing sites in Port Hope, Haldimand County and St. Clair Township to determine community support for all types of new energy generation, including nuclear, to meet Ontario's demand for electricity.

On January 15, 2025 the Ontario Government asked OPG to explore opportunities for new nuclear generation at its Wesleyville site (now referred to as the NNW site), following a formal expression of interest from the Municipality of Port Hope. The potential development of the NNW Project is also acknowledged in Ontario's first Integrated Energy Plan, *Energy for Generations* released in June 2025. Technically and economically feasible alternative means of carrying out the NNW Project will be evaluated through the IA process, including the assessment of best available technologies.[6] OPG is willing to work with the WTFNs to assess alternatives in a manner that considers real and potential impacts to Aboriginal and Treaty rights.

The alternative means and general approach planned for inclusion in the assessment are summarized below. At this early stage of planning, detailed analysis of the environmental effects and economic considerations of each alternative means of carrying out the project has not yet been completed. The information provided below is conceptual and OPG recognizes that analysis to characterize these important considerations will be required as the IA process progresses. During the future analysis of alternative means there will be opportunities for public participation and engagement with Rights-holding First Nations and interested Indigenous communities.

Alternative Reactor Designs

A specific reactor technology has yet to be chosen for the NNW Project and site licensing will follow a Plant Parameter Envelope (PPE) approach. The use of a PPE is consistent with the CNSC's regulatory guidance document REGDOC-1.1.1 (Site Evaluation and Site Preparation for New Reactor Facilities). Examples of reactor technologies which have been considered as part of OPG's PPE include:

- Pressurized Water Reactor - Westinghouse's AP1000 and EDF's Evolutionary Pressurized Reactor
- Pressurized Heavy Water Reactor – CANDU such as Atkins Realis' CANDU MONARK

6 OPG has initiated discussions with the MS-WTFNs with the goal of entering into a co-development agreement which would allow for real-time participation in decision-making for aspects of the NNW Project.

- Boiling Water Reactor - GE-Hitachi's BWRX-300

These are not reactor technologies which have been chosen for the NNW Project but are representative examples that the PPE would encompass. Technology selection will consider and seek to reduce, and mitigate, where possible, real and potential impacts to the rights of the WTFNs.

Planned Assessment Approach:
A conceptual design that reflects aspects of the design features of the range of technology options will be encompassed in the PPE. The design will include the most conservative (largest impact) parameters to evaluate real and potential impacts of the NNW Project.

Alternative Cooling Water Technologies

Several circulating cooling water technologies for the NNW Project are being considered including:

- once-through cooling
- natural draft cooling towers
- mechanical draft cooling towers
- mechanical draft cooling towers with plume abatement technology

Planned Assessment Approach:
Circulating cooling water alternatives that are found to be technically and economically feasible will be carried forward into the assessment as well as their real and potential impacts to the rights of the WTFNs, as well as feedback from engagement with interested Indigenous and local communities.

Alternative Site Layouts

Alternatives for placement of infrastructure or project components on the NNW site will be identified, taking into consideration and seeking to reduce, mitigate, or avoid real and potential impacts to the rights of the WTFNs. Alternative locations on the NNW site that can accommodate the various structures and equipment will be identified.

Planned Assessment Approach:
Infrastructure siting will be considered with the intent to reduce effects of the NNW Project, while balancing project cost and technological considerations. Alternatives will also consider real and potential impacts to the rights of the WTFNs, as well as feedback from engagement with interested Indigenous and local communities.

Alternative Methods for Site Preparation and Construction Approaches

Alternative means of completing specific site preparation and construction activities will be identified. This may include consideration of alternatives for construction and crossing methods for waterbodies, watercourses, wetlands and other obstacles that relate to siting. Site preparation and construction activities will consider and reduce, and mitigate, where possible, real and potential impacts

to the rights of the WTFNs, as well as feedback from engagement with interested Indigenous and local communities.

Planned Assessment Approach:
Preferred methods for site preparation and construction approaches will be assessed during the IA process.

Alternatives for the Management of Low and Intermediate Level Radioactive Waste

Short- (interim storage) and long-term (disposal) alternative management and storage options are being considered including alternative on-site and off-site options, and will consider, reduce, and mitigate, where possible, real and potential impacts to the rights of the WTFNs, as well as feedback from engagement with interested Indigenous and local communities.

Planned Assessment Approach:
Waste management alternatives that are found to be technically and economically feasible and will consider, reduce, and mitigate where possible, real and potential impacts to rights of the WTFNs, will be carried forward into the IA.

OPG is committed to ensuring waste management activities are informed and guided by *Canada's Policy for Radioactive Waste Management and Decommissioning,* (Government of Canada, 2023) and the perspectives of Rights-holding First Nations.

Alternatives for the Management of High-Level Radioactive Waste (Used Nuclear Fuel)

Alternatives being considered include interim storage and long-term management of the High-Level Waste (HLW). This includes transferring HLW into fuel-specific dry storage containers which will either be stored on-site in a new, purpose-built facility or transferred to a disposal facility operated by the Nuclear Waste Management Organization (NWMO) or another appropriately licensed facility. The assessment of these alternatives will consider, reduce, and mitigate, where possible, real and potential impacts to the rights of the WTFNs, as well as feedback from engagement with interested Indigenous and local communities.

Planned Assessment Approach:
Waste management alternatives that are found to be technically and economically feasible will be carried forward into the assessment, OPG is committed to ensuring waste management activities are informed and guided by Canada's Policy for Radioactive Waste Management and Decommissioning, (Government of Canada, 2023) and the perspectives of Rights-holding First Nations.

Alternatives for Excavated Material Management

Alternative use of the excavated materials includes management of the excavated material on the NNW site (such as utilization of excavated material for lake infilling, on-site berms, or on-site spoil retention piles); disposal of the excavated material off-site at a non-OPG facility; or a combination of these approaches. Approaches to the management of excavated material will consider, reduce, and

mitigate, where possible, real and potential impacts to the rights of the WTFNs, as well as feedback from engagement with interested Indigenous and local communities.

Planned Assessment Approach:
Alternative excavated material management options that are found to be technically and economically feasible will be carried forward into the IA in collaboration with Rights-holding First Nations and interested Indigenous communities.

Alternatives for Decommissioning

Decommissioning alternatives being considered include prompt and deferred, which are outlined in CSA N294 and REGDOC 2.11.2, Decommissioning.

Planned Assessment Approach:
Decommissioning alternatives that are found to be technically and economically feasible will be carried forward into the assessment, and will consider, reduce, and mitigate, where possible, real and potential impacts to the rights of the WTFNs.

Decommissioning plans will be reviewed as part of the LTPS application and will consider, reduce, and mitigate, where possible, real and potential impacts to the rights of the WTFNs. Restoration of the site will be determined in collaboration with Rights-holding First Nations and interested Indigenous communities, as well as feedback from engagement with local communities. OPG is committed to ensuring decommissioning activities are informed and guided by *Canada's Policy for Radioactive Waste Management and Decommissioning*, (Government of Canada, 2023).

Activities, Infrastructure, and Physical Works

Overview

The NNW Project will include the site preparation and construction of several nuclear reactor units, totalling up to approximately 10,000 MWe. Each unit will include project infrastructure, including a reactor building (powerhouse) generating thermal energy, connected with a turbine to make electrical power, shared to the Ontario electrical grid through the transmission system. A circulating cooling water option will be used, separate from the radioactivity generating components, to remove heat.

The NNW Project may include other infrastructure such as waste management buildings, administration and training buildings, security and other supporting utilities including water treatment. As the type, number of reactors and the circulating cooling technology have not been

established, a range of options based on the PPE are being considered. Project activities may be refined as the NNW Project progresses.

Site Preparation Phase

During the site preparation phase of the NNW Project, there are no nuclear substances expected to be in use. The activities, infrastructure, permanent or temporary structures, and physical works expected to be undertaken during the site preparation phase may include:

- management of site preparation workforce, payroll, and purchasing
- mobilization of site preparation workforce and equipment to site including supply of equipment, materials, and plant components
- use of site preparation workforce and heavy equipment for site preparation
- clearing and grubbing of vegetation
- grading, contouring, and excavation of the site comprising of earth and rock-handling activities including earthmoving and grading activities, bedrock excavation (including for nuclear structure foundations), blasting, dewatering, cutting, filling, and transportation of surplus earthen materials to an off-site non-OPG disposal facility and/or on-site retention creating berms and stockpiles
- development of marine and shoreline in-water works including potential lake infilling, shoreline protection and stabilization, construction of docks/wharfs, and lake-bottom dredging
- transportation of large components or bulk material via barge, train, and/or truck
- development of appropriate handling and disposal/retention strategies for excavated materials, including dust and noise management plans, erosion and sediment control, stormwater management, and on-site soil handling practices
- management of stormwater
- management of non-radioactive waste; including construction waste, non-radioactive hazardous materials, fuels, and lubricants
- installation of temporary and/or permanent services and utilities; including electrical services, potable water, sanitary sewage collection infrastructure, telephone service, and public address system
- sanitary sewage collection via either sewage treatment on-site or connection by municipal services
- development of water treatment plant
- drilling and installation of support pilings or shoring to maintain excavations and/or roads (excludes any pilings that would support nuclear structures)
- development of temporary and/or permanent site access infrastructure including railway access, highway and road access,

and/or in-water docks/wharfs to support transportation of major components
- construction of new fuel storage area
- installation of temporary and permanent fencing
- development of construction laydown areas
- development of dedicated on-site concrete batch plant
- development of interfacing switchyard from generating station to Hydro One Networks Inc. (the electrical grid)
- development of administration and physical support facilities including parking areas, security guardhouses, site perimeter fencing, storage and perimeter security buildings, offices, workshops, and maintenance and utilities operating centres
- construction of circulating cooling system infrastructure (dependent on choice of cooling technology) including cooling towers or once through cooling system with all associated submerged intake and discharge structures)

Construction Phase

The activities, infrastructure, permanent and temporary structures, and physical works expected to be undertaken during the construction phase include:

- management of construction workforce, payroll, and purchasing
- mobilization of construction workforce and equipment to site including supply of construction equipment, materials, and plant components
- use of construction workforce and heavy equipment for construction
- management and training of operational labour force to support commissioning
- management of stormwater
- management of non-radioactive waste; including construction waste, non-radioactive hazardous materials, fuels, and lubricants
- sanitary sewage collection via either sewage treatment on-site or connection by municipal services
- construction of power block including:
    - reactor buildings including the reactor vessel, fuel handling systems, primary and secondary heat transport components and systems, moderator (not applicable to all PPE reactors), reactivity control mechanisms, shut down systems and containment
    - turbine generator powerhouse including the turbines, generators, and related systems and structures
- installation of auxiliary plant operating components including pumps, turbines, and electrical power systems

- commissioning testing of systems and components; including both nuclear and non-nuclear components (prior to fuelling)
- construction of buildings and facilities for interim storage of used fuel
- construction of buildings and facilities for the management of Low and Intermediate Level Waste (L&ILW)
- construction of a Tritium Removal Facility (TRF) (not applicable to all PPE reactors)
- continuation of any activities, infrastructure, and physical works described in the site preparation phase

Operations and Maintenance Phase

The activities, infrastructure, permanent and temporary structures, and physical works expected to be undertaken during the operation and maintenance phase include:

Power Generation Operations

- management of operational labour force
- commissioning testing of systems and components including both nuclear and non-nuclear components
- on-site management of new fuel including fuel receiving, inspection, storing, staging, safeguards etc.
- operation of the reactor core
- operation of the heat transport systems
- operation of the moderator system (not applicable to all PPE reactors)
- operation of the active and inactive ventilation
- operation of the safety and related systems
- operation of the fuel handling systems and Irradiated Fuel Bays (IFB)
- operation of the turbine generators
- operation of the radioactive and inactive liquid waste management systems
- operation of TRF (not applicable to all PPE reactors)
- management of operational LLW and ILW
- potential transportation of operational LLW and ILW to a licensed off-site facility
- management of irradiated fuel in IFBs / Dry Storage Containers
- management of conventional waste
- operation of site services and utilities including domestic water, sewage system, stormwater management, compressed air systems, heating and ventilation, on-site transportation, chemical usage and storage, and other auxiliary systems
- operation of the on-site water systems including condenser cooling water, service water, and cooling systems

- operation of the on-site electrical power systems
- operation and maintenance of emergency and standby power generation
- maintenance of components and systems; including upgrades and modifications to manage the facility as it continues to operate
- refurbishment and major maintenance of facility systems, structures, and components to support the operational lifetime of the facility

Safe Storage Operations

- transition from operations to a permanent shutdown state
- transition from a permanent shutdown state to a stable state for decommissioning, including defueling the reactor, draining and storing cooling water from the reactor main systems, draining water from secondary and auxiliary cooling systems, cleaning and decontaminating, and modifying the operating conditions/programs to align with the state of the facility
- maintenance of cooling systems for the irradiated fuel bays
- performance of routine inspections and carrying out of preventative and corrective maintenance and surveillance activities
- carrying out of radiological survey programs
- carrying out of environmental surveillance programs
- carrying out of waste management activities, including the handling, storage, transportation, and disposal of radioactive and non-radioactive waste
- transfer of spent fuel to dry storage and eventual transfer to a long-term management facility
- preparation of site for dismantling and demolition, including the development of dismantling plans, decontamination as needed, and the acquisition of dismantling resources such as personnel, equipment, etc. (in the case of prompt decommissioning only)
- decontamination and dismantling of structures, systems, and components in accordance with the decommissioning plan, ensuring that all materials are safely managed (in the case of prompt decommissioning only)

Decommissioning Phase

The activities, infrastructure, permanent or temporary structures and physical works expected to be undertaken during the decommissioning phase are listed below:

- maintenance of cooling for the irradiated fuel bays until all spent fuel is transferred to dry storage
- performing of routine inspections, carrying out of preventative and corrective maintenance, and surveillance activities

- carrying out of radiological survey programs
- carrying out of environmental surveillance programs
- carrying out of waste management activities, including the handling, storage, transportation, and disposal of radioactive and non-radioactive waste
- preparation of site for dismantling and demolition, including the development of dismantling plans, decontamination as needed, and the acquisition of dismantling resources such as personnel, heavy equipment, etc.
- decontamination and dismantling of structures, systems, and components in accordance with the decommissioning plan, ensuring that all materials are safely managed
- temporary structures and systems may be erected to carry out the decontamination, dismantling, and demolition activities required to decommission the facility

Site Closure and Release from Regulatory Control

The activities expected to be undertaken to release the NNW Project from regulatory control are listed below:

- performance of extensive radiological surveys to assess contamination levels and ensure that radiation exposure is within acceptable limits
- conduct a final status survey to confirm that the site meets the criteria for release from regulatory control, including radiological and non-radiological criteria
- submit application to the CNSC to release the site from regulatory control
- obtain final approval from the CNSC for the release of the facility from regulatory control, based on the successful completion of all decommissioning activities and compliance with safety and environmental standards

3. LOCATION INFORMATION

Overview

The NNW site is situated on approximately 540 ha of land that has been municipally zoned and maintained for electricity generation for more than 50 years. The NNW site has close access to transmission, rail and road infrastructure, and is in a region of the province experiencing significant growth.

The NNW site including the proximity to affected communities, real and potentially impacted Rights-holding First Nations and interested Indigenous and communities, and lands used for traditional purposes by Indigenous peoples of Canada, and federal lands is provided below. Additionally, a description of the physical and biological environments and the health, social, cultural, and economic contexts of the area have been included drawing on publicly available sources.

In working collaboratively with the MS-WTFNs, OPG has been informed that the following sections are presented through a Western Scientific lens, using evidence and forming conclusions based on western science methods and ways of knowing. It is OPG's desire to work with Rights-holding First Nations and interested Indigenous communities to incorporate Indigenous Knowledge and governance to guide the NNW Project and the IA process.

Proposed Project Location

Geographic Coordinates:

- UTM: 708317.0862, 4866813.511
- GCS: 43.924973, -78.404994

The NNW Project is situated within the homelands[7] and treaty territories of the WTFNs. The lands are covered by pre-Confederation Gunshot Treaties, the Williams Treaties of 1923 and the Williams Treaties First Nations Settlement Agreement of 2018, signed with four Michi Saagiig Anishaabeg Nations (Alderville, Curve Lake, Hiawatha and Scugog Island First Nations), and three Chippewa Nations (Beausoleil, Georgina Island and Rama First Nations) which are collectively known as the WTFNs. The property boundary consists of an irregularly shaped parcel of land displayed in Figure 2, which including a water lot in Lake Ontario.

The NNW site has an area of approximately 540 ha and is located immediately south of the Canadian National (CN) and Canadian Pacific (CP) railway tracks, and immediately west of Wesleyville Road, in the Municipality of Port Hope. OPG site ownership also includes property north of Lakeshore Road and approximately 8 hectares of a water lot

[7] Homelands – OPG recognizes the land being proposed for the NNW Project as the MS-WTFNs' homelands and treaty territory of the Michi Saagiig and Chippewa Williams Treaties First Nations. OPG has used the term "Homelands" throughout the text to reflect the understood unique relationship with the lands on the NNW Project being proposed.

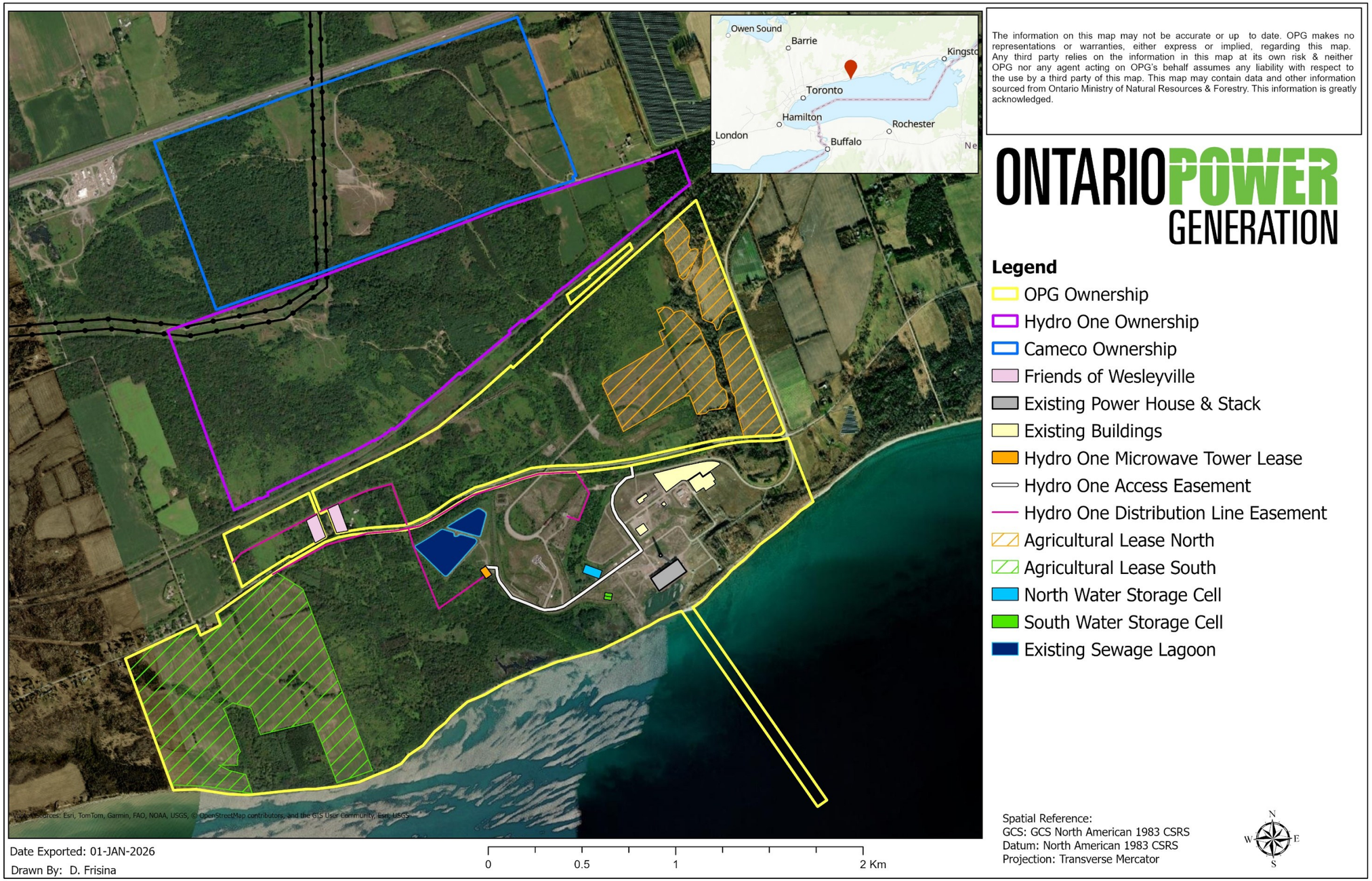
in Lake Ontario. The on-land part of the site is located in a rural area with primarily agricultural and some rural residential uses. The east and west portions of the NNW site are shown in Figure 2. The eastern portion of the site was originally intended to be developed in the 1970s for an oil powered thermal generating station. Construction activities (including clearing of the site, grading, and construction of numerous structures) before the project was halted. Some structures remain including a partially constructed powerhouse and chimney stack and much of the cleared area has been maintained clear to present (see Figure 2). The western portion has historically been licensed for agricultural uses. A wetland lies between the east and west portions.

The southeast portion of the site is currently leveraged for a number of activities, including fire and rescue training, steel fabrication, and material/equipment storage.

The northwest portion of the site includes an abandoned house/barn (2128 Lakeshore Road) and a historically significant schoolhouse (2028 Lakeshore Road). Agricultural fields in the northeast and southwest portions of the site are currently leased to individual farmers. The remainder of the site is comprised of undeveloped wooded areas, a creek with an inlet in the south-central portion of the site, as well as a marsh roughly in the center of the site.

Site Map

Figure 2, presents the site map. Indicated on the map are the ownership boundaries and existing infrastructure in the area. As the conceptual site layout is under development, the spatial relationship of the NNW Project components is still being determined as many project components are dependent on reactor technology, and additional investigations and information regarding cultural landscapes and areas of cultural and spiritual significance to the MS-WTFNs.



The information on this map may not be accurate or up to date. OPG makes no representations or warranties, either express or implied, regarding this map. Any third party relies on the information in this map at its own risk & neither OPG nor any agent acting on OPG's behalf assumes any liability with respect to the use by a third party of this map. This map may contain data and other information sourced from Ontario Ministry of Natural Resources & Forestry. This information is greatly acknowledged.

ONTARIO POWER GENERATION

Legend

- OPG Ownership
- Hydro One Ownership
- Cameco Ownership
- Friends of Wesleyville
- Existing Power House & Stack
- Existing Buildings
- Hydro One Microwave Tower Lease
- Hydro One Access Easement
- Hydro One Distribution Line Easement
- Agricultural Lease North
- Agricultural Lease South
- North Water Storage Cell
- South Water Storage Cell
- Existing Sewage Lagoon

Spatial Reference:
GCS: GCS North American 1983 CSRS
Datum: North American 1983 CSRS
Projection: Transverse Mercator

N
W
E
S

Figure 2: NNW Site Boundaries and Existing Infrastructure

Legal Description of the Land

The property is located at 2655 Lakeshore Road, Port Hope, Ontario, L1A 3V7, identified by land parcels shown in Figure 2. OPG is the fee simple owner (lands and buildings), holding the real property title documents. Access is via Wesleyville Road, and utilities are managed on site. It encompasses approximately 540 ha including a water lot in Lake Ontario. Adjacent properties include residential areas (zoned agricultural) that are located to the east and west of the property. The property north of the railway is owned by Hydro One and north of that property is under Cameco Ownership.

Project Proximities

The following section summarizes currently available information related to NNW Project proximity to real and potentially impacted Rights-holding First Nations and interested Indigenous communities including land used for traditional purposes reserve lands, and federal lands.

Potentially Affected Communities (Including Real and Potentially Impacted Rights-Holding First Nations and interested Indigenous communities)

The NNW site is located near several municipalities, permanent and seasonal residences, and Rights-holding First Nations and interested Indigenous communities. To the east, Port Hope is the host municipality and lies approximately 6 kms from the site, with a population of 17,291. Other nearby municipalities in Northumberland County include Cobourg, 17 kms away with 20,519 residents, and Hamilton Township, 23 kms away with 11,059 residents. To the west, Clarington is 19 kms away with a population of 101,427, and Oshawa is 43 kms away with 174,010 residents, which reside within the boundaries of the Regional Municipality of Durham. North of the site, Peterborough is 51 kms away with 81,600 residents, and Lindsay is 54 kms away with 22,367 residents. Adjacent to the site, within the Municipality of Port Hope, there are residences within 1 km west of the site along Lakeshore Road, as well as homes in Port Granby, 5 kms west, and Port Britain, 4 kms east. The closest residences to the east are near the intersection of Wesleyville Road or Challice Line and Lakeshore Road. Wesleyville Village, a heritage village under restoration, is located north of the site along Lakeshore Road.

The NNW site is also in proximity to several Rights-holding First Nations and interested Indigenous communities. Curve Lake First Nation is located approximately 60 kms north. Closer to the site, Hiawatha First Nation is 30 kms northeast, Alderville First Nation is approximately 35 kms northeast. The Mississaugas of Scugog Island First Nation is 45 kms northwest, and the Chippewas of Georgina Island First Nation lands are located approximately 80kms northwest. The Chippewas of Rama First Nation is 110 kms northwest, and the Beausoleil First Nation lands are 170 kms northwest. The Wendat Nation is located 640 kms northeast. The Mohawks of the Bay of Quinte are about 100 kms east, while the Six Nations of the Grand River and the Mississaugas of the Credit First Nation are located 160 and 170 kms southwest, respectively.

Federal Lands

The NNW site is not located on nor adjacent to Federal lands. Federal facilities near the NNW site include the Pickering Lands, located approximately 55 kilometres to the northwest. This land, originally acquired by the Government of Canada for a potential airport, was officially announced in January 2025 as no longer intended for that purpose. Canadian Forces Base Trenton is situated about 71 kms to the east, while the Trent Severn Waterway at Sturgeon Lake lies roughly 60 kilometres to the northwest. In addition to these federal lands, there are federal activities occurring both on and near the NNW site. On-site, this includes police training activities conducted by the Royal Canadian Mounted Police and creek barrier or dam infrastructure managed by Fisheries and Oceans Canada. Within a 2km radius of the site, there are also properties and buildings associated with the Port Hope Project site under the responsibility of Atomic Energy of Canada Limited, such as the Port Granby Waste Management Facility. OPG will monitor for changes in Federal land ownership of Federal lands as the NNW Project proceeds through the IA process.

Federal Financial Support

OPG has considered federal financial support through the following avenues:

- Investment Tax Credits (ITC)
- Green Bond Framework

Government of Canada incentives in the form of ITCs are available to help reduce the capital cost of clean energy technologies, including nuclear projects. The current clean economy ITC initiative is scheduled to end in 2034 before new large nuclear projects are expected to come into service. Given the timetable for new large nuclear developments, these ITCs may have little impact or may not apply to the NNW Project.

Canada's Department of Finance has updated the federal Green Bond Framework to include nuclear technologies as eligible green expenditures (Government of Canada, 2023). OPG may explore potential for future federal funding, but this is not confirmed at this time.

Biophysical Environment

Overview

In working collaboratively with the MS-WTFNs, OPG has been informed that the following sections are presented through a Western Scientific lens, using evidence and forming conclusions based on western science methods and ways of knowing. It is OPG's desire to work with Rights-holding First Nations and interested Indigenous communities to incorporate Indigenous Knowledge to guide the project and the IA process.

OPG understands that the MS-WTFNs, as Michi Saagiig Anishinaabeg hold deep and ongoing cultural and spiritual historical connections to the Lands and Waters around the NNW site, which support the Michi Saagiig Anishinaabeg way of life, Rights, and relationships with all living beings. These connections have been impacted through colonization, Treaties, and restricted access.

Continued engagement, inclusion of perspectives, and research with Rights-holding First Nations and interested Indigenous communities will help to properly understand, protect and restore these connections ensuring Aboriginal and Treaty rights and responsibilities are upheld for future generations.

Atmospheric Environment

OPG understands from the MS-WTFNs, as Michi Saagiig Anishinaabeg, the atmosphere includes both physical and spiritual elements, with clean air holding deep significance for life, ceremonies, and the well-being of all living beings.

OPG acknowledges that the MS-WTFNs carry responsibilities to protect elements of the atmosphere.

Climate

Climate conditions at the NNW site are expected to be similar to the nearby shoreline communities of Port Granby to the west and Port Hope and Cobourg to the east. The coldest month of the year is January and July the warmest. Daily average temperatures range from a low of -5.6°C in January to a high of 19.9°C in July. The mean annual precipitation for Cobourg was 890.4 mm with wettest month being October and the driest being February (1981-2010).

Air Quality

Current local air quality at the NNW site and surrounding area is expected to be influenced by traffic on local roads (Lakeshore and Wesleyville Road) and nearby highways (Highway 401 and Highway 2), and agricultural and recreational activities. There may also be some emissions generated by local industry and waste management facilities.

Noise

The existing noise environment is expected to be influenced by traffic on local roads (Lakeshore and Wesleyville Road) and nearby Highway 401 and Highway 2, periodic train traffic on CN and CP railway tracks, agricultural and recreational activities, and natural sounds from wind and lake waves.

Light

Existing ambient nighttime light is expected to be primarily from natural sources (moon) and lighting along local roads (Lakeshore and Wesleyville Road), existing NNW site tenants and from residences surrounding the NNW site.

Geological and Groundwater

OPG understands that from the MS-WTFNs perspective, as Michi Saagiig Anishinaabeg, view geology as having both physical and spiritual elements with stones and minerals essential for daily life and ceremony. Impacts to the geological environment are considered impacts to Mother Earth.

OPG acknowledges that the MS-WTFNs carry responsibilities to protect Mother Earth.

Overburden and bedrock

The make up of the overburden (materials lying above the bedrock) in the region reflects a complex history of glacial activity in the form of deposition by meltwaters of retreating glaciers. The overburden is a mixture of sand, silt, and clay and is deep throughout the region, ranging from 60 to 100 m deep. The bedrock is sedimentary rock comprised of limestone formed through the last periods of glaciation in the region. The bedrock is part of the eastern flank of the Michigan Basin which dips to the southwest.

No indications of significant structural weakness in the Paleozoic bedrock on the site have been identified during previous investigations. Occasional clay or silt-filled seams have been noted in the bedrock and in the upper 3 metres of bedrock, observations of open, weathered fractures parallel to the bedding have been made.

The NNW site is located on the Iroquois Plain, which borders Lake Ontario and represents the area inundated by the water of former glacial Lake Iroquois. The overburden at the NNW site is extensive and ranges in thickness from about 10 to 35 m. It consists mainly of very dense unsorted glacial sediment overlain by silt, clay, and sand of variable thickness and density from the former glacial Lake Iroquois. Soils with high sand and gravel content have been found to occur close to bedrock at various locations across the NNW site. A sand and gravel beach occurs along the shoreline.

The bedrock underlying the NNW site area consists of flat-lying limestone containing fossils or organic remains. The bedrock can be described as dense with the exception of the upper 0.5 to 3.0 m which is weathered. Bedrock is not exposed anywhere on the NNW site including along the shoreline to Lake Ontario. The bedrock surface slopes down gently to the south at a regional dip of 2 to 6 m per kilometre.

Groundwater flow and quantity

Groundwater on the NNW site is located in three main aquifers, the upper sand, middle sand, and bedrock aquifer. The NNW site is located in the West Lake watershed, including Wesleyville Creek and Wesleyville Marsh Creek. Generally, the

groundwater on the NNW site is controlled by the presence of Lake Ontario and flows from north to south towards Lake Ontario at a gradient of about 3%; the groundwater table generally follows the topography and slopes towards the lake. Groundwater levels are generally 0.3 to 4.6 m below the ground surface and in some cases 9.1 m below ground surface. Flowing or artesian wells have been reported on the west side of the NNW site. Groundwater pumping tests conducted on the east side of the NNW site suggest the potential presence of artesian conditions in some areas also.

There are areas designated as Significant Groundwater Recharge Areas (SGRA) and Highly Vulnerable Aquifers (HVA) which overlap areas within the central northern portions of the NNW site, as mapped by the MECP Source Water Protection Information Atlas. The HVA and SGRA designations are determined by Source Protection Authorities on a landscape scale in order to inform the development of protective measures for a region's source water resources in accordance with the Ontario Clean Water Act, 2006. These designations indicate the groundwater source in these areas of the NNW site have a higher sensitivity to contamination from surface pollutants compared to other areas. These areas and associated risks will be considered when assessing the potential effects of the NNW Project.

Soil and groundwater quality

Specific soil types at the NNW site include the Darlington Loam and the Granby Sandy Loam. The Darlington Loam occupies the largest area, while the Granby Sandy Loam surrounds the marsh soils near the shore of Lake Ontario. Studies were conducted in 2021 to evaluate potential for soil and groundwater contamination on the east/developed portion of the site and to identify Areas of Potential Environmental Concern related to current and historical uses (e.g., railway spurs, former orchards, former landfill, a former underground storage tank, historic repair shop, soil disturbances noted, wastewater treatment systems). Twenty-four boreholes (19 completed as monitoring wells) were installed in spring of 2021 to collect soil and groundwater samples and analyze them for Contaminants of Potential Concern including metals, Polycyclic Aromatic Hydrocarbons, Petroleum Hydrocarbons, Volatile Organic Compounds, Organo-Chlorine Pesticides, and Per-And Polyfluoroalkyl Substances (PFAS). When compared to applicable standards (i.e., Tables 3 and 8 of the soil, ground water and sediment standards for use under Part XV.1 of Ontario's Environmental Protection Act) there were no exceedances of the standards – with the exception of salt related parameters in soil and groundwater near the salt storage shed (as would be expected). The study identified detectable PFAS concentrations in soil and groundwater at a subset of the sampling locations on the east side of the site; most detected concentrations were below applicable guidelines; at two locations elevated Perfluorooctanesulfonic Acid was observed. Further data collection and characterization of soil and groundwater quality including for PFAS parameters informed by these studies will be assessed as part of future data collection activities. The western and northern portions of the NNW site are currently undeveloped and have primarily been used for agricultural purposes, so soil and groundwater quality issues are not expected in these areas;

however, this will also be assessed and confirmed during future data collection activities.

There are no potable water sources at the NNW site. There are groundwater wells upstream of the NNW site at adjacent residences that may be used for drinking water supply.

Surface Water Environment

OPG's understands that from the MS-WTFNs perspective, as Michi Saagiig Anishinaabeg, all watercourses and waterbodies flowing into Lake Ontario are central to spiritual, cultural, and food sovereignty and rights-based practices, with many important sites located along these waters.

OPG acknowledges that MS-WTFNs carry responsibilities to protect waters.

Watersheds and Watercourses

The NNW site, located in the West Lake watershed, includes two sub-watersheds (Wesleyville Creek and Wesleyville Marsh Creek) and is characterized by six watercourses and/or tributaries. Water flows from these creeks and tributaries into Lake Ontario throughout the year with peak flows occurring during the spring snow melt. The GRCA regulated area overlaps the eastern portion of the site, primarily on north of Lakeshore Road, extending slightly south of the road.

The GRCA, through the Wesleyville Fisheries Assessment program, has collected information related to stream temperature and discharge at monitoring sites located within the Wesleyville Creek watershed over the last decade (Ganaraska Region Conservation Authority, 2025). This information indicates that the Wesleyville Creek is a cold-water stream and supports both Brook Trout and Rainbow Trout populations, as well as other species.

Lake Ontario

Inflow of water into Lake Ontario is primarily from Lake Erie via the Niagara River and the Welland Canal. Additional sources of water into Lake Ontario include rivers and streams located along the perimeter of the lake, and direct precipitation. Outflow sources include discharge to the St. Lawrence and evaporative losses.

The hydraulic characteristics specific to the NNW site and immediate surroundings are influenced by the characteristics of Lake Ontario as a whole. Water levels are generally affected by seasonal imbalances between inputs and losses - with peak water levels tending to occur in June and low water levels tending to occur in December (United States Army Corps of Engineers, 2025). Regulation of Lake Ontario's water levels via the Moses-Saunders Dam on the St. Lawrence River near Cornwall, Ontario and Massena, New York since the 1960s minimised the natural range of water levels in the lake until 2016. In an effort to improve the environmental performance of coastal wetlands in Lake Ontario and the upper St. Lawrence, Lake Ontario's water levels which were expected to be managed between 73.56 m and 75.73 m following historical analysis for the Lake Ontario St. Lawrence

River Plan of 2014 (International Lake Ontario-St. Lawrence River Board, 2025). According to National Oceanic and Atmospheric Administration (NOAA) (2025), there has been a significant downward trend in Lake Ontario water levels over from record highs over the past five years.

The recent (1995-2024) lake-wide water surface temperature of Lake Ontario has ranged from a low of approximately 2°C in February to a high of approximately 22.5°C in August (National Oceanographic and Atmospheric Administration, 2025a). Based on historical reporting, the maximum daily mean and hourly lake surface water temperatures at the NNW site have reached 25.5°C and 27.0°C, respectively. NOAA (National Oceanographic and Atmospheric Administration , 2025b) notes that there has been a notable increasing trend in lake surface temperatures over the past five years, presumably reflecting increases in summer air temperatures over the same period.

The lake bottom at the NNW site consists of generally rugged lake bottom in nearshore areas, associated with fields of large boulders and coarse sediments, as well as occasional outcrops of sediment from glacial meltwater. Lake depth away from the shore progresses uniformly from approximately 10 m to 15 m at 1 km from shore; 25 m to 30 m at 3 km from shore; and 60 m to 70 m at 10 km from the shore.

Lake water movement at the NNW site is predominately along the shore with average speeds ranging from 10 to 12 cm/s (Ontario Hydro, 1990). Sediment transport at the NNW site includes a net eastward drift of littoral/bedload materials. Although lake currents are typically responsible for movements of finer suspended materials, the transport of coarser littoral materials is primarily determined by wave action (which is influenced by the prevailing winds).

Terrestrial Environment

OPG understands that all creatures are valued as Relatives by the MS-WTFNs, as Michi Saagiig Anishinaabeg, with some animal Relatives representing core spiritual and cultural teachings and providing food sovereignty and rights-based practices, materials, medicines, and playing a vital role in their spiritual, cultural, and economic life. OPG acknowledges that the MS-WTFNs carry responsibilities to protect their Relatives.

OPG remains committed to working with Rights-holding First Nations and interested Indigenous communities to better understand and incorporate Indigenous Knowledge and values into the analysis and assessment of the Terrestrial Environment throughout the project lifecycle and as part of the IA process.

Vegetation and Communities

OPG understands that trees and plants are valued as Relatives by the MS-WTFNs, as Michi Saagiig Anishinaabeg, providing food, materials, medicines, and playing a vital role in their spiritual, cultural, and economic life. OPG acknowledges that the MS-WTFNs carry responsibilities to protect their Relatives.

The NNW site is located on the north shore of Lake Ontario in the Oshawa Coburg Ecodistrict 6E-13, characterized as a landscape that is currently dominated by pasture, cropland, or other anthropogenic uses with a mixture of natural or naturalized land cover (Wester, Henson, Crins, Uhlig, & Gray, 2018). The landscape composition consists of a mix of anthropogenic land cover on the east side and a mosaic of croplands, plantations, meadows, thickets, wetlands, and woodlands on the west side. Large portions of the NNW site have been subject to various disturbances and varied origins. For example, the western woodlot and parts of the central natural area comprise cultural plantation in various stages of succession, while the southeastern woodlot includes mature trees and has been suggested as potentially representing a remnant old growth feature.

Consistent with other portions of the Ecodistrict that are located along the Lake Ontario shoreline, the NNW site contains near vertical shoreline bluffs interspersed with coastal wetland communities. The shoreline bluff can contain uncommon vegetation communities and rare plant species, such as Grass-of-Parnassus and Fringed Gentians, both of which are present along the bluff at the NNW site.

A portion of the bluff on the western side of the NNW site is designated as a Regional Life Science Area of Natural and Scientific Interest (ANSI). Coastal wetland communities occur within the central marsh including Crysler Point Provincially Significant Wetland (PSW) as well as other unevaluated wetlands. A portion of the central marsh is also designated as a Regional Life Science ANSI.

OPG understands from the MS-WTFNs perspective, as Michi Saagiig Anishinaabeg, that coastal wetlands were potential sites for wild rice, a staple vital to the Michi Saagiig Anishinaabeg diet and food sovereignty.

Bird Communities

The NNW site can support a wide range of seasonal habitat for breeding and migratory birds and raptors (predatory birds).

> OPG understands that all birds are valued as Relatives by the MS-WTFNs, as Michi Saagiig Anishinaabeg, with some bird Relatives representing core spiritual and cultural teachings and providing food, materials, medicines, and playing a vital role in their spiritual, cultural, and economic life. OPG acknowledges that the MS-WTFNs carry responsibilities to protect their Relatives.

Breeding bird surveys have identified over 100 species of birds that are either confirmed, probable or possibly breeding within the NNW site or surrounding area (Wesleyville Joint Working Group, 2023). Within woodland communities, Red-Eyed Vireo, Ovenbird, Eastern Wood-Pewee, Great Crested Flycatcher, and Wood Thrush were the most commonly encountered breeding species. The commonly documented shrubland species were Song Sparrow, House Wren, Yellow Warbler, American Goldfinch and Cedar Waxwing. Species At Risk (SAR) grassland species such as Eastern Meadowlark, Bobolink and Grasshopper Sparrow have also been documented. Wetland species include the threatened Least Bittern as well as typical marsh species like Virginia Rail.

Winter bird counts have documented several raptor species within the NNW site and surrounding area including Bald Eagle, Northern Harrier, Osprey, Sharp-Shinned hawk, Cooper's Hawk, Red-Tailed Hawk, and a Barred Owl (Wesleyville Joint Working Group, 2020). Use by owls in the winter would be anticipated based on habitat.

As the NNW site is located on the Lake Ontario shoreline, it represents a location that would provide habitat for migrant birds that cross the lake in the spring (making first landfall) and again in the fall.

Mammals

> OPG understands that all mammals are valued as Relatives by the MS-WTFNs, as Michi Saagiig Anishinaabeg, with some mammal Relatives representing core spiritual and cultural teachings and providing food, materials, medicines, and playing a vital role in their spiritual, cultural, and economic life. OPG acknowledges that the MS-WTFNs carry responsibilities to protect their Relatives.

Over ten species of mammals have been recorded in the NNW site or surrounding area including White-Tailed Deer, Coyote, Red fox, Common Raccoon, American Beaver, American Mink, and Grey Squirrel. Other common mammal species that could be expected include Striped Skunk and Groundhog. The woodland, thickets, and wetland within the NNW site have the potential to provide a range of habitats for all eight of the bat species that occur in the province including foraging habitat, maternity and day roost habitat as well as potential stopover habitat for migratory species.

Species at Risk (Terrestrial)

There is the potential for multiple SAR to occur within the NNW site. Multiple species designated as SAR or conservation concern have been recorded in the background information for the site including Butternut, Eastern Meadowlark, Least Bittern, Wood Thrush, Monarch, as well as Common Snapping Turtle and Midland Painted Turtle. Detailed field studies will be needed to determine the occurrence and habitat use by SAR.

> OPG understands that the MS-WTFNs hold all Relatives as equally important, and worthy of protection from undue harm, regardless of the presence of any designation under Canadian law.

Insects

There is the potential for a diverse insect community due to the variety of habitats on the NNW site. More than 50 species of insects have been documented for the NNW site or surrounding area including variety of butterflies, moths, dragonfly and damselflies species. Many insect species have both an aquatic and terrestrial life history phase.

> OPG understands all insects are valued as Relatives by the MS-WTFNs, as Michi Saagiig Anishinaabeg. OPG acknowledges that the MS-WTFNs carry responsibilities to protect their Relatives. OPG understands for the Michi Saagiig Anishinaabeg insects are seen as helpers with spiritual and cultural value. Their protection is important as many species depend on insects for food and ecosystem.

The areas of open meadow within the NNW site have the potential to provide habitat for migrant butterflies, functioning as stopover areas, before carrying on along their migration route. The sheltered coniferous trees along the shoreline have the potential to provide fall roost habitat for Monarch Butterfly (which are federally endangered species).

Aquatic Environment

> OPG understands that the MS-WTFNs, as Michi Saagiig Anishinaabeg, have understood and cared for Lake Ontario's aquatic environment for thousands of years, living along its shores and its rivers and traveling its waters.

Fish

> OPG recognizes all fish are valued as Relatives by the MS-WTFNs, as Michi Saagiig Anishinaabeg, with some fish Relatives representing core spiritual and cultural teachings and providing food sovereignty and rights-based practices, materials, medicines, and playing a vital role in their spiritual, cultural, and economic life. OPG acknowledges that the MS-WTFNs carry responsibilities to protect their Relatives.

Since the 1990s aquatic studies at the NNW site have focused on two sub-watersheds (Wesleyville Creek and Wesleyville Marsh Creek) conducted by the GRCA (Ganaraska Region Conservation Authority , 2004). As part of a stream rehabilitation

program to enhance Brook Trout habitat, a repeatable survey of sampling sites located primarily in Wesleyville Creek was established in 2003 and has been ongoing for more than twenty years. Additional sites were added in 2017 and 2018: one at Wesleyville Shoreline, two at Wesleyville Creek Shoreline, and one at Wesleyville Marsh Creek.

Table 2 below indicates the number of species observed at each of the survey locations across the NNW site, as well as at a nearby site in Lake Ontario near Brighton, which was included in the 2023 Ontario Ministry of Natural Resources and Forestry (OMNRF) annual report.

Table 2: Wesleyville aquatic sampling locations, survey dates, and number of fish species

Location	Dates Included	Number of Species
Lake Ontario (Wesleyville)	May-Dec 1978	35
Lake Ontario (Wesleyville) Shoreline	2017-2021	11
Wesleyville Marsh Creek	2018, 2019, 2021	17
Wesleyville Creek	2003, 2010-2021, 2023	15
Lake Ontario (Brighton) (Ontario Ministry of Natural Resources and Forestry, 2024)	2023	9

Fish Habitat

The fish habitat within the Wesleyville Creek and Wesleyville Marsh Creek watersheds has been affected by human and beaver activity. Human activity such as agriculture, culverts, and off-road vehicle use have contributed to sedimentation and habitat fragmentation, further influencing the creeks' fish habitat (Ganaraska Region Conservation Authority, 2004-2006, 2010-2022, 2024). Although beaver dams provide benefits such as deep pools for overwintering trout, it also poses challenges like increased sedimentation.

Amphibians and Reptiles

OPG understands that amphibians and reptiles are part of the as Michi Saagiig Anishinaabeg category of fish and are valued as Relatives by the MS-WTFNs, with some fish Relatives representing core spiritual and cultural teachings and providing food, materials, medicines, and playing a vital role in their spiritual, cultural, and economic life. OPG acknowledges that the MS-WTFNs carry responsibilities to protect their Relatives.

Monitoring of amphibians and reptiles for the NNW site have focused on the coastal wetland and the two constructed ponds in the north portion of the NNW site. Six breeding amphibian species (Spring Peeper, Wood Frog, Green Frog, Gray Tree Frog,

Northern Leopard Frog and American Toad and two species of turtle have been observed (Common Snapping Turtle and Midland Painted Turtle). Two turtle nesting areas have also been documented. Additional study of other suitable amphibian and reptile habitat on the NNW site would also be conducted in support of an IA.

Species at Risk (Aquatic)

The presence of aquatic SAR have not been confirmed. However, there is the potential for Deepwater Sculpin, a freshwater fish, listed as special concern (Species at Risk Act (SARA)) and the Purple Wartyback, a freshwater mussel, listed as threatened under SARA which could be found in deep portions of Lake Ontario and in the creeks on NNW site.

OPG understands that the MS-WTFNs hold all Relatives as equally important, and worthy of protection from undue harm, regardless of the presence of any designation under Canadian law.

Social, Economic, and Health

Social Context

The social context is provided for Northumberland County, where the NNW is located, Durham Region located to the west, Peterborough County to the north, and the City of Kawartha Lakes to the north and slightly west of Northumberland County.

Northumberland County

The NNW site is situated within the homelands and treaty territories of the MS-WTFNs, and is proposed on lands covered by pre-Confederation Treaties, the Williams Treaties of 1923 and the Williams Treaties First Nations Settlement Agreement of 2018.

The NNW site is located in Northumberland County (headquartered in the Town of Cobourg), specifically within the boundaries of the Municipality of Port Hope. Northumberland County is characterized primarily by rural and agricultural land uses with urban settlements located along the Highway 401 corridor. In 2021, the eligible labour force in Northumberland County was 75,905. The dominant occupational groups were sales, service and trades, transport, and equipment operators and related occupations.

The larger urban centres of Port Hope and Cobourg within Northumberland County are its main residential, commercial and industrial hubs where most of the future growth in the County is planned to occur. The Municipality of Port Hope accounted for 19% of the County's population and the Town of Cobourg accounted for 23% (Statistics Canada, 2023).

Tourism and recreation are important activities in both Port Hope and Cobourg. Tourists visit Port Hope for specialty shopping, attending events at venues such as the Capitol Theatre, and to view the historic architecture.

Downtown Cobourg has a large heritage district that is home to a variety of shops and services for residents and tourists. Cobourg is home to the Cobourg Marina, a yacht club and beach.

Wesleyville Village is a 19th century village, situated near previous seasonal settlement areas and annual gathering places of the Michi Saagiig Anishinaabeg, as informed by MS-WTFNs. The village is under restoration by the organization Wesleyville Village with the support of the Ontario Trillium Foundation and initial funding provided in the OPG lease agreement towards exterior renovations of the buildings on the leased lands. Ontario Hydro acquired several properties in the village and surrounding farms in the late 1960s to build the Wesleyville oil-fired power plant that was not commissioned. While several structures were removed, the core of the village remained, including the 1860 church, the 1899 one-room schoolhouse, and the Y-shaped house located on a lot beside the church, known as the Oughtred house.

Regional Municipality of Durham

The border of the Regional Municipality of Durham (Durham Region) is located less than 1 km west of the NNW site. Durham Region is an upper-tier municipality situated on the north shore of Lake Ontario and is part of the treaty territories of the WTFNs. Durham Region consists of eight municipalities (Ajax, Brock Clarington, Oshawa, Pickering, Scugog, Uxbridge and Whitby), with the Municipality of Clarington located adjacent to Northumberland County and west of the NNW site. Other urbanized neighbourhoods/communities in the Municipality of Clarington are Newcastle, Orono, Newtonville and Courtice. The character of these communities is defined by residential housing developments and the prominent industrial land user such as the Darlington Nuclear site and the St. Marys Cement (Canada) Inc. operations along the Lake Ontario shoreline approximately 23 km west of the NNW site.

Durham Region is home to major post-secondary institutions, including Ontario Tech University, Trent University (Durham and GTA Campus), Durham College and, Trillium College a member of the University Network of Excellence in Nuclear Engineering which offers nuclear engineering degrees, science and technology research and education programming.

City of Kawartha Lakes

North and slightly west of Northumberland County is the City of Kawartha Lakes, part of the treaty territories of the WTFNs. The Town of Lindsay is the urban centre of the City of Kawartha Lakes. The City of Kawartha Lakes is a municipality legally structured as a single-tier city; however, Kawartha Lakes is the size of a typical Ontario county and is mostly rural. The city is known as a tourist and cottaging area with numerous lakes and four-season outdoor activities. There are numerous hotels, motels, lodges, and bed and breakfasts (B&Bs) to serve visitors. The Trent-Severn Waterway is the major waterway in

City of Kawartha Lakes and operated by Parks Canada. Fleming College is a multi-disciplinary post-secondary institution with its campuses within Lindsay.

Peterborough County

Peterborough County is north of Northumberland County and east of the City of Kawartha Lakes. Peterborough County is part of the treaty territories of the WTFNs and is an upper-tier municipality comprised of eight lower-tier municipalities, offering a full variety of services for residents and property owners. The City of Peterborough is the urban centre of Peterborough County.

The southern portion of the county is mix of agriculture, urban and lakefront properties, while the northern portion is mostly sparsely populated wilderness. Like its neighbour to the west, the county is best known as a cottaging area with numerous lakes and four-season outdoor activities. Trent University and Fleming College are multidisciplinary post-secondary institutions with two primary campuses within the city.

Economic Context

The economic context is provided for Northumberland County, where the NNW site is located, Durham Region located to the west, Peterborough County to the north, and the City of Kawartha Lakes to the north and slightly west of Northumberland County.

Northumberland County

In 2021, the eligible labour force in Northumberland County was 75,905. The two dominant occupational groups for Northumberland County were:

- the sales and service occupations
- trades, transport, and equipment operators and related occupations.

Combined these two categories accounted for approximately 46% of occupations. Northumberland County had the third highest average income compared to the Township of Hamilton (first) and Municipality of Port Hope (second).

Port Hope has history of involvement in the nuclear industry, dating back to the 1930's when a former federal Crown Corporation, Eldorado Nuclear Limited, and its private-sector predecessors undertook uranium refining operations. These operations resulted in the contamination of sediments in Port Hope Harbour and numerous sites within the urbanized area of the town. Port Hope Harbour was designated an Area of Concern (AOC) in 1987 under the Canada-U.S. Great Lakes Water Quality Agreement (GLWQA). Currently, Port Hope Harbour is host to Cameco Corporation's Port Hope Conversion Facility, the only uranium conversion facility in Canada, currently producing uranium hexafluoride and uranium dioxide, required in the production of fuel for light water and CANDU-type heavy water nuclear reactors. The harbour and urban area of the town are the focus of the Port Hope Project, part of the

PHAI led by Canadian Nuclear Laboratories (CNL). The Port Hope Project involves the cleanup of historic low-level radioactive contaminated sediments and soils and its long-term safe management in an engineered, aboveground mound located south of Highway 401 and west of Baulch Road.

Regional Municipality of Durham

Durham Region also has history of involvement in the nuclear industry. It is the host to OPG's Darlington Nuclear site, in the Municipality of Clarington, and OPG's Pickering Nuclear site in the City of Pickering. OPG's nuclear facilities are recognizable industrial facilities among local residents and among the region's largest employers. The PHAI's Port Granby Project situated at the south-eastern boundary of the Municipality of Clarington within Durham region, is 5 km west of the NNW site and involves the safe, long-term management of historic LLW.

In 2021, the eligible labour force in the Region of Durham was 565,960. The Municipality of Clarington accounted for approximately 14% of this. The dominant occupational groups for Durham Region were:

- sales and service occupations (24.9%)
- business, finance, and administration occupations (19.4%)
- trades, transport, and equipment operators and related occupations (17.5%)

The Region of Durham and the Municipality of Clarington reported similar average incomes. Average total household income for both the Region and Clarington exceed the provincial average of $116,000. Average employment income for all recipients and average employment income for full-year full-time workers are comparable to the Ontario averages of $52,600 and $82,400, respectively.

Peterborough County

Peterborough County and the City of Peterborough are located to the north of the NNW site. The City is host to BWXT Nuclear Energy Canada, where the company assembles CANDU fuel bundles for CANDU reactors. Natural uranium pellets are produced in Toronto and zirconium-alloy tubes are manufactured in Arnprior and then shipped to Peterborough, where they are assembled into fuel bundles.

In 2021, the eligible labour force in Peterborough County was 123,620. The City of Peterborough accounted for just under 50% of the County's eligible labour force. The participation rate in the County and City of Peterborough were reported at 56.8% and 57.2%, respectively, which ranks lower than that of the Province. Both the County and City also experienced higher unemployment rates in 2021 than Ontario at 12.8% and 14.7%, respectively.

The dominant occupational groups for Peterborough County were:

- sales and service occupations (27%)
- trades, transport and equipment operators, and related occupations (18.5%)
- business, finance, and administration occupations (14.2%)

City of Kawartha Lakes

In 2021 the eligible labour force in the City of Kawartha Lakes was 66,700 and there was a reported employment participation rate (i.e. persons in the labour force/eligible labour force) of 54.7%, which ranks lower than the provincial rate of 62.8% for the Province of Ontario. The unemployment rate in Kawartha Lakes ranks below that of Ontario at 11.2% compared to 12.2%.

The dominant occupational groups for the City of Kawartha Lakes were:

- trades, transport and equipment operators, and related occupations (25.4%)
- sales and service occupations (24.7%)
- business, finance, and administration occupations (13.7%)

The City of Kawartha Lakes average income is similar to but slightly above the Peterborough County average, ranking under the provincial average in all categories.

OPG is committed to working with Rights-holding First Nations and interested Indigenous communities to better understand the key economic characteristics of Indigenous peoples.

Health Context

The health context for the NNW Project is established for the municipalities shown on Figure 3 including Indigenous and non-Indigenous population.

Health & Well-Being of Rights-holding First Nations and interested Indigenous communities

OPG is committed to working with Rights-holding First Nations and interested Indigenous communities to better understand what characterizes Indigenous Health and to develop an understanding of the current health context for Rights-holding First Nations and interested Indigenous communities in relation to the NNW site and surrounding area.

Access to Health Care

The NNW site is located in Northumberland County and is part of the Lakelands Public Health.

To the north of NNW site, is the Peterborough Regional Health Centre (PRHC), a regional hospital delivering acute healthcare to the City of Peterborough and Peterborough County.

To the east of the NNW site, both Port Hope and Cobourg have numerous community facilities and services including major health facilities and

supporting health organizations. Cobourg is the location of the Northumberland Hills Hospital serving the catchment area of west Northumberland County. It delivers a broad range of acute, post-acute, outpatient and diagnostic services. The Community Health Centres of Northumberland operates from Port Hope, offering services to other Northumberland locations including Colborne, Cobourg, and Alderville First Nation. Their focus is on the elderly, people struggling with mental health issues and/or addictions and youth at risk, among others.

Durham Region, to the west of the NNW site, has facilities for primary care, dental, mental health, addiction treatment, and emergency services. Most of the medical centres are located in Oshawa. However, Lakeridge Health, provides urgent care, emergency care, and mental health services. The Bowmanville, Ajax, and Oshawa hospitals operate under Ontario's Radiation Health Response Plan as part of the provincial nuclear emergency framework and are equipped to treat individuals exposed to radiation.

Food Insecurity and Poverty

Food insecurity is monitored by Ontario Public Health Units using the Nutritious Food Basket tool which helps show the link between healthy eating, health and well being, and family income. Households that are low-income, single parent, racialized, or rely on social assistance are at increased risk for food insecurity (Lakelands Public Health, 2024).

Mental Health

Lakelands Public Health monitors data on mental health indicators which have shown trends of declining mental health among residents. Lakelands Public Health has developed a Mental Health Promotion Framework. The framework provides plans on how to support individuals, families, public health professionals, school communities, and other communities to achieve positive mental health and well-being.

Key Health Characteristics

33.9% of deaths were classified as premature mortality (less than 75 years of age) within the area served by the Lakelands Public Health. The leading causes of death for the community were cancer, as is typical of most communities in Ontario, followed by ischaemic heart disease (Lakelands Public Health, 2024).

Radiological Impacts to Health

Several studies have been conducted in the Port Hope area related to historical radiological waste due to the former radium and uranium refining facility which operated until the 1950s. The wastes associated with this facility have been the subject of many studies over the years, including consideration of the real and potential health impacts.

Several studies are published and referenced by Public Health Agency of Canada (PHAC) regarding radiation-related health effects, including cancer and general mortality, for the Port Hope area. Rates of these health outcomes in Port Hope are within expected ranges for Ontario and Canada (Health Canada, 2011). Measured levels of radiation in the urban Port Hope area and related contaminants (e.g. uranium, radium) also align with measured levels

across Canada. These studies do not discuss radiological effects to First Nations explicitly, rather grouping the local population together in most contexts.

The Environmental Protection Review Report for the Port Hope Area Initiative (PHAI) is also referenced by the PHAC. The PHAI project encompasses the remediation of legacy LLW from the Port Hope and Port Granby areas. Based on the available information, CNSC staff determined that radiological and non-radiological contaminant releases to the environment from PHAI activities have had a negligible risk of potential health impacts to the public, including Indigenous Nations and communities within the PHAI areas (Canadian Nuclear Safety Commission, 2022). This conclusion was determined based on environmental monitoring data and radiological dose assessments demonstrating that exposures to members of the public, including Indigenous Nations and communities, remained well below regulatory limits and within natural background variability.

OPG will work with Rights-holding First Nations and interested Indigenous communities to develop assessment methods that reflect the Indigenous health context. This includes identifying an Indigenous receptor and collaboratively developing the characteristics of this receptor through the IA phase of work, or other regulatory process.

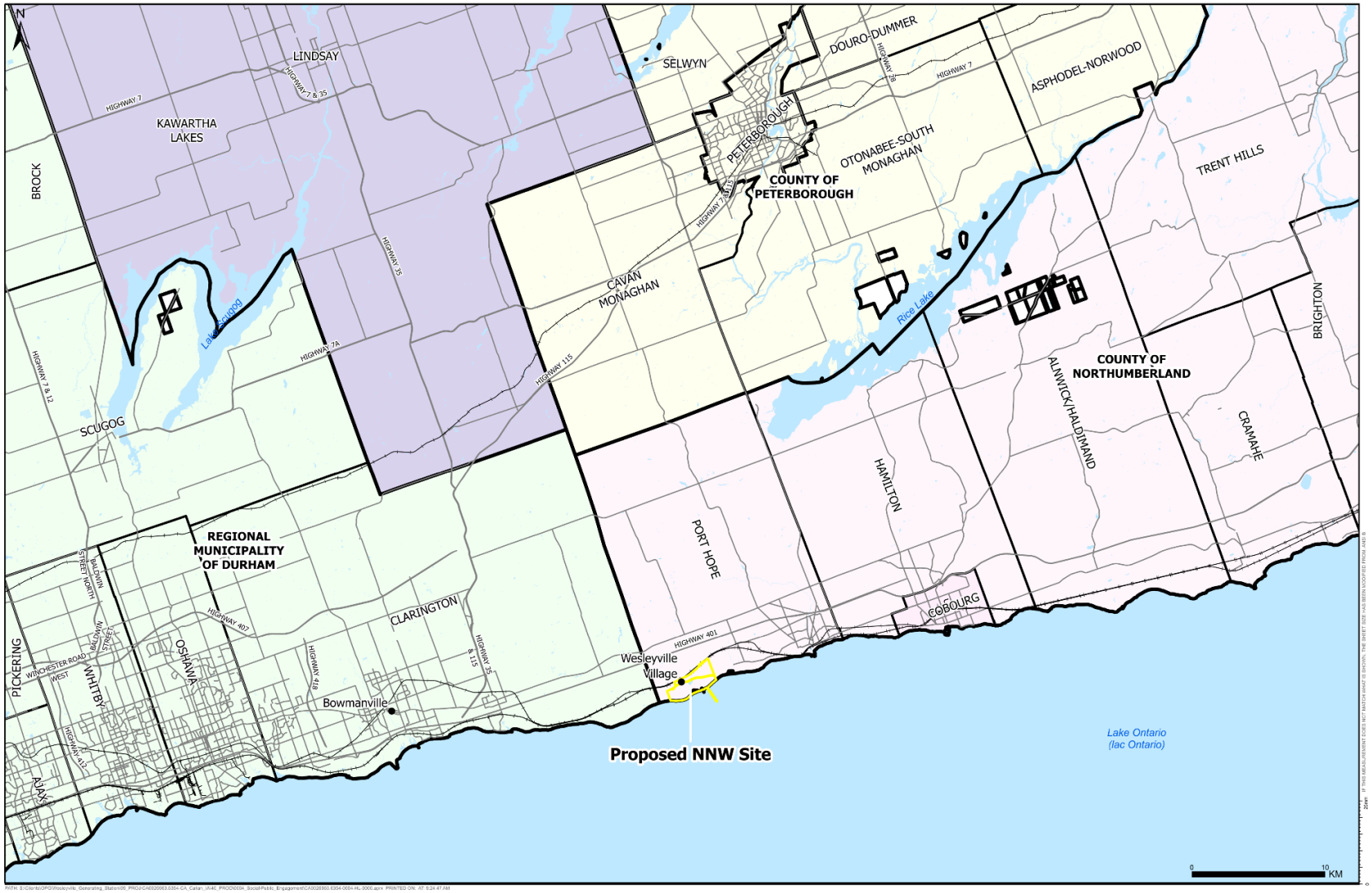


Figure 3: Regional Municipal Boundaries

4. REAL AND POTENTIAL IMPACTS OF THE PROJECT (PRELIMINARY)

Overview

A preliminary identification of real and potential impacts[8] to Rights-holding First Nations as understood by OPG, as well as potential non-negligible adverse effects of the NNW Project on federally protected species, federal lands, and lands outside Ontario are outlined below. Also included in this section is a preliminary GHG emissions estimate associated with NNW Project and a list of the types of waste and emissions that are likely to be generated.

Table 6 to Table 8 provide an overall summary of preliminary real and potential environmental impacts during all phases of the NNW Project including the potential source of the effect, and mitigation measures to eliminate or reduce real and potential impacts. Due to the similar nature of activities and potential real and potential environmental impacts in the site preparation and construction phases these two phases have been combined in the tables to reduce repetition. The NNW Project is defined as a federal work or undertaking, and as such Table 8 includes broader real and potential impacts to the physical and biological environments, and health, social, and economic contexts.

OPG will continue to collaborate with MS-WTFNs and other Rights-holding First Nations and interested Indigenous communities to identify real and potential impacts throughout the NNW Project.

[8] Throughout this IPD, OPG has used the language 'real and potential impacts' based on feedback received from the MS-WTFNs. This language is intended to reflect OPG's acknowledgement that the MS-WTFNs have identified that portions of the NNW site were subject to previous uses which has caused impacts to their communities; in particular, the eastern portion of the site was originally intended to be developed in the 1970s for an oil powered thermal generating station, and while construction was never completed, certain structures remain including a powerhouse and chimney stack; and the western portion is leased for partial agricultural development. In assessing the NNW Project, OPG will take into account these prior uses, which the MS-WTFNs consider to have caused 'real impacts', and in particular, the cumulative effects that may arise as a result of such prior activities. Further, OPG understands the MS-WTFN's perspective that the NNW Project will likely have certain impacts that may not be fully mitigated, and that such impacts are considered 'real impacts' by the MS-WTFNs as opposed to purely hypothetical impacts. By using the language 'real and potential impacts', OPG intends to respect its collaborative discussions with the MS-WTFNs and does not wish to convey that certain impacts are less significant, or will be assessed with less scrutiny, as compared to others.

Real and Potential Impacts to Components of the Environments within the Legislative Authority of Parliament

Overview

This section is specifically focused on all species that are protected through federal law under the legislative authority of Parliament.
In working collaboratively with the MS-WTFNs, OPG has been informed that the following sections are presented through a Western Scientific lens, using evidence and forming conclusions based on western science methods and ways of knowing.

It is OPG's desire to work with Rights-holding First Nations and interested Indigenous communities to incorporate Indigenous Knowledge and governance to guide the NNW Project and the IA process.

OPG understands that the MS-WTFNs hold all Relatives as equally important, and worthy of protection from undue harm, regardless of the presence of any designation under Canadian law.

The NNW Project has the potential to affect the environment by disrupting or removing habitats, changing water and habitat quality including connectivity, or causing direct harm or displacement to the affected species during site preparation, construction, operation, and decommissioning.

Mitigation measures will be determined through engagement with Rights-Holding First Nations. Measures could include controlling emissions and discharges, restoring disturbed habitats, and employing best management practices during all phases of the NNW Project. OPG will be required to conduct environmental monitoring to assess the effectiveness of mitigation measures and ensure compliance with environmental standards. Rights-holding First Nations and interested Indigenous communities will be engaged as part of environmental monitoring planning, be included in environmental monitoring activities and the development of avoidance, mitigation, offset/compensation and, where required, measures to address real and potential impacts to Aboriginal and Treaty rights.

The NNW Project has the potential to have real and potential impacts, including potential non-negligible adverse changes to components of the environments under the legislative authority of Parliament, namely:

- fish and fish habitat, as defined in subsection 2(1) of the Fisheries Act
- aquatic species, as defined in subsection 2(1) of the Species at Risk Act
- migratory birds, as defined in subsection 2(1) of the Migratory Birds Convention Act (MBCA) 1994.

Fish and Fish Habitat as Defined in the Fisheries Act

Site preparation and construction:

- sedimentation and turbidity
- physical disruption to habitat
- adverse effects to water quality
- disturbances to fish population
- loss of aquatic vegetation and habitat

Operation and maintenance:

- adverse effects to fish behavior and habitat
- adverse effects to water quality
- impingement and entrainment of fish

Decommissioning:

- sedimentation and turbidity
- disturbances to fish population

Aquatic Species as Defined in the Species at Risk Act

Potential non-negligible adverse effects of the NNW Project to aquatic species as defined in section 2(1) of the Species at Risk Act prior to the implementation of mitigation measures include:

Site preparation and construction:

- sedimentation and turbidity
- disruption to habitats
- adverse effects to water quality and habitat conditions
- disturbances to sensitive species

Operation and maintenance:

- adverse effects to water quality and habitat conditions
- habitat modifications
- disturbances to sensitive species

Decommissioning:

- temporary habitat disruption

Migratory Birds as Defined in the Migratory Birds Convention Act

Potential non-negligible adverse effects of the NNW Project to migratory birds as defined in section 2(1) of the Migratory Birds Convention Act, 1994 prior to the implementation of mitigation measures include:

Site preparation and construction:

- loss of habitat including nesting and feeding areas
- disturbances to bird populations
- increase in bird mortality

Operation and maintenance:

- reduction in local bird populations.
- bird strikes and collisions.
- habitat alteration

Decommissioning:

- disturbances to birds and bird habitat

Real and Potential Effects to Federal Lands and Lands Outside of Ontario

Federal Lands

The NNW Project is not anticipated to affect federal lands. The NNW site is not located on nor adjacent to federal lands.

Lands Outside of Ontario

The NNW site is situated on the north shore of Lake Ontario approximately 60 km north of the U.S. land mass in New York State. Additionally, the nearest provincial border to the NNW Project is approximately 280-300 km west of the Quebec border. Given this distance, no effects on lands outside of Ontario are anticipated.

Marine Environment and Interprovincial / International Waters

Marine Environment

There are no anticipated, real or potential impacts, expected to the marine (sea or ocean) environment. The NNW site is located a considerable distance from the closest sea or ocean (700 km).

Interprovincial Waters

The closest interprovincial waters to the NNW site are the St. Lawrence River located approximately 170 km to the east, and the Ottawa River located approximately 280 km to the northeast. Both rivers flow into Ontario and neighbouring Quebec. Considering the distance of these two interprovincial waters from the NNW site, that surface water drainage and ground water flow from the NNW site is to the south away from the Ottawa River, and that effects to Lake Ontario are expected to be localized, the NNW Project is not anticipated to affect interprovincial waters as a result of "pollution that may be caused by the carrying out of the project."

International Waters

The NNW site is approximately 30 km north of the Canadian-United States (U.S.) international border that runs through Lake Ontario, and approximately 60 km north of the U.S. land mass located in New York State. Canada and the U.S. have the following agreements in place related to water:

- The Great Lakes Water Quality Agreement
- The Boundary Waters Treaty (signed in 1909)

OPG will communicate, assess, and mitigate any potential non-negligible adverse effects to Lake Ontario.

Real and Potential Impacts to Indigenous Peoples of Canada (Preliminary)

Overview

OPG is committed to working with the WTFNs to identify, understand, avoid, reduce, eliminate, or compensate and where required, accommodate, real and potential impacts of the NNW Project on the WTFNs' Rights, values, and ways of being.

OPG will work together with MS-WTFNs to meaningfully resources MS-WTFNs'-led frameworks, assessments, or studies, where identified. OPG is committed to ensuring that any Knowledge or data shared by MS-WTFNs in relation to the NNW Project will only be used to inform the overall understanding of the NNW Project, as directed. This includes, but is not limited to, real and potential impacts of the NNW Project, as well as avoidance, mitigation, compensation and, where appropriate, accommodation strategies that are required to avoid or minimize such impacts.

Table 6 to Table 8 later in this section provide an overall summary of preliminary real and potential environmental impacts during all phases of the NNW Project including the potential source of the effect, and mitigation measures to eliminate or reduce real and potential impacts. This preliminary identification of effects includes real and potential impacts to Rights-holding First Nations as understood by OPG summarized in Table 7. A deeper understanding, identification, evaluation and analysis of the real and potential impacts of the NNW Project on Rights-holding First Nations and interested Indigenous communities will continue to evolve throughout the NNW Project's lifecycle as new information, frameworks, studies, data and knowledge becomes available, based on time, resources and capacity. OPG will work with Rights-holding First Nations and interested Indigenous communities to identify, understand, evaluate and analyse the real and potential impacts of the NNW Project, as well as to incorporate Indigenous Knowledge, as directed.

OPG understands the importance of obtaining consent from Rights-holding First Nations and interested Indigenous communities before incorporating any Indigenous Knowledge provided as directed, into the IA.

Preliminary Greenhouse Gas Emissions Estimate

Overview

In 2024, Ontario's electricity generation remained predominantly low-carbon emission (or low GHG emission), with nuclear and hydroelectric sources supplying the majority of grid output. This supply mix is expected to evolve as new technologies and clean energy projects come online, contributing to Ontario's decarbonization goals (Ministry of Energy and Electrification, 2025).

The GHG estimate has been prepared using the methodology set out by the SACC (Environment and Climate Change Canada, 2020) and the Draft technical guide related to the strategic assessment of climate change (Environment and Climate Change Canada, 2022).

The GHG estimates are considered preliminary and would be revised during the IS phase of the NNW Project as more information becomes available. GHG estimates are presented as kilotonnes of carbon dioxide (CO_2) equivalent (e) (CO_2e).

Estimated Lifecyle Emissions

At this stage for the IPD, in the absence of detailed descriptions of the technology and construction methodologies for the NNW Project, the GHG emissions are estimated using lifecycle emission factors from peer-reviewed literature (S. Schlömer, et al., 2014), (Gibon & Hahn Menacho, 2023) for comparable nuclear facilities (Table 3).

Table 3: Estimated Lifecycle Emissions for the NNW Project

Lifecycle Emission Process	GHG Emission Process Contribution[1]	Lower Lifecycle GHG Emission Estimate Breakdown (kt CO_2e)[2,3]	Higher Lifecycle GHG Emission Estimate Breakdown (kt CO_2e)[2,4]
Fuel Mining and Milling	46%	15,486	30,464
Conversion, Enrichment and Fuel Fabrication	23%	7,743	15,232
Construction	13%	4,376	8,609
Operation and Maintenance	5%	1,683	3,311
Downstream Processes (Decommissioning, Spent Fuel Management, Waste Disposal, etc.)	13%	4,376	8,609
Total Lifecyle Emissions	**100%**	**33,664**	**66,225**

[1]Lifcycle GHG emission contributions by process as determined from the parametric lifecycle assessment (Gibon & Hahn Menacho, 2023)).
[2]The total estimated energy output for the NNW project was calculated to be 5,518.8 TWh based on the assumptions of a 70-year operating period, 10,000 MW capacity and 90% capacity factor.
[3]Lower lifecycle GHG emission estimates were calculated by multiplying the total estimated energy output of 5,518.8 TWh by the process contribution percentage and a lifecycle emission factor of 6.1 CO_2e/kWh (Gibon & Hahn Menacho, 2023).
[4]Higher lifecycle GHG emission estimates were calculated by multiplying the total estimated energy output of 5,518.8 TWh by the process contribution percentage and a lifecycle emission factor of 12 CO_2e/kWh (S. Schlömer, et al., 2014).

Estimated Avoided Domestic GHG Emissions

Avoided emissions were derived from forecasted grid emission intensities in the IESO APO (Independent Electricity System Operator, 2025). Offset measures and carbon capture were not considered at this stage and are currently not anticipated to be required for the NNW Project to reach net-zero GHG emissions. Estimated annual avoided domestic GHG emissions (kt CO_2e) and projected annual energy production in terawatt-hours (TWh) are provided in Table 4.

Table 4: Estimated Avoided Domestic GHG Emissions for the NNW Project

Year	NNW Project Annual Energy Production (TWh)	Estimated Annual Avoided Domestic GHG Emissions (kt CO2e)[1]
2043	19.71	2,395.74
2044	39.42	4,791.47
2045	59.13	7,187.21
2046	78.84	9,582.94
2047	78.84	9,582.94
2048	78.84	9,582.94
2049	78.84	9,582.94
2050	78.84	9,582.94
Total (2043-2050)[2]	-	**62,289.12**

[1]Estimated annual avoided domestic GHG emissions consider an estimated emissions factor of 0.122 megatonnes CO_2e/TWh based on data presented by IESO (2025).
[2]The APO assumes that large new nuclear energy contributions will be coming online in 2043 and therefore, the incremental grid emissions intensity between 2043 and 2050 have been used for estimating avoided domestic GHG emissions in Table 4. If the NNW Project comes online sooner than 2043, the resulting GHG benefits would be achieved soon and result in greater cumulative emissions reductions.

Net GHG Emissions

The net GHG emission estimates indicate a range of a net removal of 28,624 kt CO_2e to a net addition of 3,936 kt CO_2e. Over the full operating life of the NNW Project, avoided emissions are expected to substantially exceed project-related emissions, resulting in significant long-term net GHG reductions.

Table 5: Net GHG Emissions for the NNW Project

Net GHG Estimate Scenario	Estimated Lifecycle GHG Emissions (kt CO_2e)	Estimated Avoided Domestic GHG Emissions from 2043 to 2050 (kt CO_2e)	Net GHG Emissions up to 2050 (kt CO_2e)
Lower Estimated Lifecycle GHG Emission Scenario	33,664	62,289	-28,624
Higher Estimated Lifecycle GHG Emission Scenario	66,225	62,289	3,936

Preliminary Estimate of Potential Wastes or Emissions Generated

Overview

The site preparation, construction, operation, and decommissioning of the NNW Project will result in potential wastes being generated and emissions released into the environment. A discussion of typical hazardous, non-hazardous, and radiological wastes and emissions that may be generated during all the phases of the NNW Project is provided below with the exception of GHG emissions which is provided in the preceding section. The information provided in these sections is preliminary and would be refined during the IS phase.

Due to the overlapping nature of activities, wastes being generated, and emissions released into the environment, site preparation and construction activities have been combined to reduce duplication and provide a more streamlined summary.

Potential Non-Hazardous Waste Generation

Phase	Potential Non-Hazardous Waste
Site Preparation and Construction	• landscaping debris including soil and vegetation (trees, shrubs, grass etc.) • excavated soil and rock from foundation work. • general waste including paper, cardboard, packaging materials, office supplies, etc. • domestic refuse including food wastes, plastic bottles, and cafeteria/break room wastes, etc. • non-contaminated maintenance waste including metal scraps, tools, machinery parts and required lubricants and coolants • construction waste including wood, concrete, bricks, metals, insulation, drywall, etc.
Operation and Maintenance	• general waste including paper, cardboard, packaging materials, office supplies, etc. • domestic refuse including food wastes, plastic bottles, and cafeteria/break room wastes, etc. • non-contaminated maintenance waste including metal scraps, tools, machinery parts and required lubricants and coolants • non-contaminated construction debris from maintenance operations
Decommissioning	• construction waste including wood, concrete, bricks, metals, insulation, drywall, etc. • general waste including paper, cardboard, packaging materials, office supplies, etc. • domestic refuse including food wastes, plastic bottles, and cafeteria/break room wastes, etc. • non-contaminated maintenance waste including metal scraps, tools, machinery parts, and required lubricants and coolants

Potential Hazardous Waste Generation

Phase	Potential Hazardous Waste
Site Preparation and Construction	• chemical solvents used in machinery maintenance and cleaning • fuel and oil spills from construction vehicles and equipment
Operation and Maintenance	• chemical solvents, cleaning agents and corrosive chemicals (acid and bases) used in operation

Phase	Potential Hazardous Waste
	• fuel and oil spills from operation vehicles and equipment
Decommissioning	• chemical solvents used in machinery maintenance and cleaning • fuel and oil spills from construction vehicles and equipment • paints and coatings potentially containing volatile organic compounds and heavy metals (if applicable)

Potential Radiological Waste Generation

Phase	Potential Radiological Waste
Site Preparation and Construction	• Not Applicable
Operation and Maintenance	• LLW including paper, rags, tools, clothing, filters, personal protective equipment, items from systems changed out through maintenance etc. • ILW including resins, chemical sludges, metal fuel cladding, etc. • HLW including used fuel
Decommissioning	• LLW including building materials from demolition (i.e., concrete, plaster, bricks, metals, valves, piping, etc.), paper, rags, tools, clothing, filters, personal protective equipment etc. • ILW including reactor components, contaminated materials, resins, chemical sludges, metal fuel cladding, etc. • HLW including used fuel

Emissions In the Air

Phase	Potential Emission Generated to Land
Site Preparation and Construction	• suspended particulate matter (PM) or dust from site preparation • emissions from vehicles and heavy machinery with internal combustion engines (SO_2, NO_x, CO_2, and Polycyclic Aromatic Hydrocarbons) • noise and vibrations from site preparation and construction activities and onsite machinery light emissions
Operation and Maintenance	• fugitive dust emissions from maintenance activities

Phase	Potential Emission Generated to Land
	• emissions from vehicles and heavy machinery • radiological and non-radiological emissions from operations • noise from onsite machinery • light emissions
Decommissioning	• noise and vibrations from site preparation and construction machinery • emissions from vehicles and heavy machinery • temporary dewatering of open excavations or cofferdams • temporary lake sediment disturbances and debris generation during in-lake construction activities (if required) • process and sanitary wastewater (sewage)

Emissions In or On the Land

Phase	Potential Emission Generated to Air
Site Preparation and Construction	• vibrations from site preparation and construction activities and onsite machinery • washout wastewater from concrete production
Operation and Maintenance	• vibrations from site preparation and construction activities and onsite machinery
Decommissioning	• vibrations from site preparation and construction activities and onsite machinery

Emissions In or On the Water

Phase	Potential Emission Generated to Water
Site Preparation and Construction	• noise and vibrations from site preparation and construction machinery • washout wastewater from concrete production • temporary dewatering of open excavations or cofferdams • temporary lake sediment disturbances and debris generation during in-lake construction activities • process and sanitary wastewater (sewage) • runoff and stormwater discharges to surface water

Phase	Potential Emission Generated to Water
Operation and Maintenance	• radiological and non-radiological effluents from operations • noise and vibrations from operations and onsite machinery • process and sanitary wastewater (sewage) • thermal water discharge • runoff and stormwater discharges to surface water
Decommissioning	• noise and vibrations from dismantling activities and onsite machinery • radiological and non-radiological effluents from decommissioning activities • process and sanitary wastewater (sewage) • runoff and stormwater discharges to surface water

Summary of Real and Potential Impacts (Preliminary)

Overview

Table 6 to Table 8 provide a preliminary summary of real and potential impacts of the NNW project, as well as potential mitigation measures to reduce or eliminate real and potential impacts that may occur as a result of the NNW Project. A more comprehensive effects assessment would be completed as part of the IA process and ongoing engagement activities.

OPG will continue to offer to work collaboratively with WTFNs to identify, develop, and implement mitigation and accommodation measures to avoid, offset, and/or mitigate real and potential impacts to Aboriginal and Treaty rights. In the case of all three summary tables due to the overlapping nature of activities and real and potential impacts, site preparation and construction activities have been combined to reduce duplication and provide a more streamlined summary.

Table 6: Real and Potential Impacts to Components of the Environment within the Legislative Authority of Parliament (Preliminary)

Physical and Biological Environment	Federally Protected Species	Project Phase	Real and Potential Impacts	Potential Mitigations
Aquatic	Fish and fish habitat, as defined in subsection 2(1) of the Fisheries Act[1]	Site Preparation and Construction	• loss of fish habitat due to alteration of streams, lake infilling, construction of in-water structures (intake and discharge structures, shoreline protection) • sensory disturbances to fish due to underwater noise and vibration (e.g., from blasting) • change in surface water quality due to erosion and sedimentation from stormwater run-off during vegetation clearing resulting in effects to fish and fish habitat • change in stormwater quality due to use of construction equipment and potential spills resulting in effects on fish and fish habitat	• avoid to the extent practical areas of fish habitat • locate to the extent practical intake and discharge structures in areas where effects can be reduced • development of an appropriate Fish Habitat Compensation Plan to satisfy the requirements of a federal Fisheries Act authorization • capture and release fish from in-water work areas as work advances • development of blasting plan and appropriate setbacks • implement stormwater management and spills management plan to manage erosion, sedimentation and stormwater quality • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment	Federally Protected Species	Project Phase	Real and Potential Impacts	Potential Mitigations
Aquatic	Fish and fish habitat, as defined in subsection 2(1) of the Fisheries Act[1]	Operation and Maintenance	• loss of fish due to impingement and entrainment through the intake structure • change in fish behavior and fish habitat due to thermal (warmer water) discharge associated with the operation of the cooling water system • change in lake water quality due to contaminants in stormwater and liquid effluent discharges resulting in effects on fish and aquatic habitat	• reduce impingement and entrainment through the design and location of the intake structure • development of an appropriate Fish Habitat Compensation Plan to satisfy the requirements of a federal Fisheries Act authorization • design discharge structure to reduce temperature of water discharged • treatment of effluent to meet regulatory requirements • incorporate good industry management practices with respect to stormwater management such as oil and grit separators and stormwater management ponds • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment	Federally Protected Species	Project Phase	Real and Potential Impacts	Potential Mitigations
Aquatic	Fish and fish habitat, as defined in subsection 2(1) of the Fisheries Act[1]	Decommissioning	• change in surface water quality due to erosion and sedimentation from dismantling and demolition activities, resulting in effects on fish and fish habitat • change in stormwater quality due dismantling and demolition activities and potential spills, resulting in effects on fish and fish habitat • loss of fish due to dismantling or infilling of in-water structures, if required • sensory disturbances to fish due to underwater noise and vibration from dismantling or infilling of in-water structures, if required.	• implement stormwater management plan to manage erosion, sedimentation and stormwater quality • development of an appropriate Fish Habitat Compensation Plan to satisfy the requirements of a federal Fisheries Act authorization • capture and release fish from in-water work areas as work advances • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effectiveness

Physical and Biological Environment	Federally Protected Species	Project Phase	Real and Potential Impacts	Potential Mitigations
Aquatic	Aquatic species, as defined in subsection 2(1) of the SARA[2]	Site Preparation and Construction	• loss of aquatic SAR habitat due to alteration of streams, lake infilling, construction of in-water structures (intake and discharge structures, shoreline protection) • sensory disturbances to aquatic SAR (fish) due to underwater noise and vibration (e.g., from blasting) • change in surface water quality due to erosion and sedimentation from stormwater run-off during vegetation clearing resulting in effects to aquatic SAR and their habitat • change in stormwater quality due to use of construction equipment and potential spills, resulting in effects on aquatic SAR and their habitat	• avoid to the extent practical areas of aquatic SAR habitat • locate to the extent practical intake and discharge structures in areas where effects can be reduced • salvage and relocate aquatic SAR where practical, to a suitable existing or created habitat in advance of site preparation activities • capture and release aquatic SAR (fish) from in-water work areas as work advances • development of blasting plan and appropriate setbacks • implement stormwater management and spills management plan to manage erosion, sedimentation and stormwater quality • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment	Federally Protected Species	Project Phase	Real and Potential Impacts	Potential Mitigations
Aquatic	Aquatic species, as defined in subsection 2(1) of the SARA[2]	Operation and Maintenance	• loss of aquatic SAR due to impingement and entrainment through the intake structure • change in aquatic SAR (fish) behavior and aquatic SAR habitat due to thermal (warmer water) discharge associated with the operation of the cooling water system • change in surface water quality due to contaminants in stormwater and liquid effluent (wastewater) discharged to the lake, resulting in effects on aquatic SAR	• reduce impingement and entrainment through the design and location of the intake structure • design discharge structure to reduce temperature of water discharged • incorporate good industry management practices in with respect to stormwater management such as oil and grit separators stormwater management ponds • treatment of effluent to meet regulatory requirements • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective
Aquatic	Aquatic species, as defined in subsection 2(1) of the SARA[2]	Decommissioning	• change in surface water quality due to erosion and sedimentation from dismantling and demolition activities, resulting in effects on aquatic SAR • change in stormwater quality due to dismantling and demolition activities and potential spills, resulting in effects on aquatic SAR • loss of aquatic SAR due to dismantling or infilling of in-water structures, if required • sensory disturbances to aquatic SAR due to underwater noise and vibration from dismantling or infilling of in-water structures, if required.	• implement stormwater management plan to manage erosion, sedimentation and stormwater quality • capture and release aquatic SAR (fish) from in-water work areas as work advances • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment	Federally Protected Species	Project Phase	Real and Potential Impacts	Potential Mitigations
Terrestrial 	Migratory birds, as defined in subsection 2(1) of the MBCA, 1994[3]	Site Preparation and Construction	• loss of nesting and feeding areas for migratory birds • sensory disturbances to migratory birds due to site preparation and construction activities (e.g., increased dust, noise, and vibration) and human presence	• avoid to the extent practical areas of nesting and feeding • avoid removal of nesting and feeding areas during breeding season • implement dust and noise management plan to reduce noise and dust levels at source • development of blasting plan and appropriate setbacks • develop guidance to train staff on wildlife interactions • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective
Terrestrial 	Migratory birds, as defined in subsection 2(1) of the MBCA, 1994[3]	Operation and Maintenance	• increase in migratory bird mortality due to bird strikes (collisions) against buildings and structures, and bird entanglement in security fencing	• use of appropriate level of lighting on buildings and structures to reduce bird strikes • incorporate in the design of security fencing systems measures to reduce the incidence of bird entanglement and entrapment to the extent practicable. • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment	Federally Protected Species	Project Phase	Real and Potential Impacts	Potential Mitigations
Terrestrial 	Migratory birds, as defined in subsection 2(1) of the MBCA, 1994[3]	Decommissioning	• sensory disturbances to migratory birds due to dismantling and demolition activities (e.g. increased dust, noise and vibration)	• implement dust and noise management plan to reduce noise and dust levels at source • development of blasting plan and appropriate setbacks • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

1. fish includes: (a) parts of fish, (b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and (c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals; fish habitat means water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas.
2. aquatic species means a wildlife species that is a fish, as defined in section 2 of the Fisheries Act, or a marine plant, as defined in section 47 of that Act.
3. migratory bird means a migratory bird referred to in the Convention, and includes the sperm, eggs, embryos, tissue cultures and parts of the bird.

Table 7: Real and Potential Impacts to the Indigenous Peoples of Canada (Preliminary)

Indigenous Peoples (section 21 and 22 of the IMTLR)	Project Phase	OPG's Understanding of Real and Potential Impacts (as shared by MS-WTFNs)	Potential Mitigations
Indigenous Physical and Cultural Heritage, and Structures, Sites or Things of Significance	All Phases	• As OPG understands there are real and potential impacts to the homelands of the MS-WTFNs from any changes to landscape and areas within the NNW Project and areas including Lake Ontario shoreline • As OPG understands there are real and potential impacts to the ability for MS-WTFNs to honour past and future connection and histories with land	• OPG is committed to working with Right-holding First Nations and interested Indigenous communities to identify, understand, avoid, reduce and where necessary, consider accommodations (including possible compensation) from real and potential impacts of the NNW Project on Indigenous peoples, Lands, Waters and Relatives, as well as on Aboriginal and Treaty rights, values, Knowledge and ways of being • OPG will continue engagement with Rights-holding First Nations and interested Indigenous communities to understand real and potential impacts as further understanding and frameworks are developed through the IA process
Current Use of Lands and Resources for Traditional Purposes 	All Phases	• As OPG understands there are real impacts that have already been felt from disruption by the imposition of crown and private ownership of the lands and shoreline (limiting access) • As OPG understands any future restrictions or use of the land may further impact MS-WTFNs' Rights	

Indigenous Peoples (section 21 and 22 of the IMTLR)	Project Phase	OPG's Understanding of Real and Potential Impacts (as shared by MS-WTFNs)	Potential Mitigations
Health, Social and Economic Conditions of Indigenous Peoples 	All Phases	• as OPG understands, identifying real and potential impacts of the NNW Project on the MS-WTFNs it requires ways of knowing and being as can only be collaboratively provided by MS-WTFN and goes beyond understanding physical impacts to the environment as characterized in the Western lens • as OPG understands, there are real and potential impacts to the Health, Social and Economic Conditions of the MS-WTFNs resulting from the NNW Project	• OPG is committed to working with Rights-holding First Nations and interested Indigenous communities to identify, understand, avoid, reduce, and where necessary, consider accommodations (including possible compensation) from real and potential impacts of the NNW Project on Indigenous peoples, as well as on Aboriginal and Treaty rights, values, Indigenous Knowledge and ways of being • OPG will continue engagement with Rights-holding First Nations and interested Indigenous communities to understand real and potential impacts as further understanding and frameworks are developed through the IA process
Aboriginal and Treaty Rights	All Phases	• as OPG understands there are real and potential impacts to WTFNs' Rights from the NNW Project • as OPG understands real and potential impacts to MS-WTFNs' ways of knowing and being, represent impacts to MS-WTFNs' Rights • as OPG understands, only MS-WTFNs can define and interpret their ways of knowing and being	

Table 8: Real and Potential Impacts to Physical and Biological Environments, and Health, Social, and Economic Contexts

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Atmospheric 	Air Quality, GHGs	Site Preparation and Construction	• change in air quality associated with an increase in dust and/or products of fossil fuel combustion from construction activities and from employee and service vehicles • change in the contribution to global GHGs emissions associated with use of vehicles using fossil fuel	• implement dust management plan to reduce dust emissions at their source • implement no idling policy, and reduced speed limits • include in design measures to reduce emissions at source to meet regulatory limits • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective
Atmospheric 	Air Quality, GHGs	Operation and Maintenance	• change in air quality during operations from conventional and radiological emissions from stacks, and cooling towers (if required) • change in air quality associated with an increase in products of fossil fuel combustion from employee and service vehicles • change in air quality associated with an increase in products of petroleum hydrocarbon (fossil fuel) combustion from periodic testing of emergency diesel generators • change in the contribution to global carbon dioxide emissions associated with use of vehicles using fossil fuel	• include in design measures to reduce conventional and radiological emissions during operations to meet regulatory limits • implement no idling policy, and reduced speed limits • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Atmospheric 	Air Quality, GHGs	Decommissioning	• change in air quality due to conventional and radiological emissions from dismantling and demolition activities • change in air quality associated with an increase in dust and or products of petroleum hydrocarbon (fossil fuel) combustion from decommissioning activities and from employee and service vehicles • change in the contribution to global GHG emissions associated with use of vehicles using fossil fuel	• implement dust management plan to reduce dust emissions at their source • implement no idling policy, and reduced speed limits • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective
Atmospheric 	Noise and light	Site Preparation and Construction	• sensory disturbance from increased noise and artificial light levels from construction activities	• implement a noise management plan to reduce noise generation at the source during site preparation and construction to comply with applicable noise standards and regulations • use of downward facing artificial lighting • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Atmospheric 	Noise and light	Operation and Maintenance	• sensory disturbance from increased noise from the operating facility and lighting from buildings and structures	• implement in design measures to reduce noise generation at the source to comply with applicable noise standards and regulations. • Implement in design measures to reduce effects from artificial light without compromising security and safety • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective
Atmospheric 	Noise and light	Decommissioning	• sensory disturbance from increased noise and artificial light levels from dismantling and demolition activities	• implement a noise management plan to reduce noise generation at the source during decommissioning to comply with applicable noise standards and regulations • use of downward facing artificial lighting • environmental monitoring to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Geological and Hydrogeological 	Groundwater systems	Site Preparation and Construction	• change in infiltration to groundwater from removal of vegetation and creation of hard surfaces • change in local groundwater level flows from dewatering activities • change in groundwater quality from changes in stormwater quality due to use of construction equipment and potential accidental spills	• design stormwater management plan in consideration of changes to groundwater flow regime, such as optimizing opportunities to recharge groundwater with surface water run off if required • implement stormwater management and spills management plan to manage erosion, sedimentation and stormwater quality • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Geological and Hydrogeological 	Groundwater systems	Operation and Maintenance	• change in groundwater flow patterns due to physical presence of the buildings and structures • change in groundwater quality from changes in stormwater quality, due to potential accidental spills • change in groundwater quality from changes in in soil quality due to airborne deposition of conventional and radiological parameters	• design stormwater management plan in consideration of changes to groundwater flow regime, such as optimizing opportunities to recharge groundwater with surface water run off if required • implement stormwater management and spills management plan to manage erosion, sedimentation and stormwater quality • include in-design measures to reduce conventional and radiological emissions during operations to meet regulatory limits • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective
Geological and Hydrogeological 	Groundwater systems	Decommissioning	• change in infiltration to groundwater from removal of buildings and hard surfaces • change in groundwater quality resulting from changes in stormwater quality due to dismantling and demolition activities, and potential accidental spills	• implement stormwater management and spills management plan to manage erosion, sedimentation and stormwater quality • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Geological and Hydrogeological 	Soil and Sediment	Site Preparation and Construction	• change in soil and sediment quality resulting from changes in stormwater quality due to use of construction equipment and potential accidental spills	• implement soils management, stormwater management and spills management plan • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective
Geological and Hydrogeological 	Soil and Sediment	Operation and Maintenance	• change in soil and sediment quality resulting from changes in stormwater quality, due to potential accidental spills • change to soil and sediment quality from airborne deposition of conventional and radiological parameters	• implement stormwater management and spills management plan • include in-design measures to reduce conventional and radiological emissions during operations to meet regulatory limits • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective
Geological and Hydrogeological 	Soil and Sediment	Decommissioning	• change in soil and sediment quality resulting from changes in stormwater quality due dismantling and demolition activities and potential accidental spills	• implement stormwater management and spills management plan • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Surface Water 	Local waterbodies/ watercourses	Site Preparation and Construction	• change in surface water quality due to erosion and sedimentation from stormwater run-off during vegetation clearing • change in surface water quality due to contaminants in stormwater from the use of construction equipment and potential spills • increase in lake water turbidity from lake infilling and construction of in-water structures (intake and discharge structures, shoreline protection)	• stormwater management plan to manage erosion, sedimentation and stormwater quality • floating turbidity barriers (or silt curtains) to contain sediment within the immediate in-water construction area • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective
Surface Water 	Local waterbodies/ watercourses	Operation and Maintenance	• change in lake circulation patterns as result of alterations of shoreline due to lake infilling • increase in lake water temperature associated with the operation of the cooling water system • change in lake water quality due to contaminants in stormwater and liquid effluent (wastewater) discharged to the lake	• design discharge structure to reduce temperature of water discharged • incorporate good industry management practices in with respect to stormwater management such as oil and grit separators stormwater management ponds • treatment of effluent to meet regulatory requirements • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Surface Water 	Local waterbodies/ watercourses	Decommissioning	• change in surface water quality due to erosion and sedimentation from stormwater run-off during dismantling and demolition • change in surface water quality due to contaminants in stormwater from the use of dismantling and demolition equipment, and potential spills • increase in lake water turbidity from removal of in-water structures, if required	• stormwater management plan to manage erosion, sedimentation and stormwater quality • floating turbidity barriers (or silt curtains) to contain sediment within the immediate in-water construction area • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective
Terrestrial 	Natural vegetation	Site Preparation and Construction	• loss of vegetation including wetland ecosystems • effects to vegetation due to dust deposition • loss of rare plants • alteration of wetland ecosystems due change in local groundwater level flows from dewatering activities	• replanting of native species • salvage and relocation replanting of rare plant species • implement soils management and dust management plans • design stormwater management plan in consideration of changes to groundwater flow regime, such as optimizing opportunities to recharge groundwater with surface water run off if required • environmental monitoring to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Terrestrial 	Natural vegetation	Operation and Maintenance	• alteration of wetland ecosystems from a change in groundwater flow patterns due to physical presence of the buildings and structures	• design stormwater management plan in consideration of changes to groundwater flow regime, such as optimizing opportunities to recharge groundwater with surface water run off if required • environmental monitoring to confirm appropriate mitigation measures are in place and effective
Terrestrial 	Natural vegetation	Decommissioning	• increased dust on vegetation from dismantling and demolition activities	• implement soils management and dust management plans • environmental monitoring to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Terrestrial 	Wildlife and wildlife habitat	Site Preparation and Construction	• disruption to wildlife movement and change in behaviour due to loss of wildlife corridors, construction of fencing, and sensory disturbance from construction activities, human presence, and blasting (increased dust, noise and vibration) • loss of existing wildlife habitat including potential for species at risk and migratory birds • vehicle collisions with wildlife	• avoid to the extent practical wildlife corridors, areas of nesting and feeding and implement any applicable permitting conditions for species at risk • develop guidance to train staff on wildlife interactions • avoid removal of nesting and feeding areas during breeding season • implement dust and noise management plan to reduce noise and dust levels at source • development of blasting plan and appropriate setbacks • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective
Terrestrial 	Wildlife and wildlife habitat	Operation and Maintenance	• bird strikes against buildings and tall structures • bird entanglement in security fencing • vehicle collisions with wildlife	• use of appropriate building materials, finishes and/or level of lighting on buildings and structures to reduce bird strikes • incorporate in the design of security fencing systems measures to reduce the incidence of bird entanglement and entrapment to the extent practicable. • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Terrestrial 	Wildlife and wildlife habitat	Decommissioning	• sensory disturbances to wildlife due to dismantling and demolition activities (increased dust, noise and vibration) and human presence • vehicle collisions with wildlife	• implement dust and noise management plan to reduce noise and dust levels at source • develop guidance to train staff on wildlife interactions • development of blasting plan and appropriate setbacks • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Health Traffic 	Traffic and transportation	All Phases	• effects on public health and well-being due to actual and perceived project-related effects • changes to demographics and influx of additional people to the area, which may affect community well-being • effects on public safety from increased traffic, and operation • effects on community services (i.e., healthcare services and providers) and infrastructure due to increase in demand associated with increased population • decrease in level of service on roadways and at intersections due it increased vehicle traffic • degradation of road systems and increase in collisions	• share public project updates • implement a traffic management plan with the objective of reducing disruption and maintaining safe traffic conditions during all phases • work with local municipalities on availability of community services and infrastructure • develop Emergency Preparedness and Response Plan • environmental monitoring and adaptive management to confirm appropriate mitigation measures are in place and effective • implement a traffic management plan with the objective of reducing disruption and maintaining safe traffic conditions during all phases • implement road improvements where required • consider transportation modes that reduce vehicular traffic to/from the site

Physical and Biological Environment, Health, Social, and Economic Context		Project Phase	Real and Potential Impacts	Potential Mitigations
Health Social and Economic 	Employment and economy	All Phases	• increase in direct and indirect employment opportunities • increased economic development, attraction, and retention opportunities for local business • increased municipal revenue from permits and development fees and additional property taxes	• Source labour, goods and services from the regional area to the extent practicable
Social and Economic 	Population and demographics	All Phases	• change to demographics due to increased employment opportunities associated with increased population due to incoming workers and their families • changes to local housing market, including demand for rental properties and temporary accommodations; including effects on property values in proximity to the NNW Project	• work with local municipalities on housing availability to inform a housing strategy for the area • share public project updates
	Agricultural land use	All Phases	• effects to current land use and land access for agricultural purposes • potential loss of soil and land available for agricultural development	• salvage topsoil used for agricultural purposes

5. SUMMARY – ENGAGEMENT WITH RIGHTS-HOLDING FIRST NATIONS AND INTERESTED INDIGENOUS COMMUNITIES

Overview

OPG values the unique histories and cultures of Indigenous peoples and strives to be an engaged, productive partner with Rights-holding First Nations and interested Indigenous communities. Guided by OPG's core values and Reconciliation Action Plan (RAP) (Ontario Power Generation, 2021), OPG is dedicated to building strong, collaborative relationships based on respect, trust, and transparency, engaging meaningfully with Rights-holding First Nations and interested Indigenous communities, supporting their priorities, and ensuring OPG operations contribute positively to Rights-holding First Nations and interested Indigenous communities' well-being.

Building and maintaining positive, respectful relationships with First Nations and interested Indigenous communities through engagement is fundamental to the IA process. OPG is committed to advancing reconciliation by acknowledging, understanding and addressing impacts to the rights and interests of Rights-holding First Nations and interested Indigenous communities.

OPG's RAP was launched to support the Truth and Reconciliation Commission's Call to Action #92, which urges corporations in Canada to help create a better future (2025). In June 2024, the RAP has been refreshed by leaders across the company and incorporates feedback from Indigenous communities and businesses and focuses on maximizing economic impact on the traditional territories where OPG operates.

Summary of Engagement Activities

In summary, as of October 2025, OPG has engaged with Rights-holding First Nations and interested Indigenous communities, via the following:

- Established relationship and regular minimum monthly cadence meetings with MS-WTFNs as Rights-holding First Nations to discuss key issues and priority areas.
- Focused workshops to garner input and feedback around key interests, issues and studies with MS-WTFNs.
- Ongoing draft deliverable and schedule sharing for input and feedback through an established NNW Project-specific sharepoint site with MS-WTFNs.

- Starting in spring 2025, OPG has provided MS-WTFNs with weekly outreach requesting MS-WTFNs' liaison participation in ongoing field studies, where health and safety provisions can accommodate.
- Starting in spring 2025, providing weekly field work summaries to MS-WTFNs for activities at the NNW site and highlighting key observations.
- Exploring including Michi Saagiig Anishinaabeg perspectives in the Port Hope Nuclear Discovery Centre (information centre), which had its grand opening on October 10, 2025. The Port Hope Nuclear Discovery Centre opened to the public on October 15, 2025.
- OPG has maintained ongoing outreach to the Chippewas of Beausoleil First Nation, Chippewas of Georgina Island First Nation, and Chippewas of Rama First Nation regarding the NNW Project through Chippewa Tri-Council meetings and through email correspondence on areas of interest.
- OPG has maintained ongoing outreach to the Wendat Nation regarding archaeological assessments at the NNW Project mainly through email correspondence.
- OPG has engaged with the Mohawks of the Bay of Quinte regarding the NNW site. Engagements with Mohawks of the Bay of Quinte have included a call in July 2024 to discuss the potential for new generation development at Wesleyville in Port Hope, a virtual call in May 2025 to discuss interest in touring the Darlington Nuclear Generating Station and to provide an introduction to nuclear and OPG as an electricity generator, and a June 2025 follow-up email to coordinate details for the proposed tour. These engagements reflect OPG's commitment to providing information, seeking input, and supporting relationship-building with Mohawks of the Bay of Quinte regarding both potential new nuclear development and educational opportunities.
- OPG has participated in project information/booths at local community events. These engagements reflect OPG's commitment to providing information, seeking input, and supporting relationship.
- In November 2024, OPG provided a draft version of the IPD to MS-WTFNs with placeholders seeking input and feedback. Since this time, OPG has welcomed collaborative input from the MS-WTFNs, culminating in the full IPD document. By reading the full IPD document, you will gain a broader and more informed perspective that honours the significance of contributions made by the MS-WTFNs. OPG would like to thank the Elders, Knowledge contributors, staff, and community members, who have shared their insights and guidance throughout this process. We are grateful for the opportunity to listen, learn, and work together.

Key Interests and Issues Raised

From our dialogues with the MS-WTFNs, the key interests and issues that OPG has learned as of October 2025 are:

- Ability to hold Nation-to-Nation discussions including understanding how regulators will apply UNDRIP and FPIC and the role of OPG.
- That decisions about homelands honour responsibilities and respect individual and collective rights. MS-WTFNs raise concerns the current process structure input may be treated as commentary rather than co-decision-making.
- Decision making and contribution through a western process that differs from an Indigenous worldview.
- Nation-to-Nation relationship is not reflected in the western IA process design and ensuring sufficient capacity and full participation of MS-WTFNs.
- Concern around Interim and long-term storage and transportation of nuclear waste, the protection of what MS-WTFNs consider to be Lands, Waters and Relatives, and decision-making.
- Waste storage and transport are among the greatest sources of concern for MS-WTFNs communities.
- Real and potential impacts to rights, Relations' health, identity, spirituality and holistic well-being from an MS-WTFNs' perspective. Including risks to hunting, fishing, harvesting, access, language, spirituality, wellbeing, cultural continuity and revitalization.
- The importance of recognizing Indigenous Knowledge and values and the need to apply MS-WTFNs' perspectives, lenses and frameworks in the Western IA process.
- Use of a Western IA framework without equal weight to Indigenous frameworks, which require adequate timelines and capacity funding.
- The need to understand the real and potential impacts over generations to understand cumulative effects from a MS-WTFNs' lens.
- Real, pre-existing, and ongoing - felt impacts through colonization, Treaties, and restricted access to the NNW site and connections, which support the Michi Saagiig Anishinaabeg way of life, rights, and relationships with all living beings.
- The need to understand historical, current and future of real and potential impacts over generations.
- Timelines and ensuring respect for cultural ceremonies, practices, protocols and MS-WTFNs' governance.
- The need for detailed project information and sufficient data to understand the real and potential impacts.
- Inclusion of decommissioning activities as part of the IA and inclusion of MS-WTFNs' decision making.
- The importance of respectful care for Ancestors and cultural landscapes through established safeguards and protocols to preserve archaeology and cultural heritage.

- The importance of MS-WTFNs' members' confidence in nuclear safety and community readiness, and MS-WTFNs' input and participation.
- Risks of misuse and misinterpretation of MS-WTFNs' shared Indigenous Knowledge and perspectives including ownership, control, access, and possession (OCAP®)[9] principles and Indigenous Knowledge protection; and sensitivity and historical context around the name "Wesleyville".

OPG remains committed to respectfully listening to and understanding the perspectives and concerns shared by MS-WTFNs and to supporting the MS-WTFNs preferred involvement in the IA process.

OPG will continue to listen to all perspectives shared by Rights-holding First Nations and interested Indigenous communities.

Future Engagement

OPG will take direction from Rights-holding First Nations and interested Indigenous communities with respect to when, how and to what extent they wish to be engaged and participate in the various stages of the NNW Project. OPG will work with each Rights-holding First Nation and interested Indigenous community to understand engagement protocols and procedures, appropriate methods of communication and engagement, and develop the community-specific engagement plans. OPG will work with each Rights-holding First Nation and interested Indigenous community to understand how interests, concerns and any real and potential impacts to rights might be appropriately addressed and how collaborative decisions will be made.

Engagement methods with Rights-holding First Nations and interested Indigenous communities could include a variety of activities, based on their preferences, including but not limited to:

- in-person or virtual meetings
- one-on-one or group meetings
- information sessions
- email correspondence
- Indigenous working groups
- workshops and working group sessions
- participation in field visits and site walks
- reviews of plans, reports, and other documents
- monitoring committees

[9] *OCAP® is a registered trademark of the First Nations Information Governance Centre (FNIGC) https://fnigc.ca/ocap-training/*

Engagement plans will be designed to be flexible and responsive. As such, they will be considered living documents subject to review and modification in response to WTFNs' values, priorities, and Rights as well as the interests of interested Indigenous communities, as well as unanticipated opportunities, events, or issues as they arise. As the NNW Project moves into different phases, engagement plans will be updated to reflect anticipated activities. OPG will be accountable to the commitments made in the engagement plan and ensure transparency in communicating progress and setbacks.

6. SUMMARY – ENGAGEMENT WITH THE PUBLIC AND OTHER GROUPS

Overview

OPG is committed to building long-lasting relationships with local communities, the public and key stakeholders. OPG fosters open, transparent and ongoing communications through a range of engagement activities and aims to facilitate the following understanding with interested public and other groups with respect to project development and regulatory processes:

- project details, regulatory processes and requirements
- how the NNW Project contributes to the province of Ontario's energy demand and decarbonization goals
- how participation and engagement is reflected in processes and regulatory submissions
- sustainability, and benefits from the NNW Project

Interested public and other groups include but are not limited to:

- all levels of government
- municipal staff
- businesses
- educational institutions
- social services and healthcare organizations
- public groups (such as non-governmental organizations, community and neighbourhood associations, and business improvement associations)
- residents and property owners
- general public and interested parties

Summary of Engagement Activities

To date, OPG has engaged with the public and other groups, in a variety of ways, including:

- Creation of a project-specific website (opg.com/Wesleyville) to provide project updates and information. The website also provides an opportunity for interested parties to subscribe to receive project updates.
- Creation of a project-specific email address (wesleyville@opg.com) to encourage dialogue, engagement and answering of questions.
- Creation and sharing of a project-specific timeline to outline project processes and opportunities for public input.

- Use of a toll-free information line (1-800-461-0034) to allow another mechanism for interested parties to contact OPG to discuss the NNW Project.
- News releases and social media posts providing updates on the NNW Project.
- Regular and ongoing meetings with mayor and council (beginning in January 2025).
- Creation of a joint working group with Port Hope staff to provide briefings and ongoing updates (starting in February 2025).
- Emails, sent to stakeholders and interested parties introducing the potential project (March 2025) and providing an update on progress (October 2025).
- Regular briefings held with local stakeholders, community groups and interested parties (including Friends of Wesleyville, Willowbeach Field Naturalists, Northumberland Land Trust, GRCA). (Ongoing).
- An introductory letter on the NNW Project delivered to near-site neighbours, including direct contact information to OPG's NNW Project engagement team (April 2025).
- An NNW Project newsletter, mailed to all postal codes within the Township of Port Hope (April 2025).
- NNW Project overview presentations and tours completed with the Port Hope Mayor, Chief Administrative Officer, members of council and the Port Hope Chamber of Commerce (March-July 2025).
- Monthly community updates provided to local stakeholders.
- A series of four information sessions was held locally in the Port Hope community to provide an overview of the NNW Project and offer an opportunity to discuss and ask questions (April 2025).
- An early engagement survey, accessible at the public information sessions, sought to understand the community's preferred methods of learning about the proposed NNW Project, the topics they are most interested in, and their preferred ways of providing feedback (April 2025).
- Delegations to Port Hope Council (Planned quarterly updates May 2025, September 2025).
- Opening of the Port Hope Nuclear Discovery Centre (information centre) (October 2025).
- NNW Project brochure published and mailed to all postal codes in Northumberland County (November 2025).
- Participation in/information booth at industry and municipal conferences (Canadian Nuclear Association, Ontario East Municipal Conference, Association of Municipalities of Ontario).
- NNW Project information/booths at a variety of local community events, including:
  - Port Hope Library Lunch and Learn
  - sponsored swim and skate events at local community centres

- Port Hope Float your Fanny Down the Ganny
- Northumberland Highland Festival
- Cobourg Sandcastle Festival
- Port Hope Arts Festival
- Port Hope Fall Fair

Key Interests and Issues Raised

Key interests and issues raised to date through engagement fall under the following themes:

- need for the project
- project details
- local municipal government engagement
- rightsholder engagement
- community and stakeholder engagement
- IA process
- potential project effects
- NNW site ecology
- economic effects
- waste management
- emergency preparedness
- land use
- technology
- other

How OPG has or plans to address the key interests and issues raised includes:

- providing information in the IPD
- through completion of additional field studies and
- through ongoing engagement activities throughout the IA process and project lifecycle

Future Engagement

OPG remains committed to ensuring the public and stakeholders with an interest in the NNW Project are provided with relevant information and have the opportunity to meaningfully engage with OPG. Information will be communicated in a number of ways based on interests and preferred means of communication. Plans for future engagement include:

- updates to the NNW Project website
- NNW Project information line and email address
- public engagement opportunities in the local community, advertised using local media and social media
- news and media releases
- site tours, briefings and presentations to stakeholders, community groups and the public

- NNW Project update emails and letters
- delivery of NNW Project mailers and newsletters
- development of communication tools including infographics, plain language summaries, factsheets and videos
- public information sessions and town hall meetings
- focused workshops to engage with groups and organizations on topics including socio-economic conditions, human health and well-being and the environment
- delegations to local municipal council
- information booths at local community facilities and events
- future engagement plans will be flexible and adaptive, evolving in response to the feedback we receive to ensure we continue to meet the needs of the local communities, key stakeholders and the public

7. NEXT STEPS

Overview

The federal IA process is comprised of five distinct phases. Phase 1 (Planning) begins with the submission of the IPD. Following submission, the Agency will determine whether an IA is required. If the Agency determines that an IA is required, the NNW Project will proceed to Phase 2 (Impact Statement). This is followed by Phase 3 (Impact Assessment), undertaken by the integrated Review Panel, and Phase 4 (Decision-Making), where the Minister (or Governor in Council) issues a decision statement. The process concludes with Phase 5 (Post-Decision), which involves implementation, follow-up, and compliance monitoring to ensure the project is carried out in accordance with the conditions outlined in the Decision Statement.

Phase 2 Impact Statement

Should the Agency decide that an IA is required for the NNW Project, the following overarching activities, aligned with the project-specific Tailored Impact Statement Guidelines, would be completed in Phase 2 IS:

- characterization of existing environmental conditions of the NNW site and surrounding areas
- assessment of real and potential environmental impacts of NNW Project and cumulative effects

Characterization of existing environmental conditions

Data to characterize the NNW site and surrounding areas would be collected for the following IA components:

- Indigenous Peoples
- Atmospheric, Acoustic, and Light Environment
- Meteorological
- Radiation and Radioactivity
- Geological and Hydrogeological Environment
- Aquatic Environment
- Surface Water and Lake Conditions
- Terrestrial Environment
- Cultural Heritage
- Socio-Economic Environment
- Sustainability
- Traffic and Transportation
- Land Use
- Ecological and Human Health

Assessment of real and potential impacts

The effect of the NNW Project will be assessed based on the existing conditions data and Western and Indigenous methodologies. The assessments conducted may rely on modeling, climate change projections, risk projections, and other methods. The results will consider cumulative effects through western science and as shared by Rights-holding First Nations and interested Indigenous communities' frameworks of understanding, evaluation and analysis.

Mitigation measures to reduce effects will be proposed through both western science and Indigenous frameworks to reduce real and potential impacts.

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Annex A. IPD/IMTLR Concordance Table

Table A-1: IPD/IMTLR Concordance Table

Information Requirements			OPG NNW IA Initial Project Description Summary
IMTLR (Schedule 1) Section	**Title**	**Description**	**Section**
A	General Information	1. The project name, type or sector and proposed location.	1
		2. The proponent's name and contact information and the name and contact information of their primary representative for the purpose of the description of the project.	1
		3. A summary of any engagement undertaken with any jurisdiction or other party, including a summary of the key issues raised and the results of the engagement, and a brief description of any plan for future engagement.	6
		4. A list of the Indigenous groups that may be affected by the carrying out of the project, a summary of any engagement undertaken with the Indigenous peoples of Canada, including a summary of key issues raised and the results of the engagement, and a brief description of any plan for future engagement.	5
		5. Any study or plan, relevant to the project, that is being or has been conducted in respect of the region where the project is to be carried out, including a regional assessment that is being or has been carried out under section 92 or 93 of the Act or by any jurisdiction, including by or on behalf of an Indigenous governing body, if the study or plan is available to the public.	1
		6. Any strategic assessment, relevant to the project, that is being or has been carried out under section 95 of the act.	1
B	Project Information	7. A statement of the purpose of and need for the project, including any potential benefits.	2
		8. The provisions in the schedule to the Physical Activities Regulations describing the project, in whole or in part.	2

Information Requirements			OPG NNW IA Initial Project Description Summary
IMTLR (Schedule 1) Section	**Title**	**Description**	**Section**
		9. A list of all activities, infrastructure, permanent or temporary structures and physical works to be included in and associated with the construction, operation and decommissioning of the project.	2
		10. An estimate of the maximum production capacity of the project and a description of the production processes to be used.	2 (Activities, Infrastructure, and Physical Works: Overview)
		11. The anticipated schedule for the project's construction, operation, decommissioning and abandonment, including any expansions of the project.	2
		12. A list of: (a) potential alternative means of carrying out the project that the proponent is considering and that are technically and economically feasible, including through the use of best available technologies; and	2
		(b) potential alternatives to the project that the proponent is considering and that are technically and economically feasible and directly related to the project.	2
C	Location Information	13. A description of the project's proposed location, including: (a) its proposed geographic coordinates, including, for linear development projects, the proposed locations of major ancillary facilities that are integral to the project and a description of the spatial boundaries of the proposed study corridor; (b) site maps produced at an appropriate scale in order to determine the project's proposed general location and the spatial relationship of the project components; (c) the legal description of land to be used for the project, including, if the land has already been acquired, the title, deed or document and any authorization relating to a water lot; (d) the project's proximity to any permanent, seasonal or temporary residences and to the nearest affected communities; (e) the project's proximity to land used for traditional purposes by Indigenous Peoples	3

Information Requirements			OPG NNW IA Initial Project Description Summary
IMTLR (Schedule 1) Section	**Title**	**Description**	**Section**
		of Canada, land in a reserve as defined in subsection 2(1) of the Indian Act, First Nation land as defined in subsection 2(1) of the First Nations Land Management Act, land that is subject to a comprehensive land claim agreement or a self-government agreement and any other land set aside for the use and benefit of Indigenous Peoples of Canada; and (f) the project's proximity to any federal lands.	
		14. A brief description of the physical and biological environment of the project's location, based on information that is available to the public	3
		15. A brief description of the health, social and economic context in the region where the project is located, based on information that is available to the public or derived from any engagement undertaken.	3
D	Federal, Provincial, Territorial, Indigenous, and Municipal Involvement	16. A description of any financial support that federal authorities are, or may be, providing to the project.	3
		17. A list of any federal lands that may be used for the purpose of carrying out the project.	3, 4
		18. A list of any jurisdictions that have powers, duties or functions in relation to an assessment of the project's environmental effects.	1
E	Potential Effects of the Project	19. A list of any non-negligible adverse changes – to the following components of the environment that are within the legislative authority of Parliament – that may be caused by the carrying out of the project: (a) fish and fish habitat, as defined in subsection 2(1) of the Fisheries Act; (b) aquatic species, as defined in subsection 2(1) of the *Species at Risk Act*; and (c) migratory birds, as defined in subsection 2(1) of the Migratory Birds Convention Act, 1994.	4 (Table 6)

Information Requirements			OPG NNW IA Initial Project Description Summary
IMTLR (Schedule 1) Section	**Title**	**Description**	**Section**
		20. A list of any non-negligible adverse changes to the environment – that would occur on federal lands – that may be caused by the carrying out of the project.	4 (Table 8)
		20.1. A list of any non-negligible adverse changes to the marine environment – that are caused by pollution and that would occur outside Canada – that may be caused by the carrying out of the project.	4
		20.2. A list of any non-negligible adverse changes to interprovincial waters or to boundary waters or international waters, as those terms are defined in subsection 2(1) of the Canada Water Act, – that are caused by pollution – that may be caused by the carrying out of the project.	4
		21. With respect to the Indigenous Peoples of Canada, a brief description of any nonnegligible adverse impacts on physical and cultural heritage, the current use of lands and resources for traditional purposes or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance — occurring in Canada and resulting from any change to the environment — that may be caused by the carrying out of the project, based on information that is available to the public or derived from any engagement undertaken with the Indigenous Peoples of Canada.	4 (Table 7)
		22. A brief description of any non-negligible adverse changes occurring in Canada to the health, social or economic conditions of the Indigenous Peoples of Canada, that may be caused by the carrying out of the project, based on information that is available to the public or derived from any engagement undertaken with the Indigenous Peoples of Canada.	4 (Table 7)
		22.1. If the project is to be carried out on federal lands or is a federal work or undertaking, as defined in subsection 3(1) of the Canadian Environmental Protection Act, 1999, a list of any non-negligible adverse effects that may be caused by the carrying out of the project.	4 (Real and potential impacts of the project (preliminary): Overview) (Table 8)

Information Requirements			OPG NNW IA Initial Project Description Summary
IMTLR (Schedule 1) Section	**Title**	**Description**	**Section**
		23. An estimate of any greenhouse gas emissions associated with the project.	4
		24. A list of the types of waste and emissions that are likely to be generated — in the air, in or on water and in or on land — during any phase of the project.	4
F	Summary	25. A plain-language summary of the information that is required under items 1 to 24 in English and in French.	Provided in this document