

**Centre Village Renewables Integration and Grid Security Synchronous
Condensing/Generation Facility Project - Initial Project Description Summary**

July 4, 2025

Prepared for:
Impact Assessment Agency of Canada

Prepared by:
PROENERGY Holding Company, Inc. "PROENERGY"

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Acronyms / Abbreviations

| | |
|-----------------|--|
| %HA | percent highly annoyed |
| AC CDC | Atlantic Canada Conservation Data Centre |
| AQMS | Air Quality Management System |
| CCME | Canadian Council of Ministers of the Environment |
| CEPA, 1999 | <i>Canadian Environmental Protection Act, 1999</i> |
| CH ₄ | methane |
| CIP | Clean-in-Place |
| CO | carbon monoxide |
| CO ₂ | carbon dioxide |
| COSEWIC | Committee on the Status of Endangered Wildlife |
| CTG | combustion turbine generator |
| CWS | Canadian Wildlife Service |
| dBA | A-weighted decibels |
| DFO | Fisheries and Oceans Canada |
| ECCC | Environment and Climate Change Canada |
| ESA | Environmentally Significant Area |
| FWAL | Freshwater Aquatic Life |
| g/L | grams per litre |
| GCDWQ | Guidelines for Canadian Drinking Water Quality |
| GHG | greenhouse gas |
| GJ | gigajoule |
| ha | hectare |
| IAAC | Impact Assessment Agency of Canada |
| IPD | Initial Project Description |
| km | kilometre |
| kV | kilovolt |
| kW | kilowatt |
| L/min | litres per minute |
| m | metre |
| M&NP | Maritimes and Northeast Pipeline |
| masl | metres above sea level |
| Mt | million tonnes |
| MTI | Mi'gmawe'l Tplu'taqnn Incorporated |

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Acronyms / Abbreviations

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| | |
|-------------------|--|
| MW | megawatt |
| N ₂ O | nitrous oxide |
| NB Power | New Brunswick Power Corporation |
| NB SARA | New Brunswick <i>Species at Risk Act</i> |
| NBDELG | New Brunswick Department of Environment and Local Government |
| NBDNRED | New Brunswick Department of Natural Resources and Energy Development |
| NBDTHC | New Brunswick Department of Tourism, Heritage, and Culture |
| NBDTI | New Brunswick Department of Transportation and Infrastructure |
| NBHC | New Brunswick Health Council |
| NH ₃ | ammonia |
| NO _x | nitrogen oxides |
| NSMTC | North Shore Mi'kmaq Tribal Council |
| O ₂ | oxygen |
| PID | Property Identification Number |
| PM | particulate matter |
| PM _{2.5} | particulate matter of 2.5 microns in diameter or smaller |
| PPA | power purchase agreement |
| PROENERGY | PROENERGY Holding Company, Inc. |
| RIGS | Renewables Integration and Grid Security |
| RoW | right-of-way |
| SACC | Strategic Assessment of Climate Change |
| SAR | Species at Risk |
| SARA | <i>Species at Risk Act</i> |
| SO ₂ | sulphur dioxide |
| SOCC | Species of Conservation Concern |
| t | tonne |
| the Project | Centre Village Renewables Integration and Grid Security Synchronous Condensing/Generation Facility Project |
| t/y | tonnes per year |
| TSP | total suspended particulate matter |
| ULSD | ultra-low sulphur diesel |
| V | volt |
| Wattbridge | WattBridge Energy IPP Holdings, LLC |
| WSSA | Water Supply Source Assessment |

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1 Introduction

PROENERGY together with its subsidiary WattBridge Energy IPP Holdings, LLC (WattBridge) (the Proponent) is pleased to submit this Initial Project Description (IPD) Summary for the Centre Village Renewables Integration and Grid Security Synchronous Condensing/Generation Facility Project (the Project) in accordance with the *Impact Assessment Act*.

New Brunswick Power Corporation (NB Power) has identified the need to secure an additional 500 megawatt (MW) of in-province power generating capacity by Q3 2028. WattBridge, together with the North Shore Mi'kmaq Tribal Council (NSMTC) as a minority equity holder, is proposing a 500 MW power generating station located off Route 940 in Centre Village, New Brunswick, which would begin operation in Q3 2028. The Project would play an essential role in enabling the renewables integration strategy for the Province of New Brunswick and more broadly the Atlantic region.

2 General Information

| | |
|----------------------------------|--|
| Project Name: | Centre Village Renewable Integration and Grid Security Project (the Project) |
| Sector: | Energy |
| Location: | Centre Village, New Brunswick |
| Name of Proponent: | WattBridge c/o PROENERGY |
| Address of Proponent: | 2001 PROENERGY Blvd Sedalia, MO 65301 |
| Principal Contact Person: | Cliff Oliver, Vice President Development coliver@wattbridge.info (404) 314-5220 |

WattBridge is a global independent power producer specializing in providing innovative solutions for energy management and optimization. WattBridge leverages highly reliable aeroderivative gas-turbine technology to deliver large-scale, reduced-emission, peaking-power generation in support of renewable reliability and energy security. For this Project, WattBridge, together with the NSMTC, is entering into a power purchase tolling agreement with NB Power.

The Project is strategically located in Westmorland County (Figure 2.1) at a site with close proximity to an existing 138 kilovolt (kV) transmission line owned and operated by NB Power and the Maritimes and Northeast Pipeline (M&NP) 30" natural gas pipeline.

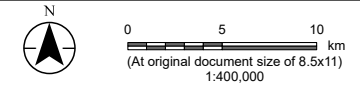
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Figure No. **2.1**
 Title **Project Location**

Client/Project 121418452
 WattBridge Energy LLC
 RIGS-Centre Village

Project Location Prepared by NW on 2025-01-14
 Centre Village, NB Revised by AC on 2025-06-26



- Legend**
- ★ Project Location
 - Transmission Line
 - Highway
 - Collector
 - Local Road
 - Resource Road; Gravel Road
 - Watercourse
 - Waterbody
 - Wetland
 - Forested Area
 - Non-Forested Area
 - Protected Conserved Area
 - Provincial Boundary



Notes

1. Coordinate System: NAD 1983 CSRS New Brunswick Stereographic
2. Data Sources: Client; Service NB; Canadian Wildlife Service, Atlantic Region
3. Background: Esri, USGS; GeoNB; NB ELG; NB NRED; NS ECC; NS NRR; NRCan CanVec; Service NB



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3 Summary of Government and Public Stakeholder Engagement

3.1 Engagement with Government Agencies

NB Power and WattBridge have held preliminary discussions with representatives of IAAC and the New Brunswick Department of Environment and Local Government (NBDELG) on November 22, 2024, May 30, 2025, and June 18, 2025 to understand the impact assessment process and permitting requirements for the proposed Project. In addition to discussing the regulatory process, key issues and comments raised to date during regulatory engagement include the following:

- Potential greenhouse gas emissions and effects on air quality
- Sustainability of the groundwater resource
- Potential impacts to wetlands and aquatic habitat
- Archaeological resources
- The need for meaningful consultation and engagement

WattBridge will continue to meet with provincial and federal government agencies as required during all phases of the Project to address questions or key issues raised.

3.2 Engagement with Public Stakeholders

No formal Project-specific public engagement has been conducted to date by either NB Power or WattBridge other than discussions with specific landowners regarding land access.

WattBridge is committed to sharing information with stakeholders and the public throughout the life of the Project and will develop a consultation and engagement plan that will be inclusive and adaptive for stakeholder groups and the general public to receive information, provide input and express concerns. Public engagement on the Project is planned to begin in summer 2025.

4 Summary of Indigenous Engagement

New Brunswick is home to 15 First Nations communities, nine of which are Mi'kmaq and six are Wolastoqey. There is also the Peskotomuhkati Nation at Skutik (formerly known as the Passamaquoddy Nation) that held territory in the southwestern corner of what is now New Brunswick at the border with Maine; however, it is not an officially recognized First Nation in Canada at this time. The Peskotomuhkati Recognition Group is presently in the process of becoming recognized by the Government of Canada and the Province of New Brunswick as a community that must be consulted as rights holders.

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WattBridge engaged NSMTC during the NB Power procurement process for the Project extending an invitation for collaboration. In August 2024 NSMTC signed a Letter of Intent stating their intent to participate as a partner with WattBridge on the Project. WattBridge engaged NSMTC in the site selection process with NB Power and continues to engage NSMTC leadership in Project planning. NSMTC Member Nation communities include: Ugpig'anjig (Eel River Bar) First Nation, Oinpegitjoig (Pabineau) First Nation, Natoaganeg (Eel Ground) First Nation, Metepenagiag (Red Bank) Mi'kmaq Nation, L'nui Menikuk (Indian Island) First Nation, Tjipögtötjg (Buctouche) First Nation, and Amlamgog (Fort Folly) First Nation (NSMTC 2025).

As part of early Project planning, between July 2024 and May 2025, NB Power conducted Indigenous engagement on the Project and engaged the following Indigenous groups:

- Mi'gmawe'l Tplu'taqnn Incorporated (MTI) is the consultative body representing eight of the nine Mi'kmaq communities located along the eastern coastal regions of New Brunswick
- Wolastoqey Nation in New Brunswick, a technical advisory body for the six Wolastoqey communities in New Brunswick
- Kopit Lodge, a Mi'kmaq organization representing Elsipogtog First Nation on resource development issues
- Peskotomuhkati Nation at Skutik

Early engagement focused on the need for, and purpose of, a Renewables Integration and Grid Security (RIGS) project with two potential locations identified (Scoudouc and Centre Village). As Project planning advanced, NB Power provided project updates including notification of field studies undertaken, site selection process, introduction of a preferred partner (WattBridge) and the anticipated federal and provincial regulatory process. Key questions raised during Indigenous engagement included those about:

- Proponent plans for engagement
- proximity of the Project to Indigenous communities
- use and source of natural gas for the Project
- ownership of Project lands

With the identification of WattBridge as the Proponent, NB Power is now transitioning to a supporting role in future Indigenous engagement efforts on the Project. WattBridge is in the process of developing an Indigenous engagement plan for the Project which will include engaging MTI and Amlamgog (Fort Folly) First Nation. WattBridge will also continue to engage NSMTC as a minor equity partner in the Project.

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5 Regional Assessments and Relevant Environmental Studies

Regional assessments are conducted in accordance with sections 92-94 and 96-103 of the *Impact Assessment Act* in areas of existing or anticipated development to help inform planning and management of cumulative effects and inform future project impact assessments. No regional assessments, as referenced in section 92-94 and 96-103 of the *Impact Assessment Act*, have been carried out that are relevant to the Project.

6 Strategic Assessments

No strategic assessments, as referenced in section 95 of the *Impact Assessment Act*, have been carried out that are relevant to the Project. However, the *Strategic Assessment of Climate Change (SACC)* (ECCC 2021) applies to designated projects under the *Impact Assessment Act*. It is relevant to the assessment of greenhouse gas (GHG) emissions and potential effects on climate change. The quantification of Project-related GHG emissions as per the SACC is presented in Section 23 of this IPD summary.

7 Project Purpose and Need

7.1 Purpose of the Project

The purpose of the Project is to improve generating capacity and provide grid support to maintain system reliability while accommodating the increasing supply of variable renewable energy sources to the power grid. The Project will also serve as a contingency (by providing additional energy) for the situation where load grows faster than expected, or aging units become less reliable or fail.

7.2 Need for the Project

The Province of New Brunswick is experiencing unprecedented electricity load growth, driven by a growing population and economy. In 2022, New Brunswick's electricity demand peaked at its greatest level since 2004, and in 2023, an all-time system peak was experienced due to a growing population and economy. NB Power may face an energy capacity deficit as early as the winter 2028 heating season and therefore has identified the need to secure an additional 500 MW of in-province capacity by the winter of 2028.

Renewables are a key element of NB Power's future energy mix. However, renewables generation sources are intermittent and lack the necessary inertia that stabilizes voltage in the grid. NB Power needs to be more self-sufficient in managing extreme weather events while also mitigating the grid instability brought on by deeper penetration of renewables.

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To make variable renewable generation sources more viable, they are best paired with dispatchable sources, demand side management programs, or energy storage to meet demand. Studies have shown that using a dispatchable capacity resource, such as thermal generation fueled by natural gas (and/or low sulfur diesel) is a low-cost way to manage the impacts of this increased need for electricity (peaks in electrical load). With turbine units reaching full power within 10 minutes, the Project provides an ideal solution in fast response to the variability of renewable generation.

In addition, a dispatchable resource can be run infrequently to support peak demand, while complementing the intermittent availability of variable renewable energy resources (e.g., wind, solar). Combustion turbine technology, currently used in the province, is the best cost-effective approach to address this issue. This technology also allows for the resource to be connected to the grid as a synchronous condenser in times when the reactive support is required, and the energy is not.

The Project represents a cost-effective, reliable solution to enable renewable energy growth and advance sustainability goals while meeting growing electricity demands in the province. Project technology, which features natural gas-powered turbines and emission reduction systems, represents a critical intermediate step toward decarbonization, and displacing coal power.

8 Physical Activities Regulations

The Project is a designated project in accordance with section 30 of the *Physical Activities Regulations* which list “the construction, operation, decommissioning and abandonment of a new fossil fuel-fired power generating facility with a production capacity of 200 MW or more”.

The Project will involve the construction, operation and decommissioning of a gas turbine generation facility which would have a capacity of approximately 500 MW and would be operated as needed to maintain system reliability and provide back-up energy generation.

The Project is not a component of a larger project that is not listed in the *Physical Activities Regulations*.

9 Project Infrastructure and Activities

9.1 Project Overview

The Project consists of a 500 MW power generating station comprising ten dual-fueled combustion turbine generators (CTGs) in a simple-cycle arrangement (Figure 9.1). The Project will connect with a 138 kV line on NB Power’s existing transmission network adjacent to the generating station and will generate fast-start power to fill renewable supply gaps when needed; absorb or generate energy as needed to maintain stable voltage levels through synchronous condensing; and support emergency conditions with the ability to restart a power system after a blackout or outage (i.e., black start capability) and provide back-up diesel operation.



- Legend**
- Site Features
 - Development Footprint (Approximate)
 - Project Area
 - Built Infrastructure**
 - Transmission Line (Existing)
 - Pipeline (Existing)
 - Land Use**
 - Property Boundary
 - Wetlands and Waterways**
 - Wetland (NBELG)
 - Wetland (Stantec)



- Notes**
1. Coordinate System: NAD 1983 CSRS New Brunswick Stereographic
 2. Data Sources: Client; Stantec; GeoNB (NBHN, NBRN); NB Natural Resources and Energy Development; NB Environment and Local Government; Service NB.
 3. Background: Esri, CGIAR, USGS, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Project Location: Centre Village, NB Prepared by AC on 2025-06-26

Client/Project: WattBridge Energy LLC 121418452
RIGS-Centre Village

Figure No. **9.1**
Title **Preliminary Site Layout**

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The CTGs will have the capability to use both natural gas and ultra-low sulfur diesel (ULSD) to generate electricity. The primary fuel will be natural gas which will be delivered to the site via pipeline by a third party. ULSD, which will be delivered to the site by truck via a third party and stored in an onsite fuel storage tank, will be used as a back-up fuel supply if needed.

Pending regulatory approvals, construction is planned to commence in Q1 2026, with a target commercial operation date of Q3 2028. The operational lifetime is expected to be a minimum of 25 years. Prior to the end of its planned operational life, a decision will be made in consultation with NB Power whether to perform equipment upgrades to repower the Project and extend its operational lifetime or proceed with decommissioning.

9.2 Project Infrastructure

9.2.1 Power Generating Equipment

The power generating station comprises ten dual-fuel CTGs which will be capable of generating electricity using both natural gas and ULSD as well as hydrogen fuel if available in the future. CTGs are typically assembled in a factory and are generally smaller than traditional industrial frame generators and can be shipped using standard transportation methods.

The CTGs will be installed on a continuous concrete pad foundation. Each CTG will also be equipped with an exhaust stack (approximately 20 m/65 ft) with required testing and monitoring ports and emission control systems. Auxiliary systems for the power generating equipment include the following:

- Natural gas fuel system – A fuel regulating station will regulate the supply of natural gas to be delivered to the site via a third party from an existing natural gas pipeline which borders the site.
- ULSD fuel system – Infrastructure for unloading, storage and supply of ULSD to the CTGs is included in Project design as back-up fuel supply.
- Emissions control system - Selective catalytic reduction/carbon monoxide (CO) emissions controls systems will include a continuous emission monitoring system for each CTG which will monitor nitrogen oxides (Nox), carbon monoxide (CO), carbon dioxide (CO₂), oxygen (O₂), ammonia (NH₃), and particulate matter (PM).
- Cooling system - Air cooling technology will comprise air-cooled generators and lube oil systems.

Volumes and composition of combustion fuel (natural gas and ULSD) will vary over the 25-year operation, but it is assumed the average annual fuel consumption for base case operations would be 3,031,618 gigajoules (GJ) of natural gas and 193,508 GJ of ULSD (assumes approximately seven days of ULSD use per year). Average annual fuel consumption for a stress case (i.e., maximum energy demand) would be 13,972,756 GJ of natural gas and 891,878 GJ of ULSD. Anticipated greenhouse gas emissions from Project operations have been calculated using the stress case values (Section 23).

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9.2.2 Ancillary Systems and Facilities

Ancillary systems and facilities that comprise the Project but are not directly linked to power generation include the following:

- **Switchyard** - A 138 kV switchyard will be developed to tie the 138 kV generation feeders to the existing 138 kV transmission line that crosses the Project site.
- **Administrative and Operations Building** - A multi-purpose building will be constructed to house administration and operation staff and will include a central control system for operation and monitoring of the CTGs
- **Water Supply and Treatment** - Operation of the CTGs will require a sustainable water supply. It is assumed that raw water will be supplied by groundwater wells on the property. A hydrogeological study is being completed to assess the location, number, and density of the water wells necessary to achieve a sustainable yield and inform final design. (i.e., WSSA). The proposed raw water treatment system will be designed to produce high-purity water for turbine operation using a combination of storage, chemical treatment, membrane filtration (reverse osmosis), and deionization processes.
- **Wastewater System** - The water purification process produces reject water containing the removed dissolved solids, impurities, and ions. The discharge of reject process water from the water purification process will be approximately one-third of the volume of raw water intake with water quality composition approximately three times the concentration of the raw groundwater quality. Additional information on the reject process water disposal is provided in Section 24.
- **Stormwater Management** - Stormwater will be managed using roadside ditches, swales, and culverts to direct water to an onsite stormwater management pond.
- **Fire Protection System** - The fire protection system will include carbon dioxide-based fire suppression system on the CTG enclosures and fire water supplied from reserved water in the demineralization water tank.
- **Access Road** - A paved access road, approximately 1.5 km within a 20 m wide right-of-way, will be constructed to provide access to the site from Route 940.
- **Onsite Roads and Parking** - An asphalt loop road enclosing all ten turbine units will be constructed and maintained on the site for the life of the Project. A paved parking lot will be used for onsite parking and laydown of equipment as needed.

9.3 Ancillary Infrastructure Outside Scope of Project

Natural gas will be delivered to the site by a third-party provider from the existing Maritimes and Northeast Pipeline (M&NP) that intersects the site. Natural gas delivery to the site, including new custody transfer, pressure reduction or metering stations that may be required to supply fuel to the Project are outside the scope of the Project as these facilities will be permitted, constructed, and operated by a third party (M&NP).

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9.4 Project Activities

9.4.1 Construction

Construction activities will include site preparation, access road construction, building construction and equipment installation, start-up and commissioning of equipment, and site clean-up and restoration of temporary work and storage areas. Typical construction equipment will include front-end loaders, backhoes, dump trucks, trailers, forklifts and cranes. Site preparation and construction activities are expected to take approximately one year and employ approximately 80 to 120 trades persons. During peak construction activity, construction truck traffic is expected to consist of approximately 20 trucks a day.

Pending approvals to proceed, site preparation activities are expected to start in Q1 2026 and will include clearing and grubbing of vegetation and levelling of the site to a predetermined grade. Vegetation clearing will be scheduled to occur outside of the migratory bird breeding season (mid-April to late August). Grading the site may involve cutting (e.g., excavation) or filling the area depending on existing elevations of the landscape. Blasting is not anticipated to be required for Project construction. Excavated rock and overburden will be stockpiled separately and stored on site for progressive and future site restoration activities. If borrow material (e.g., crushed rock) is required, it will be sourced from local, permitted pits or quarries. Erosion and sediment controls, including but not limited to the stormwater management pond, will be installed and maintained as necessary to protect soil from erosion and prevent sedimentation.

The proposed access road will be approximately 1.5 km long within with an approximately 20 m wide right-of-way. The access road will be paved to improve durability and facilitate winter snow removal. Preference will be given to incorporate existing disturbed areas (e.g., trails, temporary access road) in road design to reduce overall footprint of new disturbance.

Following site preparation activities, additional excavation may be required for building and equipment foundations. Underground piping installation work will also be conducted at this time. A continuous concrete foundation will be poured for the CTGs and individual building foundations will be constructed for the administrative/operations building. Following completion of foundation construction, building construction and equipment installation will occur, including installation of mechanical and electrical systems. Groundwater production wells will be drilled to supply process water for use by the CTGs. A hydrogeological assessment (i.e., WSSA) is planned to determine the number, location and specifications for production wells. Equipment will be trucked to site using transport trailers via the TransCanada Highway and local roads as necessary.

Once Project construction and installation activities are completed, the start-up and commissioning process can begin, in which performance testing and operator training protocols are conducted. Following construction, waste materials will be removed, stored soil replaced on areas not covered by asphalt or other infrastructure will be revegetated. Construction waste will be collected and disposed of at licensed waste facilities.

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9.4.2 Operation and Maintenance

During operations, the power generating station will combust natural gas (as the default fuel source) to produce power which will be converted to electrical power by coupled generators. The power generating station will not operate continuously. Each CTG will operate at approximately 46.3 MWs, up to the full ten units totaling 463 MW, in summer conditions (25°C) and 478 MW in winter conditions (-20°C). The facility will have a maximum nameplate capacity of 500 MW.

Operating hours will vary based on power demand, with peak operating hours expected to occur during the winter months of December through February of any given year. Assuming a typical operating scenario, the CTGs are expected to operate less than 10 hours a month from September through November. The highest operating hours for the Project are expected to occur between December and February of any given year, with operating hours ranging from approximately 105 to 528 hours.

Day to day operation and maintenance will be provided by a staff of approximately 8-10 maintenance and operations technicians. Inspection and maintenance will be conducted on a regular schedule consistent with industry operating experience. System maintenance will be conducted during “off-peak” periods or “shoulder” months (i.e., September-November and March-May). With proper planning of work during these periods, the Project will have a very low forced outage rate. The outage duration is expected to be approximately 48 hours per year per turbine. The Project will be designed to operate with reliability and resiliency during cold weather conditions.

9.4.3 Decommissioning and Abandonment

The Project is expected to operate for a minimum of 25 years and could be extended. A decommissioning decision would be based on system needs at that point in time, based on an updated integrated resource plan from NB Power. Decommissioning and abandonment will be conducted in accordance with a Decommissioning and Reclamation Plan and will involve full or partial removal of infrastructure at the end of the Project life and land reclamation as necessary to meet applicable land use objectives and regulatory requirements. The workforce required for decommissioning would be similar in composition to that required for construction, but smaller.

10 Estimated Maximum Production Capacity

The Project will have a maximum production capacity of 500 MW. Production will range from a single unit operating at 46.3 MW, up to the full ten units totaling 463 MW, in summer conditions (25°C) and 478 MW in winter conditions (-20°C).

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11 Project Schedule

The preliminary Project schedule is presented in Table 11.1. The operational lifetime is expected to be a minimum of 25 years. Prior to the end of its operational life, WattBridge will consider, in consultation with NB Power, whether to perform equipment upgrades to repower the Project and extend its operational lifetime or proceed with decommissioning. Project decommissioning is expected to take approximately two years.

Table 11.1 Preliminary Project Schedule

| Activity/Milestone | Anticipated Timeline |
|---|-------------------------|
| Field Surveys and Technical Studies | Q2-Q3 2025 |
| Stakeholder and Indigenous Engagement | Q1 2025-life of Project |
| Regulatory Review and Approval Process ¹ | Q3 2025-Q1 2026 |
| Site Preparation | Q1-Q2 2026 |
| Installation of Infrastructure | Q2 2026 – Q2 2027 |
| Start-up/Commissioning | Q4 2027 – Q1 2028 |
| Operations | Q3 2028-2053 |
| Decommissioning and Reclamation ² | 2053-2055 |

Notes:

¹Assumes provincial Environmental Impact Assessment (EIA) Determination Review process only.

²Decommissioning timing depends on the long-term economics of the facility and whether PPA contract is extended.

12 Project Alternatives

This section of the IPD summary identifies potential alternative means of carrying out the Project as well as alternatives to the Project. Alternative means are the various technically and economically feasible ways, including through the use of best available technologies, which would allow a designated project and its physical activities to be carried out. Alternatives to the Project are functionally different ways to meet the need for the Project and achieve its purpose that are technically and economically feasible.

12.1 Alternative Means of Carrying Out the Project

Alternative means of carrying out the Project that have been/are being considered include alternatives associated with facility siting and design, and alternative fuel sources, and effluent discharge options.

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12.1.1 Facility Siting and Design

In advance of the power procurement process and selection of WattBridge as the preferred proponent for the Project, NB Power initiated various studies to identify suitable sites for project development. Site selection for the Project focused primarily on proximity to power transmission, proximity to natural gas pipelines, minimizing transmission re-enforcements required to interconnect the Project, addressing existing and future transmission issues, and environmental and socio-economic constraints.

Biophysical and archaeological field surveys were undertaken at two candidate sites: one near the Scoudouc Industrial Park and the other the current proposed Project location at Centre Village. Both sites are located in southeastern New Brunswick and met the primary criteria, although desktop and field studies found the Centre Village site to have fewer environmental constraints (e.g., wetlands, watercourses, archaeological potential) and therefore NB Power, in consultation with WattBridge and NSMTC, selected Centre Village as the preferred site. Additional studies are ongoing to help optimize site design on the selected property to help reduce potential environmental effects associated with project development.

12.1.2 Alternative Fuel Sources

Natural gas generation will play an important role in the initial transition to replace emitting generation and reducing GHG emissions. Coal-fired generation would increase generating capacity but would not meet sustainability objectives and is not a preferred alternative as NB Power is seeking to reduce GHG emissions in line with provincial and federal decarbonization objectives.

The CTG technology selected for this Project is capable of burning natural gas and ULSD to produce electricity, as well as hydrogen gas if it becomes available in the future. Natural gas is the preferred fuel source as it is technically and economically feasible and burns cleaner than diesel (even ULSD which is the preferred alternative fuel source for the Project). However, relying on natural gas as a single fuel option was not preferred due to energy security risks related to gas supply. While hydrogen fuel represents further advancement toward decarbonization, and it is possible that over the lifetime of the Project the availability of hydrogen fuel in the region may improve, hydrogen as a fuel source for the Project at this time is currently not technically or economically feasible. The preferred fuel source option is therefore use of natural gas with ULSD as a back-up.

12.1.3 Alternative Effluent Discharge Options

The Project will generate considerable quantities of reject process water depending on the level of operations. Two proposed discharge scenarios are being considered for this reject water. The first scenario is the discharge to the proposed site ditch adjacent to the access road, and eventual discharge into a wetland 300 m west of the generating station. The secondary scenario is conveying effluent to the provincial ditch located along Route 940. Studies are currently underway to understand the design and environmental implications of both scenarios. WattBridge will also engage applicable landowners and regulatory agencies as part of the alternatives evaluation option for reject water discharge.

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12.2 Alternatives to the Project

Prior to engaging WattBridge in a Power Purchase Agreement, NB Power explored using alternative power supply options and/or demand-side resource programs as alternatives to the Project, although as described below, these alternatives were not technically or economically feasible and/or would not fulfill the Project's purpose. These alternatives are described to provide additional context for the purpose and the need for the Project, but it is important to note that none of these alternatives are within the mandate or control of WattBridge and therefore are not viable alternatives to the Project.

Several power supply options were explored as alternatives to the Project by NB Power, but not all generation supply options are equally capable of contributing to energy security in the same way. Electricity consumption is constantly changing, and energy supply must always be in balance with energy demand. Variable renewable generation sources like large wind and solar farms are dependent on factors like weather conditions and time of day. Accordingly, they're not able to efficiently respond at all times to the consumption needs of New Brunswickers. Battery storage can only put energy onto the grid for a finite period of time, based on overall storage capability. This limits the ability to backstop wind and provide reliable peaking capacity during the coldest days of the year.

Natural gas combustion turbines (same technology that was selected for the Project, but relying only on natural gas as a single fuel option) were evaluated, but not selected due to energy security risks related to gas supply. The selected alternative has a secondary fuel option to ensure energy security and availability of the resource in extreme conditions.

Natural gas combined cycle units were also considered. These units include both a natural gas-fired combustion turbine as well as a secondary steam turbine that makes them more efficient. This technology was ruled out because it would result in increased emissions and higher costs, both negative outcomes for New Brunswickers.

A final alternative to the Project that was considered by NB Power was for demand-side initiatives such as energy efficiency or demand response programs. Demand-side resources serve resource adequacy needs by reducing load, which reduces the need for additional generation. The energy efficiency method designs and deploys technologies and design practices that reduce energy use while delivering the same service (light, heat, etc.). Demand response method encourages electricity users to reduce their electricity consumption, particularly during times of high demand, or to shift their demand to parts of the day with lower demand, thus reducing the overall need for capacity. These programs provide great value to the system and are already being accelerated. However, the size and scope of demand side programs is not adequate to close the identified supply gap and are therefore not a viable alternative to the Project.

In summary, there are no technically and economically feasible alternatives to the Project to provide the necessary regulation of voltage and grid stability to accommodate variable renewable energy sources to the power grid and meet the required Project schedule. While generation emissions do increase using natural gas thermal generation, this Project will result in significant net reductions in overall electricity-related GHG emissions in the province and complies with the *Clean Electricity Regulations*.

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13 Geographic Information

The Project is located within a portion of a 223 ha parcel of land (PID 70113592) in Centre Village, in the Parish of Sackville, County of Westmoreland and Province of New Brunswick. NB Power is the registered owner and hold title in fee simple. The center coordinates for the Project Site (approximately 32 ha) within which Project infrastructure will be sited are 46° 02' 25.09" N and 64° 15' 38.78" W (Figure 13.1).

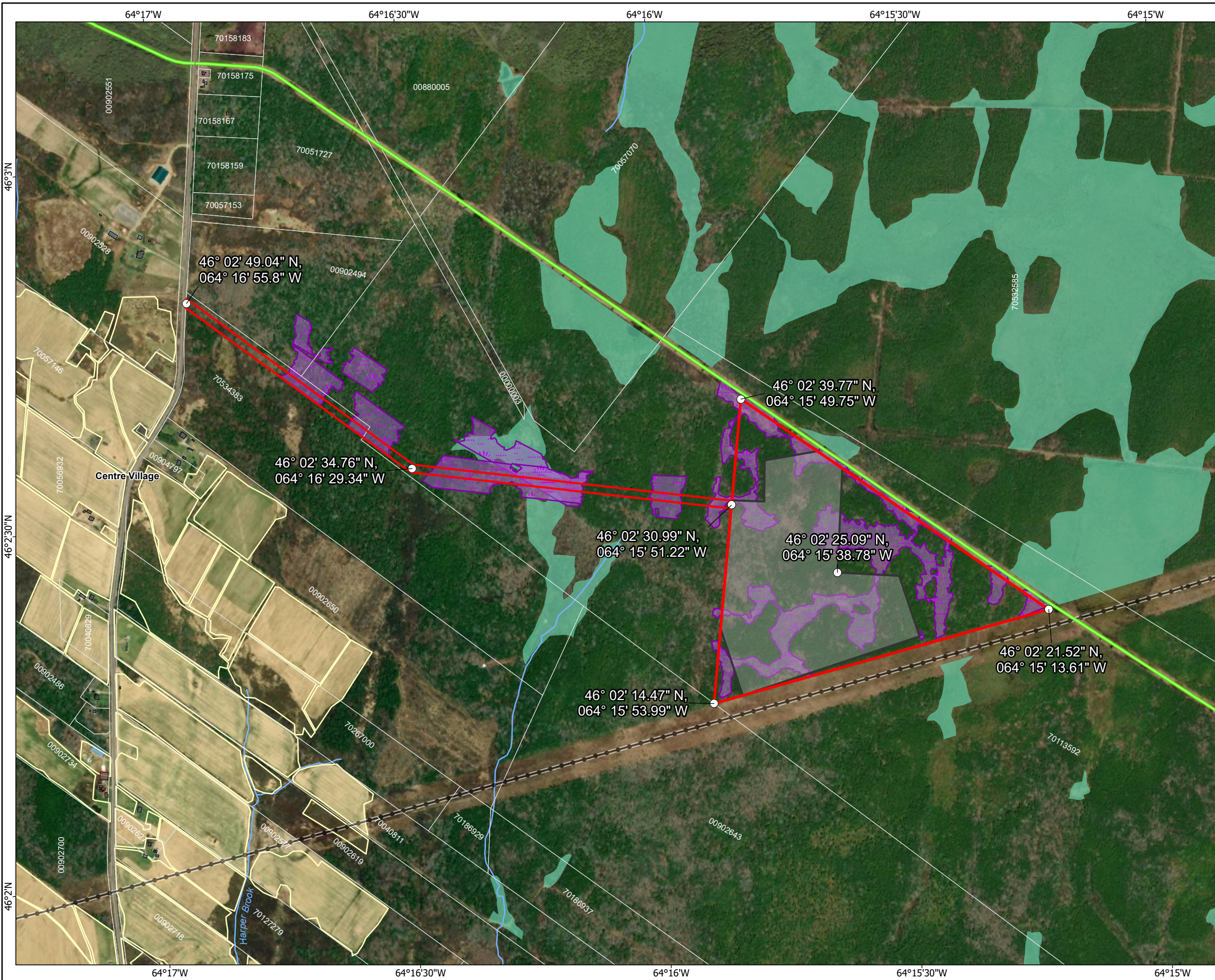
The Project site was selected as it represents a convergence of the M&NP 30" natural gas pipeline and a 138 kV transmission line owned and operated by NB Power. The Project Site is approximately 14 m from the M&NP pipeline and approximately 43 m from the transmission line. The approximate development footprint within the Project Site is expected to be 14.7 ha. Set back approximately 1.5 km east of Route 940, access to the site will require construction of a new access road across another parcel of privately owned land (PID 70534383) within a 20-m wide right-of-way (RoW). NB Power and WattBridge are in the process of negotiating a RoW for the access road. WattBridge will lease the land from NB Power for the life of the Project.

Surrounding lands are primarily agricultural and forested lands with residences scattered along Route 940. The nearest residence is approximately 1.4 km west from the Project site along Route 940.

The nearest Indigenous reserve lands to the Project are the Fort Folly Reserve No. 1 (56.1 ha) which is located approximately 23 km southwest of the Project, in Dorchester, NB. This reserve is associated with the Amlamgog (Fort Folly) First Nation. The next nearest Indigenous reserve land is the Metepenagiag Urban Reserve 3 (19.9 ha) which is approximately 36 km southwest of the Project. This reserve is associated with the Metepenagiag Mi'kmaq Nation. Amlamgog First Nation and Metepenagiag Mi'kmaq Nation are part of the NSMTC (NSMTC 2025).

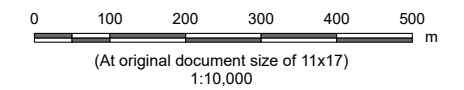
The nearest federal lands to the Project are lands associated with the Tintamarre National Wildlife Area near Sackville, NB which are administered by Environment and Climate Change Canada (ECCC) for wildlife research and management. The Jolicure Lake unit comprises 1,990 ha of land between Highway 940 and Highway 16 and is approximately 5.5 km from the Project site (TBCS 2025). The Tower Goose Lake unit (28 ha) and the Hog Lake unit (62 ha) are approximately 7.5 and 9.8 km from the Project site, respectively (TBCS 2022, 2024).

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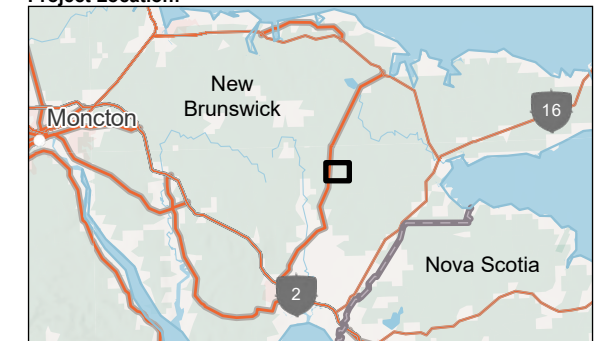
Legend

- Project Area Points of Reference
- ▭ Project Area
- ▭ Development Footprint (Approximate)
- Built Infrastructure**
- Road
- Transmission Line (Existing)
- Pipeline (Existing)
- ▭ Building
- Land Use**
- ▭ Property Boundary
- ▭ Agricultural Land (ARMS)
- Wetlands and Waterways**
- Watercourse
- ▭ Wetland (NBELG)
- ▭ Wetland (Stantec)



- Notes**
1. Coordinate System: NAD 1983 CSRS New Brunswick Stereographic
 2. Data Sources: NB Power; Stantec; GeoNB (NBHN, NBRN); NB Natural Resources and Energy Development; NB Environment and Local Government; NB Agriculture, Aquaculture and Fisheries; Service NB.
 3. Background: Esri, CGIAR, USGS, Maxar

Project Location:



Project Location Centre Village, NB Prepared by AC on 2025-06-02

Client/Project WattBridge Energy LLC 121418452
RIGS-Centre Village

Figure No.

13.1

Title

Project Site and Access Road

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14 Physical and Biological Environment

14.1 Physiography

The Project site lies within the Eastern Lowlands Ecoregion of New Brunswick, which is characterized by relatively smooth topographic relief and low elevation, typically late carboniferous sedimentary bedrock geology, and frequently acidic soils (NBDNR 2007). Within the Eastern Lowlands Ecoregion, the Project is situated in the Kouchibouguac Ecodistrict. This ecodistrict is characterized by river estuaries, barrier beaches, and peat bogs (NBDNR 2007). Most soils in this ecoregion are a result of marine deposits near the coastline and glacial tills farther inland, resulting in a range of soils from compact, clay, and sandy loams, to quartzose beach soils and Glaciolacustrine deposits. The bedrock of the Project site is composed entirely of Pennsylvanian grey and red sandstone, mudstone, and conglomerate (NBDNR 2007).

The Project site is in a relatively flat-lying area with forest cover in the upper reaches of the Tantramar River Watershed. Locally, the site slopes gently toward a nearby topographic depression representing the headwaters of an unnamed tributary located approximately 350 m west of the Project site. Regional topography slopes gently west and south toward the Tantramar River and its tributaries, located approximately 5 km west of the Project. The Tantramar River flows south and discharges to the Cumberland Basin of the Bay of Fundy adjacent to Sackville, NB approximately 20 km south of the Project. The Project site elevation is approximately 58 m above sea level (masl).

14.2 Climate

The Project is located within the Eastern Lowlands ecoregion of New Brunswick with climate described as humid continental with long and cold winters and warm summers. Due to lack of major topography in the area, the main control of local climate is the distance to the Atlantic Ocean (Rivard et al. 2005).

According to the 1991-2020 Canadian Climate Normals for the nearest weather station in Sackville, NB, the mean annual precipitation is 1147 mm, which includes a mean annual snowfall accumulation of 231 cm (ECCC 2025a).

14.3 Air Quality

The Project is located within the central air zone which encompasses the major population centers of Moncton, Dieppe, Fredericton, Miramichi, and Edmundston. The central zone is home to several major emitters, including the AV Group pulp mill in Nackawic, the Twin Rivers Paper Company pulp mill in Edmundston, and the Arbec Forest Products oriented strand board mill in Miramichi (NBDELG 2024).

The New Brunswick Department of Environment and Local Government (NBDELG) operates a total of seven monitoring stations in Moncton, Fredericton, Miramichi, and Edmundston. In addition, there are four industry-run stations located in Edmundston, Nackawic, and Miramichi.

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NBDELG participates in the Canadian Council of Ministers of the Environment's (CCME) Air Quality Management System (AQMS), which serves as a national framework for managing air quality in Canada. The AQMS uses a 'Management Level' system to assess air quality, with each level representing a different air quality grade. In this system, 'green' indicates the highest quality, typically found in pristine, undeveloped areas. 'Yellow' and 'orange' represent declining air quality, while 'red' signifies the poorest air quality and indicates that the Canadian Ambient Air Quality Standards have been exceeded.

The 2022 Air Quality Monitoring Results (NBDELG 2024) showed that, most of the time, the Moncton station was at a yellow management level for NO₂ and PM_{2.5}. NO₂ and PM_{2.5} concentrations in Moncton were in the yellow level, suggesting room for improvement through proactive measures but no exceedances were reported. At the Miramichi Rockcliff station, SO₂ concentrations remained within the green management level, indicating good air quality.

14.4 Hydrogeology

The hydrogeology of the Project site includes both local and regional flow regimes that are expected to be controlled primarily by the bedrock geology and topography. The site is located within the upper reaches of the Tantramar River watershed and regional groundwater flow is expected to follow the topography of the catchment area. Groundwater is inferred to flow towards the west and south with eventual discharge to the Tantramar River and the Bay of Fundy. On a local scale, shallow groundwater is expected to discharge to tributaries of the Tantramar River, including Harper Brook, East Brook, and Long Lake Brook and their respective tributaries. In the absence of major topography in the area (i.e., the maximum ground surface elevation in the watershed is on the order of approximately 70 masl and the Project site is approximately 58 masl), lateral groundwater flow direction at depth is not expected to differ significantly from shallow groundwater.

Based on a review of the New Brunswick online well system, there were 44 domestic well records within 10 km of the Project site and no records showing within 500 m (NBDELG 2025a). Regional groundwater quality in the Maritime Carboniferous Basin is generally characterized as naturally good to excellent, with commonly elevated concentrations of iron and manganese (Rivard et al. 2005).

14.5 Vegetation and Wetlands

Seventy-five percent of the Kouchibouguac Ecodistrict is covered by forest, much of which is early successional hardwood with trembling aspen (*Populus tremuloides*), red maple (*Acer rubrum*), and paper birch (*Betula papyrifera*). Later successional forests are primarily coniferous stands and mixedwood, and can include red maple, sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), spruce (*Picea* spp.), and hemlock (*Tsuga canadensis*) (NBDNR 2007).

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Stantec conducted vegetation and wetland surveys within the Project site, and preliminary wetland surveys along the proposed access road in 2024. The complete area that Stantec surveyed, which includes areas adjacent to the proposed access road, is referred to as the study area. The study area supports four upland habitat types and three wetland habitat types. The upland habitat types include tall shrub thicket, deciduous forest, coniferous forest, and mixedwood forest. Wetland habitats present in the study area include tall shrub swamp, mixedwood treed swamp, and low shrub swamp.

Tall shrub thicket is restricted to the portion of the proposed access road located adjacent to Route 940. This area was once agricultural land that is no longer in production. A small patch of deciduous forest is present near the western end of the proposed access road on a well-drained slope. Coniferous forest is found along the proposed access road and in the Project site. Mixedwood forest is the most abundant and widespread upland habitat type in the study area and is typically found in areas having a moderate amount of moisture).

Wetlands are scattered throughout the study area. These wetlands are composed of three main habitat types: tall shrub swamp, low shrub swamp and mixedwood treed swamp. Low shrub swamp is present near the eastern tip of the Project site. Mixedwood treed swamp is found scattered throughout the study area.

Records for vascular plants and lichen occurring within 5 km of the Project site were obtained from the Atlantic Canada Conservation Data Centre (AC CDC 2025). One Species of Conservation Concern (SOCC) was identified in AC CDC observation records as occurring within 5 km of the Project site: Yellow ladies'-tresses (*Spiranthes ochroleuca*) which is ranked as S1S2 by AC CDC meaning it is critically imperiled to imperiled and vulnerable to extirpation in the province. An additional SOCC was identified during the 2024 field surveys. Three individual black ash (*Fraxinus nigra*) were observed in a cluster approximately 12 m from the 20-metre-wide RoW of the proposed access road during field surveys. Black ash is assessed by COSEWIC as threatened and ranked S3S4 by AC CDC meaning it is considered vulnerable to apparently secure in the province.

14.6 Wildlife and Wildlife Habitat

The Kouchibouguac Ecodistrict contains two Protected Natural Areas, the closest of which is approximately 40 km from the Project (NBDNR 2007). There are no Important Bird Areas within 20 km of the Project (Bird Studies Canada and Nature Canada n.d.). The Tintamarre National Wildlife Area, which supports habitat for waterfowl and marshbirds during migration and breeding, lies approximately 5 to 10 km southeast of the Project (ECCC 2016). The Upper Tantramar Marsh is an Environmentally Significant Area (ESA) (Tims and Craig 1995) approximately 4-5 km southwest of the Project site, at the headwaters of the Tantramar River at Dave Lake. The ESA provides suitable habitat for several species of nesting and staging waterfowl, and the wetland is likely one of the few nesting locations in New Brunswick for Marsh Wren, Sedge Wren, and Virginia Rail (Tims and Craig 1995).

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The terrestrial habitat of the study area includes tall shrub thicket, deciduous forest, coniferous forest and mixedwood forest, interspersed with shrub swamp, mixedwood treed swamp, and low shrub swamp. Dedicated wildlife surveys were not conducted by Stantec in 2024, but incidental wildlife observations were noted during vegetation and wetland surveys. One observation of suitable bat habitat was made (natural cavities within an old red maple) inside the Project site.

Records for wildlife occurring within 5 km of the Project were obtained from the AC CDC, which includes data from the Maritimes Breeding Bird Atlas (AC CDC 2025). Table 14.3 lists wildlife SAR and SOCC that have been reported within or near the Project site as identified by AC CDC records and incidental observations during Stantec field surveys. Bald eagle (*Haliaeetus leucocephalus*) was the only SOCC recorded within the Project site during Stantec field surveys.

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Table 14.1 Wildlife SAR and SOCC Observed or Reported Within 5 km of the Project Site

| Common Name | Scientific Name | SARA | COSEWIC | NB SARA | AC CDC S-Rank | Data Source |
|-------------------------|-----------------------------------|------|---------|---------|---------------|-----------------------|
| Bald Eagle | <i>Haliaeetus leucocephalus</i> | - | NAR | EN | S4 | Field Surveys, AC CDC |
| *Bank Swallow | <i>Riparia riparia</i> | TH | TH | - | S2B | AC CDC |
| *Barn Swallow | <i>Hirundo rustica</i> | TH | SC | TH | S2B | AC CDC |
| Black-backed Woodpecker | <i>Picoides arcticus</i> | - | - | - | S3 | Field Surveys, AC CDC |
| Black-billed Cuckoo | <i>Coccyzus erythrophthalmus</i> | - | - | - | S3B | AC CDC |
| *Bobolink | <i>Dolichonyx oryzivorus</i> | TH | SC | TH | S3B | AC CDC |
| *Canada Warbler | <i>Cardellina canadensis</i> | TH | SC | TH | S3S4B | AC CDC |
| Cape May Warbler | <i>Setophaga tigrina</i> | - | - | - | S3B,S4S5M | AC CDC |
| Cliff Swallow | <i>Petrochelidon pyrrhonota</i> | - | - | - | S2B | AC CDC |
| *Eastern Wood-Pewee | <i>Contopus virens</i> | SC | SC | SC | S3B | AC CDC |
| *Evening Grosbeak | <i>Coccothraustes vespertinus</i> | SC | SC | - | S3B,S3S4N,SUM | AC CDC |
| Killdeer | <i>Charadrius vociferus</i> | - | - | - | S3B | AC CDC |
| Northern Mockingbird | <i>Mimus polyglottos</i> | - | - | - | S2B | AC CDC |
| *Olive-sided Flycatcher | <i>Contopus cooperi</i> | SC | SC | TH | S3B | AC CDC |
| Pine Siskin | <i>Spinus pinus</i> | - | - | - | S3 | AC CDC |
| Red Crossbill | <i>Loxia curvirostra</i> | - | - | - | S3 | Field Surveys |

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Table 14.1 Wildlife SAR and SOCC Observed or Reported Within 5 km of the Project Site

| Common Name | Scientific Name | SARA | COSEWIC | NB SARA | AC CDC S-Rank | Data Source |
|------------------------|--------------------------------|------|---------|---------|---------------|-------------|
| Rose-breasted Grosbeak | <i>Pheucticus ludovicianus</i> | - | - | - | S3B | AC CDC |
| Willow Flycatcher | <i>Empidonax traillii</i> | - | - | - | S1S2B | AC CDC |

Notes: Asterisks(*) indicate SAR

¹*Myotis lucifugus* (Little Brown Myotis), *Myotis septentrionalis* (Long-eared Myotis), and *Perimyotis subflavus* (Tri-colored Bat or Eastern Pipistrelle) are all Endangered under the Federal Species at Risk Act and the NB Species at Risk Act.

SAR / COSEWIC / NB SARA codes used: SC = Special Concern; TH = Threatened; VU = Vulnerable; EN = Endangered; NAR = Not at Risk

S-Rank definitions (AC CDC 2025):

S1 = Critically Imperiled: Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.

S2 = Imperiled: Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

S3 = Vulnerable: Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 = Apparently Secure: Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 = Secure: Common, widespread, and abundant in the province.

SNR = Unranked: Nation or state/province conservation status not yet assessed.

SNA = A conservation status rank is not applicable because the species is not a suitable target for conservation activities

SU = Unrankable: Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

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14.7 Surface Water and Aquatic Habitat

The Project is located near the headwaters of the Tantramar River watershed, which flows into the Cumberland Basin. Surface water runoff in the Project site is expected to follow the local topography, primarily flowing overland west.

A review of the New Brunswick Hydrographic Layer shows there are no mapped watercourses within the Project site or intersecting the proposed access road. However, an unnamed tributary running north to south is located approximately 300 m to the west of the property boundary (Figure 13.1). Initial field surveys have revealed that the watercourse does not correspond with the New Brunswick Hydrographic Layer and its headwaters begin at the outlet of the wetland, roughly 400 m further south. A preliminary field survey was conducted within the wetland associated with this unnamed tributary and determined that fish habitat is not present within the wetland, but suitable habitat for fish exists south of the wetland in the channelized habitat. This wetland has not yet been field-delineated. While not confirmed, it is expected that the unnamed tributary connects with Harper's Brook approximately 3 km downstream. Harper's Brook then crosses Route 940 through two culverts and then flows into a wetland just south of Patterson Lake. After this, the agricultural landscape negates any natural confluence with the Tantramar River (EOS Eco-Energy Inc. 2021).

15 Health, Social and Economic Context

The Project is located in Westmorland County, approximately 34 km southeast of Moncton and 12 km northeast of Sackville (Tantramar). The Project site is accessible from Route 940, approximately 14.5 km northeast of the TransCanada Highway and is approximately 31 km from the Romeo LeBlanc International Airport in the Greater Moncton area and 18 km from the Canadian National Railway line. The Project site is bordered by the M&NP pipeline and NB Power transmission lines.

Located within the municipal boundary of the Town of Tantramar, the Project site is within the Rural Zone under the Tantramar Planning Area Rural Plan Regulation. The Rural Zone permits a wide variety of land uses, including wind farms, resource related activities, and public utilities such as the Project. The surrounding land use context is predominantly rural development with large lots fronting on Route 940. There are no municipal services in the area, so development is accommodated by well and on-site sewage disposal systems.

From a socio-economic perspective, the Project is located within New Brunswick's Southeast economic region. The Southeast region comprises Albert, Westmoreland and Kent counties and represents approximately 30.2% of the province's total population (NBJobs 2024). With growth in the Southeast having been particularly strong in recent years, the region is quickly becoming one of the fastest growing economic regions in Canada (NBJobs 2024).

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Based on the 2021 Census of Population, the population of Westmorland County was 163,576. Within the County there were 4,235 persons who identified as First Nations, Metis or Inuit (Statistics Canada 2023). The Amlamgog (Fort Folly) First Nation and Metepenagiag Mi'kmaq Nation have reserves closest to the Project with total registered populations of 141 and 719 (CIRNAC 2024a,b). Both First Nations are part of the NSMTC.

Some of the key industries in the Southeast economic region that accounted for a larger share of overall employment in the region included: public administration; fishing, aquaculture and seafood product preparation and packaging; truck transportation; insurance carriers and related activities; and business support services (NBJobs 2024). Sackville is also home to Mount Allison University, a primary undergraduate liberal arts university with approximately 2,400 students. In 2019, average total income levels for individuals aged 15 years and over in the region were \$44,500 which is on par with the provincial average of \$44,000 (NBJobs 2024). In 2019, government transfers accounted for 15.8% of total aggregate income in the region (NBJobs 2024).

From a community health perspective, the Project falls within Health Zone 1: Moncton/South-East Area and more specifically, the Sackville, Dorchester, Port Elgin Area New Brunswick Health Council (NBHC) Community. The nearest emergency health care services are located at the Sackville Memorial Hospital. The Royal Canadian Mounted Police (RCMP) detachment and local Ambulance New Brunswick and Fire Department are located in Sackville.

16 Financial Support from Federal Authorities

Financial support from the provincial and/or federal government is not required for this Project to proceed. WattBridge has no plans to seek financial support from federal authorities for this Project.

17 Use of Federal Lands for Project

The Project will not be constructed or operated on federal lands. The nearest federal lands to the Project are described in Section 13.

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18 Jurisdictions That Have Powers, Duties or Functions in Relation to an Assessment of the Project's Environmental Effects

The Project will be subject to federal, provincial and municipal regulatory requirements. As noted in Section 8 of this IPD summary, the Project constitutes a “designated project” under the *Impact Assessment Act*. Provincially, the Project constitutes an “undertaking” requiring registration with NBDELG under the *Clean Environment Act* as it is an electric power generating facility with a production rating of 3 MW or more. WattBridge is submitting a joint IPD/ Environmental Impact Assessment (EIA) Registration to initiate provincial and federal review processes. .

Federal, provincial and municipal jurisdictions having power, duties or functions in relation to an assessment of the Project's environmental effects are listed in Table 18.1.

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Table 18.1 Jurisdictions with Powers, Duties or Functions Related to Project Environmental Effects

| Authority | Legislation/Regulation | Potential Powers/Duties/Functions Relative to the Project |
|---|---|---|
| Federal | | |
| Impact Assessment Agency of Canada (IAAC) | <i>Impact Assessment Act</i> | IAAC will decide whether a federal impact assessment is required and if so, will lead the process under the <i>Impact Assessment Act</i> . |
| Fisheries and Oceans Canada (DFO) | <i>Fisheries Act</i> SARA | DFO will participate in the federal Impact Assessment process (if required) and provincial EIA process, contributing specialist knowledge and oversight with respect to the <i>Fisheries Act</i> and SARA as applicable. A Letter of Advice or authorization under the <i>Fisheries Act</i> may be required depending on proposed discharge of reject process water and potential interaction with offsite watercourses. |
| ECCC | <i>Migratory Birds Convention Act, 1994</i> SARA <i>Canadian Environmental Protection Act, 1999 (CEPA, 1999)</i> <i>Canadian Net-Zero Emissions Accountability Act</i> | If IAAC determines that the Project requires a federal impact assessment, ECCC will contribute specialist knowledge pertaining to migratory birds, SAR, GHG emissions and climate change, and pollution prevention, and the Decision Statement will be issued by the Federal Minister of Environment and Climate Change. A Damage or Danger Permit under the Migratory Birds Regulations, 2022 may be required for the Project. ECCC is responsible for the implementation of the <i>Canadian Net-Zero Emissions Accountability Act</i> , working with other government departments, advisory bodies and proponents to achieve net-zero emissions and meet Canada’s climate goals. Under the CEPA, 1999 ECCC oversees the National Pollutant Release Inventory Program, and manages compliance with the Environmental Emergency Regulations, 2019 including the requirement for the development of an environmental emergency plan. ECCC is also responsible for the Regulations Limiting Carbon Dioxide Emissions from Natural Gas-fired Generation of Electricity (CEPA, 1999) which establish emission limits and standards for monitoring and reporting GHG emissions from natural gas-fired generators. |
| Transport Canada NAV Canada | <i>Aeronautical Obstruction Clearance</i> <i>Aeronautics Act</i> <ul style="list-style-type: none">• Canadian Aviation Regulations | Transport Canada has authority over the location and size of structures that could pose a hazard to aviation (e.g., CTG stacks, cranes) and may issue aeronautical obstruction clearance. NAV Canada assesses land use proposals near airports prior to construction to ensure safety and efficiency are not compromised. Given the site location, Project infrastructure is not expected to represent line-of-sight obstructions, although WattBridge will engage NAV Canada to confirm whether a Land Use Approval and/or approved lighting plan is required. |

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Table 18.1 Jurisdictions with Powers, Duties or Functions Related to Project Environmental Effects

| Authority | Legislation/Regulation | Potential Powers/Duties/Functions Relative to the Project |
|---|--|---|
| <i>Provincial</i> | | |
| Department of Environment and Local Government (NBDELG) | <p><i>Clean Environment Act</i></p> <ul style="list-style-type: none"> • Environmental Impact Assessment (EIA) Regulation (NB Reg 87-83) • Water Quality Regulation (NB Reg 82-126) • Petroleum Product Storage and Handling Regulation (NB Reg 87-97) <p><i>Clean Air Act</i></p> <ul style="list-style-type: none"> • Air Quality Regulation (NB Reg 97-133) <p><i>Clean Water Act</i></p> <ul style="list-style-type: none"> • Watercourse and Wetland Alteration Regulation (NB Reg 90-80) <p><i>Climate Change Act</i></p> <ul style="list-style-type: none"> • Reduction of Greenhouse Gas Emissions Regulation (NB Reg 2021-43) | <p>The Project is an undertaking under the EIA Regulation and therefore requires registration. NBDELG is responsible for forming a Technical Review Committee to undertake a Determination Review of the submitted EIA registration and making a recommendation to the Minister who will decide if the Project can proceed or if a Comprehensive Review is required.</p> <p>The Project may also require approvals from NBDELG for: the supply of water and water works for the Project; the discharge of air emissions and/or effluent; activity carried out within 30 m of a watercourse or wetland; and storage of petroleum product. Operating approvals will contain specific terms and conditions including requirements for testing, monitoring and reporting. NBDELG will also require baseline and compliance GHG reports for the Project.</p> |
| Department of Tourism, Heritage, and Culture (NBDTHC) – Archaeology and Heritage Branch | <p><i>Heritage Conservation Act</i></p> | <p>NBDTHC manages the regulatory protection of heritage resources and requires permits for conducting research on and/or encountering these resources which include built heritage resources, palaeontological resources, and archaeological resources.</p> <p>An archeological survey (walkover) was conducted in July 2024 and the survey found that all areas exhibited low potential for heritage and archaeological resources and no additional investigations or mitigation is recommended, subject to the review and approval of the provincial Archaeology and Heritage Branch. A slight adjustment to the access road subsequent to the 2024 survey will require additional survey work in 2025.</p> |

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Table 18.1 Jurisdictions with Powers, Duties or Functions Related to Project Environmental Effects

| Authority | Legislation/Regulation | Potential Powers/Duties/Functions Relative to the Project |
|--|---|--|
| Department of Natural Resources and Energy Development (NBDNRED) | <p><i>Species at Risk Act</i> (NB SARA)</p> <ul style="list-style-type: none"> • List of Species at Risk Regulation (NB Reg 2013-28) • Prohibitions Regulation (NB Reg 2013-39) | <p>NBDNRED oversees the NB SARA which provides for the protection of species in New Brunswick that are classified as being Extirpated, Endangered, Threatened, or of Special Concern. NBDNRED would participate in the Technical Review Committee review of the provincial EIA Registration.</p> |
| Department of Transportation and Infrastructure (NBDTI) | <p><i>Motor Vehicle Act</i> <i>Highway Act</i></p> | <p>NBDTI may issue special permits for transportation of oversized loads and require a permit to establish access to an existing highway (if required).</p> |
| Municipal | | |
| Plan360 (Southeast Regional Service Commission) | <p><i>Community Planning Act</i> Tantramar Planning Area Rural Plan Regulation</p> | <p>The Project is located within the municipal boundary of the Town of Tantramar, which obtains its land use planning services from Plan 360. The site is within the Tantramar Planning Area Rural Plan Regulation and the property is zoned Rural. Utilities are permitted in all zones under the Rural Plan.</p> <p>Plan 360 will issue development and building permits for the project in accordance with the Rural Plan and National Building Code of Canada in effect at the time of development. The Project may also require compliance with applicable by-laws and regulations which may influence Project design and activities.</p> |

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19 Potential Changes to the Environment

IAAC (2024) guidelines for preparing an IPD require a list of any non-negligible adverse changes that, as a result of the carrying out of the project, may be caused to the following components of the environment that are within the legislative authority of Parliament:

- 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, 1994*

Potential non-negligible effects on fish and fish habitat and migratory birds as a result of the Project are described in Sections 19.4 and 19.6, respectively. There are no additional aquatic species predicted to interact with the Project.

Potential non-negligible adverse changes to other environmental components which are not explicitly within the legislative authority of Parliament are also summarized below as they may potentially contribute to potential effects on Indigenous peoples (Sections 21 and 22). Preliminary mitigation to reduce potential Project-related effects is identified, although it is recognized that additional mitigation may be developed as part of the impact assessment process.

19.1 Air Quality

19.1.1 Potential Effects

All phases of the Project will generate air contaminant and greenhouse gas emissions. Information on greenhouse gas emissions associated with the Project is provided in Section 23. Additional information on air emissions is provided in Section 24.1.

During construction, air contaminant emissions from construction equipment exhaust and from fugitive dust associated with the construction activities will result in localized effects to air quality. Construction equipment, including excavators, graders, haul dump concrete trucks, and cranes, will primarily consume diesel fuel and release fuel combustion by-products such as nitrogen oxides (NO_x), carbon monoxide (CO), sulphur dioxide (SO₂) and particulate matter (PM).

Fugitive dust emissions from surface disturbance activities (e.g., soil stripping, grading, equipment movement) during construction will include particulate matter of various sizes (e.g., PM_{2.5}, and total suspended particulate matter (TSP)).

During Project operations, combustion of natural gas or ULSD in the CTGs will result in the release of air contaminants including NO_x, SO₂, CO, ammonia (NH₃), and PM. Operational emissions are reduced by burning natural gas and using an emissions reduction system to reduce NO_x and CO emissions.

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An air dispersion modelling study was conducted to assess the potential effects of Project operations for a base case (5,370 operating hours for 10 CTGs) and a stress case (27,270 operating hours for 10 CTGs). Predicted air contaminant concentration results from dispersion modelling was compared to the ambient air quality criteria in Schedule B of the New Brunswick *Air Quality Regulation – Clean Air Act* (NBDELG 2018), as well as other standards from other jurisdictions for air contaminants of concern that are not included in the NB criteria.

The maximum potential emissions for each pollutant were estimated based on the highest emissions from expected operating conditions, including start-up and shutdowns and fuel type usage (natural gas and ULSD), for the CTGs. Potential effects on ground-level (ambient) air quality associated with the Project were evaluated using plume dispersion modelling for CO, NO₂, SO₂, TSP, NH₃, and PM_{2.5} emissions.

Maximum predicted concentrations of all contaminants are less than their respective ambient air quality standards/criteria. Maximum contaminant concentrations are predicted to occur near the Project and decrease with increasing distance from the Project. The dispersion modelling indicates that the operation of the Project is not expected to cause or contribute to a substantial degradation of ambient air quality. Because the model was set up to simulate the worst-case scenario of burning diesel, this represents a very conservative scenario and most of the time, the maximum contaminant concentrations should be less than modelled.

Atmospheric emissions during the decommissioning would be similar or less than those associated with construction.

19.1.2 Potential Mitigation

The following preliminary mitigation measures may be implemented to reduce potential Project construction- (and decommissioning) related effects on air quality; additional mitigation may be identified as Project planning and assessment continues:

- Vehicles and equipment will be required to meet emission control standards including the *On-Road Vehicle and Engine Emission Regulations* and the *Off-road Compression-Ignition (Mobile and Stationary) and Large Spark Ignition Engine Emission Regulations*.
- The concentration of sulphur in diesel fuel shall not exceed 15 mg/kg to comply with the federal *Sulphur in Diesel Fuel Regulations*.
- Construction vehicle idling times will be reduced to the extent possible to reduce emissions, as a best management practice.
- Dust control measures such as watering roads to suppress dust distribution and ceasing operations during periods of high winds will mitigate the generation and distribution of particulate matter(dust) during construction activities.
- To the extent practical, disturbed surfaces will be revegetated or temporarily covered following construction activities to reduce the potential for wind erosion and dust generation.

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The following preliminary mitigation measures may be implemented to reduce potential air contaminant emissions from combustion equipment (i.e., CTGs) during Project operations; as engineering progresses, further mitigation measures, including facility specific mitigation measures, may be developed:

- The Project is being designed consistent with best available control technology to control emissions and potential impacts on air quality.
- The facility will primarily operate on cleaner burning natural gas, with ULSD used as needed.
- Each of the CTGs have an emissions reduction system to manage emissions of NO_x and CO.
- Emissions of SO₂ will be minimized when operating on ULSD, which contains no more than 15 parts per million (ppm) of sulfur.

19.2 Acoustic Environment

19.2.1 Potential Effects

The Project will generate noise emissions during construction, operation and decommissioning activities, resulting in a change in existing sound levels. During construction, operation of mobile construction equipment, including excavators, graders, haul dump concrete trucks, and cranes, and stationary equipment such as generators, will generate temporary noise emissions at the site. Construction related traffic, including mobilization of equipment and workers to the site, will generate transient noise along transportation routes throughout the construction (and decommissioning) period.

During operations, the power generation station will generate noises typical of power plant operations. Predictive acoustic modelling was undertaken to understand potential noise effects of Project operations, including startup and steady-state operations, on nearby receptors. Receptors are noise-sensitive locations, such as homes, schools, and hospitals located outside of a facility fence line and do not include industrial or commercial locations. Results were compared to the New Brunswick *Noise Compliant Response Guidelines* (NBDELG 2023) and Health Canada's *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise* (Health Canada 2023). The New Brunswick guidelines suggest noise limits for different times of day while the Health Canada guidelines recommend a guideline level related to the estimate of the percentage of people who are potentially annoyed by noise emissions (percent highly annoyed; %HA).

Based on predictive acoustic modelling that assumed quiet rural baseline sound levels and a worst-case scenario of all 10 CTGs operating simultaneously during daytime and nighttime hours, the worst-case noise effect is predicted to comply with the New Brunswick Noise Guideline levels of 50 A-weighted decibels (dBA) at night for all identified receptors. When results were compared to Health Canada's guidance, it was found that the predicted change in %HA was less than 6.5% at all receptors except one, indicating that additional mitigation measures should be considered.

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19.2.2 Potential Mitigation

The following preliminary mitigation measures may be implemented to reduce potential effects on the acoustic environment; additional mitigation may be identified as Project planning and assessment continues:

- Vehicle and equipment emissions will be managed by conducting regular maintenance on machinery and equipment, with repairs performed to keep equipment in good working order, to maintain normal operating noise levels.
- Idling of vehicle engines, equipment, and machinery will be avoided where practicable.
- Construction activities that have the potential to generate noise disturbance will be limited to daytime hours as feasible to limit nuisance noise to off-site receptors at night.
- Enclosures will be used on equipment to reduce noise emissions.
- The need for additional noise mitigation will be considered through Project planning and design including consideration of noise mitigation for dominant noise sources.
- If after detailed engineering has been completed and the updated noise modelling confirms Project-related noise emissions exceed provincial or federal guidelines, a noise mitigation plan will be developed to respond to potential exceedances and complaints from affected receptors.

19.3 Groundwater and Surface Water

19.3.1 Potential Effects

The Project is anticipated to have effects on groundwater quality and quantity, as well as surface water quality and quantity during construction, operations and decommissioning. Construction activities may require excavations which could result in a localized lowering of the water table. Site development will result in a change in impervious surfaces and increase stormwater flows. Stormwater runoff during all Project phases may result in elevated turbidity and suspended solids in the runoff. If subsurface disturbance is extensive, the increased turbidity and suspended solids may also reach the groundwater system via groundwater recharge.

Blasting is not anticipated to be required for Project construction and no interactions are predicted with domestic wells in the area. A review of the NB online well system reveals no records of private well records within 500 m of the Project. No Project interaction with domestic wells is predicted.

The Project will require extraction of groundwater through production wells to supply process water needs during Project operations. The Project will discharge effluent during the operations phase including reject process water from the purification processes, intermittent backwash water, and intermittent Clean-in-Place (CIP) water. CIP water discharges will be intermittent and infrequent with an anticipated higher chemical concentration than the reject process water or backwash water and will be collected separately and hauled away for treatment and disposal at an approved facility. CIP water discharge is therefore not considered in the effects discussion below. Surface water runoff (i.e., stormwater) will also require management during construction, operation, and decommissioning of the Project.

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A hydrogeological study, to be conducted in summer 2025, will include drilling test wells to inform the number, location, and design of groundwater production wells required for the Project. Disturbance to soil and material above or below the water table during construction and decommissioning could potentially affect physical hydraulic properties of groundwater, resulting in a change of groundwater quantity. Groundwater extraction during Project operations is expected to result in a change in groundwater quantity (e.g., change in groundwater levels).

Groundwater sampling data from 21 wells within the 10 km of the Project (NBDELG 2025a) showed some exceedances of aesthetic objectives of the Guidelines for Canadian Drinking Water Quality (GCDWQ) (Health Canada 2024) for iron and manganese, and exceedances of the Canadian Council of Ministers of the Environment (CCME) Freshwater Aquatic Life (FWAL) guidelines for arsenic, copper, iron, lead, selenium and zinc as well as elevated levels of turbidity and total coliform. Reject process water is assumed to be three times the raw groundwater concentration, so the effluent water quality is anticipated to exceed the GCDWQ and CCME FWAL guidelines for nitrite, aluminum, arsenic, cadmium, copper, iron, lead, selenium, thallium, and zinc.

Site development is not anticipated to substantially alter identified site drainage areas, although site development will contribute to an increase in surface runoff quantity. The proposed site is located on an identified local high point in the area and will primarily drain controlled to the west with a smaller portion of undeveloped forested area draining uncontrolled to the southeast. Clearing is proposed for approximately 70% of the site to support the installation of Project infrastructure including site access/laydown areas.

Studies are currently underway to evaluate proposed reject process water effluent discharge options, including discharge to a wetland 300 m west of the site or discharge to a ditch located along Route 940. The discharge of liquid effluents from Project operations could potentially result in changes to groundwater quality (e.g., through percolation of effluent to the water table), changes in surface water quality (e.g., discharge of contaminants), and changes in surface water quantity (e.g., increase in surface water flows). Depending on the location of the discharge and the presence of fish habitat, changes in surface water quality and quantity may also result in changes to fish and fish habitat (Section 19.4).

Industrial effluent discharges are regulated by the NBDELG under the *Water Quality Regulation* of the *Clean Environment Act*. Under this regulation, operators of sources of water contaminants are required to obtain an approval for the construction, operation or modification of the source of contaminants. It is anticipated that effluent discharges from the Project will trigger this requirement regardless of the discharge option selected and additional treatment and/or monitoring requirements will likely vary by discharge location option. Discharges to fish-bearing watercourses are also subject to federal regulation and are discussed further in Section 19.4. Further assessment will be undertaken to understand potential effects of effluent discharge to the tributary. This work will include, but not be limited to, an assessment of the effects of temperature and salinity on freshwater discharge, water quality sampling of the proposed tributary, and an assimilative capacity study of the receiving water. WattBridge will consult with NBDELG on potential effluent discharge and treatment options and permitting requirements.

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Effects of Project decommissioning are expected to be similar to those incurred during construction. Potential effects to groundwater and surface water resources during decommissioning will be considered and addressed in a future decommissioning and reclamation plan. In summary, potential effects on groundwater and surface water resources are predicted to occur as a result of Project construction, operations, and decommissioning, particularly related to the operation of groundwater production wells and the discharge of reject process water from the water purification process during Project operations. No interaction with private wells is predicted.

19.3.2 Potential Mitigation

The following preliminary mitigation measures may be implemented to reduce potential effects on groundwater and surface water; additional mitigation may be identified as Project planning and assessment continues:

- Siting of Project infrastructure will avoid watercourses.
- No physical activity (e.g., vegetation removal, soil disturbance, construction) will occur within 30 m of wetland or watercourse unless a Watercourse and Wetland Alteration (WAWA) Permit has been issued by NBDELG.
- A Water Supply Source Assessment (WSSA) will be undertaken in accordance with the *Clean Environment Act* and the necessary approvals will be obtained prior to drilling of production wells.
- A spill management plan will be developed prior to Project construction to include procedures for spill prevention and response.
- Throughout all phases of the Project, equipment will be kept in good working order and inspected regularly for leaks.
- Storage, stockpiling and use of fuel, lubricant and other hazardous substances will be in designated areas outside of buffer zones designed to protect sensitive habitats including watercourses and wetlands.
- A stormwater management plan will be developed with specific procedures to manage surface runoff and erosion and sedimentation during construction and operation of the Project.
- The site will be graded to drain stormwater away from buildings and equipment, and to prevent localized ponding. Site grading will be designed to direct surface runoff to conveyance ditching and the stormwater detention pond.
- On-site erosion and sediment control measures will be constructed, maintained and monitored to confirm they are working as expected to avoid silt laden runoff into wetlands and watercourses.
- Frequent inspection of surface water runoff controls will be made to ensure that they function efficiently and determine if routine maintenance is required. Inspections will take place before and after heavy precipitation events to identify whether erosion and sedimentation control measures have failed; if failure occurs, repairs will be immediately undertaken.
- Stormwater will be kept separate from process water streams to reduce the volume of wastewater to be treated prior to discharge.

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- No unauthorized discharges to wetland or watercourses will occur. Effluent discharges will be treated if necessary to meet applicable regulatory criteria prior to discharge.
- Herbicide use will be prohibited in buffer areas around watercourses and wetlands; hand clearing will be used when practical, particularly within 30 m of wetlands and watercourses.

19.4 Fish and Fish Habitat

19.4.1 Potential Effects

The Project site and proposed access road footprints do not contain any watercourses that would necessitate in-water work, such as stream diversion or culvert installation. Consequently, no interactions with fish and fish habitat are anticipated during the construction or decommissioning phases of the Project. However, should further evaluations indicate that the preferred effluent discharge option involves conveyance via the access road ditch to the offsite wetland, there may be potential interactions with fish and fish habitat south of the wetland outlet in a tributary of Harper Brook. If the alternate effluent discharge scenario is applied, the discharge is directed to the ditch along Route 940 and there will be no predicted interactions with fish and fish habitat during the operational phase.

Discharges to fish-bearing watercourses are subject to regulation under the federal *Fisheries Act*, administered by Fisheries and Oceans Canada (DFO). This Act prevents the discharge of deleterious substances to fish-bearing water courses and prohibits the harmful alteration, disruption, or destruction of fish.

As described in Section 19.3.1, further studies (including an assimilative capacity study) will be undertaken to understand potential Project interactions to the watercourse south of the wetland as a result of effluent discharge during operations. A fish habitat assessment conducted in June 2025 confirmed the absence of fish habitat within the wetland, but identified potential fish habitat at the outlet of the wetland. As a conservative approach for this IPD, it is assumed that the tributary south of the wetland constitutes fish habitat and may be fish bearing, however this will be confirmed in further studies.

Under the wetland discharge scenario, there is potential for interaction with fish habitat in the tributary south of the wetland. Potential effects could include reductions in quality of fish habitat due to changes in temperature, flow regime, entry of deleterious substances, and/or sedimentation/erosion. These changes to fish habitat could potentially lead to changes in fish health, survival and reproductive success. WattBridge will continue to conduct technical studies to understand the implications of effluent discharge options and consult with DFO on potential effects on fish and fish habitat and permitting requirements under the *Fisheries Act*.

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19.4.2 Potential Mitigation

Depending on the effluent discharge option selected for the Project and the outcomes of the technical studies, there may be no interaction with fish and fish habitat. If potential impacts to fish and fish habitat are identified, WattBridge will engage with DFO regarding the proposed effluent discharge, its effects on fish and fish habitat, and the permitting requirements under the *Fisheries Act*. This may include the submission of a request for review to DFO to assess the potential for death of fish or the harmful alteration, disruption, or destruction of fish habitat.

19.5 Vegetation and Wetlands

19.5.1 Potential Effects

Field studies in the Project site identified several wetlands and plant SOCC. Potential Project effects on vegetation and wetlands may include changes in vegetation abundance and diversity, changes to plant SOCC and/or changes in wetland habitat and function. Project construction will require vegetation clearing and ground disturbance which will result in loss of vegetation and could also result in erosion causing sedimentation of wetlands. Excavation during construction could also affect hydrology and/or require dewatering which could also affect vegetation and wetlands. Construction activities, including onsite transportation, could generate dust which could reduce vegetation health and productivity. Construction activities may also lead to the introduction of or increase in abundance of non-native and potentially invasive plant species as construction equipment is brought on site.

Site development will require infilling or infringement of wetland habitat in the Project site and along the proposed access road, resulting in changes in wetland habitat and function (e.g., changes to hydrological regime, storage capacity or overall function of wetlands).

Site maintenance during operations may include the application of road salt or other de-icing agents to onsite roads and parking lots which could potentially affect adjacent wetlands and vegetation. Vegetation maintenance around the Project footprint could result in direct loss of vegetation.

If, after additional evaluation and consultation, the preferred option during Project operations is to discharge Project effluent to an offsite wetland west of the Project site, the affected wetland could experience changes in wetland habitat and function. Additional studies will be undertaken to characterize existing wetland habitat and functions to understand potential implications of this discharge scenario.

Decommissioning and abandonment activities will involve vehicle movement and ground disturbance which could cause temporary effects on site vegetation and wetlands which may have been restored following construction. However, following decommissioning and removal of equipment, the land will be reclaimed as necessary to meet applicable land use objectives, thereby resulting in potential positive changes to vegetation and wetlands.

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19.5.2 Potential Mitigation

The following preliminary mitigation measures may be implemented to reduce potential effects on vegetation and wetlands; additional mitigation may be identified as Project planning and assessment continues:

- Clearing and grubbing will be confined to the Project footprint.
- No physical activity (e.g., vegetation removal, soil disturbance, construction, effluent discharge) will occur within 30 m of wetland unless a WAWA Permit has been issued by NBDELG.
- Standard erosion and sedimentation control measures will be employed, particularly to avoid silt laden runoff into wetlands and watercourses.
- Known locations of plant SAR and SOCC within 30 m of the Project footprint will be flagged and avoided to the extent feasible.
- Equipment will be cleaned prior to mobilization, and when traversing from one region to another, to avoid introduction of invasive species.
- Material stockpiles will be kept a minimum of 30 m from a watercourse or waterbody with the appropriate erosion control mitigation in place to prevent sediment from entering a watercourse, waterbody or wetland.
- Temporarily disturbed areas will be restored to pre-construction conditions.
- Herbicide use will be prohibited in buffer areas around watercourses and wetlands; hand clearing will be used when practical, particularly within 30 m of wetlands and watercourses.

19.6 Migratory Birds

19.6.1 Potential Effects

Project construction will require vegetation clearing and ground disturbance, and installation of infrastructure, resulting in physical alteration of habitat for migratory birds. These changes in habitat (e.g., habitat loss and/or fragmentation, creation of new habitat) will persist throughout Project operations and potentially through decommissioning and abandonment. Noise and light emissions during all Project phases may also result in sensory disturbances and indirect changes to habitat. Lighting poses a risk of attraction for birds.

Direct and indirect changes to habitat may lead to change in habitat use by migratory birds (e.g., changes in foraging, nesting behaviour, predator avoidance) and affect bird health and reproductive success. These habitat changes may result in changes in species composition, abundance and/or distribution in a localized area.

Additionally, direct physical injury and/or mortality effects could occur for migratory birds due to collision or contact with Project infrastructure, vehicles, or equipment (e.g., vehicle bird strike, electrocution on power lines) during the operation and maintenance phase.

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Effects of Project decommissioning are expected to be similar to those incurred during construction. Potential effects to migratory birds during decommissioning will be considered and addressed in a future decommissioning and reclamation plan.

19.6.2 Potential Mitigation

The following preliminary mitigation measures may be implemented to reduce potential effects on migratory birds; additional mitigation may be identified as Project planning and assessment continues:

- Where feasible, infrastructure will be sited within previously disturbed and developed areas to reduce impacts to undisturbed avian habitat.
- Siting of Project infrastructure will avoid areas of importance for migratory birds (e.g., designated critical habitat, overwintering areas, migration stopovers), to the extent feasible.
- Lighting (number of lights, intensity of lights, and amount of time lights are turned on) will be limited to that required to maintain site safety and security. Shield site lights downward to avoid attracting/disorienting birds.
- Vegetation clearing will be completed outside the migratory bird nesting period (mid-April to end of August), unless unavoidable. Where activities may result in risk of harm to migratory bird nests during this period, a qualified biologist will complete a pre-activity nest survey in accordance with federal guidelines (ECCC 2022).
- If an active bird nest is found, beneficial management practices will be followed, including applying an appropriate setback and timing restriction, and NBNRED and/or Canadian Wildlife Service (CWS) will be consulted, as appropriate.
- The need for bird markers and/or deterrents to reduce bird collisions and/or nesting on infrastructure will be considered during Project design.
- Vehicle and equipment emissions will be managed by conducting regular maintenance on machinery and equipment, with repairs performed to keep equipment in good working order, to maintain normal operating noise levels.
- Idling of vehicle engines, equipment, and machinery will be avoided where practicable.
- Herbicide use will be prohibited in buffer areas around wetlands; hand clearing will be used when practical, particularly within 30 m of wetlands and watercourses.

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19.7 Wildlife and Wildlife Habitat

19.7.1 Potential Effects

Potential Project effects on wildlife and wildlife habitat will be similar as described above for migratory birds. Vegetation removal and ground disturbance during Project construction will result in the direct loss and alteration of wildlife habitat. Habitat may also be indirectly affected through sensory disturbance associated with light and noise emissions which will continue during all Project phases. Direct and indirect effects on habitat may lead to changes in wildlife movement. Physical barriers (e.g., fencing), sensory disturbance and vegetation removal may fragment the habitat and cause impediment of wildlife movement through the life of the Project. Changes in wildlife movement can affect animal behaviour (e.g., foraging, breeding, nesting) and result in health and mortality effects to wildlife. Changes in wildlife mortality risk may occur during all Project phases due to potential physical destruction of key habitat features (e.g., nests, hibernacula) and/or collisions with Project traffic and/or infrastructure (e.g., overhead lines).

The installation of Project infrastructure may create new roosting or nesting habitat for some species (e.g., raptors). Accumulation of nesting materials on certain equipment during Project operations can cause equipment malfunctions (e.g., power outage, fire) and/or mortality risk to raptors if not properly managed.

19.7.2 Potential Mitigation

The following preliminary mitigation measures may be implemented to reduce potential effects on wildlife and wildlife habitat; additional mitigation may be identified as Project planning and assessment continues:

- Vegetation clearing will be limited to areas required for construction and safe operations.
- Vegetation clearing will be completed outside the core maternity roosting period for bats (May 1 to August 31). If habitat tree removal or general tree clearing is required during the maternity roosting period, a qualified biologist will review the trees to determine bat occupancy before removal.
- Herbicide use will be prohibited in buffer areas around watercourses and wetlands; hand clearing will be used when practical, particularly within 30 m of wetlands.
- Wildlife incidents will be reported to NBNRED and/or CWS, as appropriate.
- The need for bird markers and/or deterrents to reduce bird collisions and/or nesting on infrastructure will be considered during Project design.
- If an active raptor nest is found on Project infrastructure, NBNRED will be consulted on an appropriate action plan to relocate the nest and discourage future nest building.
- Personnel will not feed, harass, or hunt wildlife while working on the Project.
- Project personnel will be trained on wildlife awareness.
- Food waste will be stored and disposed of in a manner to avoid attracting wildlife.

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19.8 Heritage Resources

19.8.1 Potential Effects

An archaeological survey (walkover) was conducted in July 2024 on the Project site and access road (previous alignment) in accordance with the *Guidelines and Procedures for Conducting Professional Archaeological Assessments in New Brunswick* (AHB 2012). The site and access road (previous alignment) were found to exhibit low potential for heritage and archaeological resources. Since the survey was completed in July 2024, a portion of the access road has been realigned, and a follow-up survey will be required to reassess archaeological potential for the adjusted RoW.

Information on heritage resources as it pertains to potential effects on Indigenous peoples is provided in Section 21.

19.8.2 Potential Mitigation

As noted above, additional investigation will be required in accordance with the *Guidelines and Procedures for Conducting Professional Archaeological Assessments in New Brunswick* (AHB 2012) for the portion of the access road which was not covered by the previous archaeological survey. Pending results of the additional survey additional mitigation may be recommended subject to the review and approval of the provincial Archaeology and Heritage Branch.

19.9 Socio-economic Environment

19.9.1 Potential Effects

The Project is expected to have minor effects on the socio-economic environment given the conformity of proposed land use with current land use zoning and limited Project employment numbers, particularly during operations. Although the Project will be sited on lands owned by NB Power, there will be a change in land use due to the development of a greenfield site and ongoing presence of the power generating station. Unauthorized recreational use (e.g., ATV or snowmobile use) of the converging pipeline and transmission line RoWs may be affected by the Project presence. Development and ongoing use of the access road will also represent a long-term change in land use.

During construction and decommissioning, the transport of workers and equipment to and from the site will result in changes in local traffic volume and patterns, potentially affecting use and safety of public transportation networks and generating traffic noise for nearby residents.

As indicated in Section 7, the Project will have an important positive effect on the NB transmission grid, by providing voltage support to allow additional renewables integration, and by providing necessary back-up generation capacity should generation gaps arise (i.e., reduce the potential for power interruptions or rolling blackouts). The Project is also expected to have a small positive effect with respect to employment and procurement activity, particularly during Project construction. During operations, this effect will be fairly minor.

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Potential effects on Indigenous health, social and economic conditions are described in Section 22.

19.9.2 Potential Mitigation

The following preliminary mitigation measures may be implemented to reduce potential effects on the socio-economic environment; additional mitigation may be identified as Project planning and assessment continues:

- WattBridge will work with NSMTC to help identify qualified Indigenous suppliers of services and materials.
- Local and Indigenous contracts and hiring will be prioritized to increase local beneficial economic effects.
- Merchantable timber will be removed in accordance with an existing agreement between NB Power and J.D. Irving, Limited.
- All large-sized vehicles will obtain appropriate weight and size permits if and as required.
- If lane/road closures are required to move large equipment, this will be conducted at low traffic times to the extent practical.
- The public will be notified about long delays or disruptions to the transportation network.

20 Changes on Federal and/or Extra-Provincial Lands

The Project is not located on federal lands (Section 13.4) and no non-negligible adverse changes to the environment on federal lands or to the marine environment (including interprovincial, boundary or international waters) are likely to be caused by carrying out the Project. The nearest federal lands (Jolicure Lake unit of the Tintamarre National Wildlife Area) are located approximately 5.5 km from the Project site (Figure 1.1) and non-negligible effects of the Project are not predicted to extend this distance..

21 Potential Effects on Indigenous Peoples Relating to Physical and Cultural Heritage, Current Use of Lands and Resources for Traditional Purposes, and Cultural Heritage, and Historical, Archaeological and Palaeontological Resources

WattBridge, in cooperation with NB Power, is engaging with Indigenous groups with respect to the Project to better understand how the Project may potentially affect Indigenous peoples relating to physical and cultural heritage, current use of lands and resources for traditional purposes, and cultural heritage, and historical, archaeological and palaeontological resources. Section 4 summarizes Indigenous engagement to-date outlines plans for future engagement.

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An archaeological survey (walkover) was conducted by a professional archaeologist in July of 2024 within the Project site and along the proposed access road (previous alignment). The survey found that all areas exhibited low potential for heritage and archaeological resources and no additional investigations or mitigation is recommended, subject to the review and approval of the provincial Archaeology and Heritage Branch (AHB). All work associated with the Archaeological Impact Assessment was conducted in accordance with the *Guidelines and Procedures for Conducting Professional Archaeological Assessments in New Brunswick* (AHB 2012). Additional archaeological survey work will be undertaken in accordance with provincial guidelines to confirm archaeological potential of the section of access road which was not previously surveyed in 2024.

The Project may potentially result in non-negligible adverse effects on access or loss of traditional lands and the ability to hunt, fish, gather and harvest as well as the ability to practice cultural activities. Potential non-negligible adverse effects on fish and fish habitat (Sections 19.4), migratory birds (Section 19.6) and other wildlife (Section 19.7) could potentially affect traditional land and resource use by Indigenous peoples. WattBridge, in coordination with NB Power, will continue to engage with Indigenous groups to better understand and mitigate potential effects due to the Project.

22 Potential Effects on Indigenous Health, Social, and Economic Conditions

The nearest Indigenous reserve lands to the Project are the Fort Folly Reserve No. 1 which is located approximately 23 km southwest of the Project, in Dorchester, NB. The next nearest Indigenous reserve land is the Metepenagiag Urban Reserve 3 which is approximately 36 km southwest of the Project. Amlamgog (Fort Folly) First Nation and Metepenagiag Mi'kmaq Nation are part of the NSMTC, which is a minor equity partner in the Project (NSMTC 2025).

Potential non-negligible effects to the environment where traditional use and/or commercial purposes by Indigenous communities occurs could potentially affect Indigenous health, social, and economic conditions. This could occur where the quality of natural resources on which Indigenous communities rely on for traditional or commercial purposes are affected by the Project.

Potential Project-related changes could include clearing of vegetation during construction; changes to freshwater fish and fish habitat during operations (depending on effluent discharge scenario); and changes in land access. Clearing of vegetation could result in changes in abundance and distribution of species of interest (including plants and wildlife) to Indigenous communities. Changes in access to land may affect quality of traditional use experiences and hunting/harvesting success.

Hunting, gathering, harvesting and fishing are culturally important activities and may also be used to improve food security. Communal commercial fishing conducted by Indigenous communities is culturally important and also represents an important source of income to Indigenous communities. A non-negligible adverse effect on traditional land and resource use and/or commercial communal fishing could therefore affect health, social and economic conditions of affected Indigenous communities, including mental and social well-being.

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WattBridge is committed to actively engaging and partnering with Indigenous communities to understand and reduce potential adverse effects and enhance positive effects. Potential positive effects include the sharing of economic opportunities and benefits which, through collaboration, could have positive effects on Indigenous health, social and economic conditions for Indigenous peoples in the region.

23 Greenhouse Gas Assessment

A preliminary estimate of GHG emissions associated with the Project has been developed in accordance with the SACC which applies to designated projects under the *Impact Assessment Act*. The Project is expected to release direct GHG emissions during construction, operation, and decommissioning phases. The relevant GHGs are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), which primarily occur from hydrocarbon fuel combustion (e.g., diesel and natural gas combustion). During construction, GHG emissions are expected to occur from the combustion of diesel in construction equipment, such as cranes, loaders, and dump trucks. An additional source of GHG emissions during construction is emissions from cleared vegetation. The Project is situated on approximately 20 ha of land that is considered mainly mixed wood (coniferous and deciduous) with approximately 8.7 ha of wetland. For the purpose of this estimation, vegetation that is cleared is assumed to be burned; this is a conservative assumption as cleared vegetation is unlikely to be disposed of by burning. Burning causes the carbon in the vegetation to be released as CO₂ and some CH₄, as well as some N₂O. The estimated direct GHG emissions over the construction period are presented in Table 23.1. Approximately 21,130 t CO₂e emissions are anticipated from construction activities or approximately 10,565 t CO₂e per year.

Table 23.1 Total Direct GHG Emissions from Construction Activities (24 Months)

| Activity | CO₂ (t) | CH₄ (t) | N₂O (t) | CO₂e (t) |
|---------------------|---------------------------|---------------------------|---------------------------|----------------------------|
| Diesel combustion | 17,680 | 0.48 | 0.15 | 17,732 |
| Land-use change | 2,938 | 11.8 | 0.49 | 3,398 |
| Total Direct | 20,617 | 12.2 | 0.64 | 21,130 |

Note:
t = tonnes

During operation, GHG emissions may occur from the combustion of natural gas and light fuel oil in the combustion turbine. Additional, smaller sources for maintenance activities may also occur as needed, however, those are expected to be negligible compared to the combustion in the turbines. The Project lifetime is 25 years. The GHG emissions from operation activities were estimated using the estimated annual natural gas and light fuel oil consumption, fuel-specific emission factors, and fuel-specific higher heating values. As a result of Project construction and for the purposes of the GHG calculation, it is assumed that the existing vegetation, including trees and wetlands, will be cleared, which potentially represents a loss of carbon sinks. Depending on the tree species present at the Project site and stand age, a loss of carbon sinks may occur.

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Assuming a stress case of approximately 27,270 operating hours in a year, Project operations are expected to combust up to approximately 375,179,336 m³ of natural gas from the existing M&NP pipeline. The amount of natural gas that will be combusted annually will vary depending on the Project's hours of operation in the year. GHG emissions from the combustion of each fuel are presented in Table 23.2.

Table 23.2 Total Direct GHG Emissions from Operation Activities (Peak Stress Case, Y2)

| Activity | CO ₂ (t/y) | CH ₄ (t/y) | N ₂ O (t/y) | CO ₂ e (t/y) |
|---------------------------|-----------------------|-----------------------|------------------------|-------------------------|
| Natural gas combustion | 900,806 | 184 | 18.4 | 910,825 |
| Light fuel oil combustion | 0.06 | <0.001 | <0.001 | 0.06 |
| Total | 900,806 | 184 | 18.4 | 910,825 |

The total operation annual emissions in the peak stress case are 910,825 t CO₂e per year.

The specific activities that are required for decommissioning are not yet known. As a preliminary estimate, the estimated construction emissions (not including land-use change emissions) of 17,732 t CO₂e can be considered representative for decommissioning activities. As decommissioning would occur after 2050, it is anticipated that much lower emissions of GHGs would occur for decommissioning as technologies would be available with lower GHG intensities than those planned for construction.

Currently, the Project does not intend to capture and store CO₂ nor use offset credits. The Project does not directly reduce or eliminate existing GHG emissions in Canada (i.e., no avoided domestic GHG emissions). For this initial Project Description, the net GHG emissions are equal to the direct emissions.

Mitigation measures that are currently planned for the Project construction include standard measures to reduce fuel and energy use to the extent reasonable, such as through anti-idling technologies and practices, and maintenance of equipment. During operation, similar mitigation measures to reduce fuel use and increase energy efficiency will be implemented to the extent reasonable.

In 2023, the GHG emissions reported for New Brunswick and Canada were 11 million tonnes (Mt) CO₂e and 694 Mt CO₂e, respectively, as reported in Canada's National Inventory Report (ECCC 2025b), where 2023 represents the most recent year with this information. The Project's operation emissions shown in Table 23.2 are anticipated to represent 7.9% of New Brunswick's annual emissions and 0.1% of Canada's annual emissions.

24 Waste and Emissions Generated by the Project

The Project has the potential to generate various atmospheric (air, noise, light), liquid, and solid wastes and emissions during construction, operation and decommissioning.

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24.1 Air Contaminants

The Project will generate air contaminants during all Project phases. During construction, particulate matter (PM, dust) will be generated during vegetation clearing, earth moving and material handling, and general movement of vehicles on unpaved surfaces. Construction equipment (e.g., excavators, graders, haul trucks, cranes) will also release fuel combustion related by-products such as NO_x, SO₂, CO and PM. These emissions will be managed through regular equipment maintenance, reduced vehicle idling, and best management practices for dust control.

Air contaminant emissions (e.g., NO_x, SO₂, CO, and PM) will be generated during operations as a result of the combustion of natural gas and ULSD in the CTGs. These emissions will be mitigated by advanced pollution control using an emissions reduction system to manage emissions of NO_x and CO. Ammonia (NH₃) is generated as a byproduct of the emissions reduction system during the operations phase.

Air dispersion modelling of operational emissions indicates that the Project is not expected to cause or contribute to a substantial degradation of ambient air quality.

24.2 Greenhouse Gas Emissions

The Project is expected to release direct GHG emissions during construction, operation, and decommissioning phases including CO₂, CH₄, and N₂O, which primarily occur from hydrocarbon fuel combustion (e.g., diesel and natural gas combustion). An additional source of GHG emissions during construction is emissions from cleared vegetation. Section 23 provides an estimate of Project-related anticipated GHG emissions.

24.3 Noise

During construction, noise will be generated during site preparation and installation of infrastructure, noise emissions will be generated by delivery of equipment and supplies and operation of heavy equipment onsite. These noise emissions will be intermittent over approximately 12-15 months. Start-up and commissioning activities will also be intermittent, occurring over a period of approximately six months, with noise generated primarily from the CTG equipment during start-up. Acoustic modelling has been undertaken to predict total sound power levels at nearby receptors during start-up and steady state operations, assuming a high emissions scenario of all 10 CTGs operating simultaneously. Modelling results predict noise levels will comply with the New Brunswick Noise Guideline levels for all identified receptors. The change in noise levels during the high emissions scenario for one potential receptor location was predicted to exceed Health Canada guidance for nuisance. Additional mitigation measures will be reviewed during detailed design to identify opportunities to further reduce noise levels for this potential receptor location.

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24.4 Light

Temporary site and construction equipment lighting will be required during construction and decommissioning activities. During the operation and maintenance phase, long-term use of lighting will be required for the safety and security purposes. Facility lighting will be as efficient as possible, with perimeter lighting directed inward to the Project sight to reduce potential light trespass to the surrounding environment. If it is determined that any Project structures may constitute an obstacle to air navigation, the structures will be marked and lit in accordance with Transport Canada standards.

24.5 Liquid Effluent and Stormwater

Effluent discharges from Project operations will include reject process water from the water purification process including continuous reject water, intermittent backwash water, and intermittent Clean-in-Place (CIP) water. Surface water runoff (i.e., stormwater) will also require management during construction, operation and decommissioning of the Project.

The raw water treatment system produces reject water containing the dissolved solids, impurities, and ions removed from the raw water. This reject is considered effluent and requires proper management and disposal. Reject process water will be approximately one-third of the volume of raw water intake with water quality composition approximately three times the concentration of the raw groundwater quality. The operating time for the Project will vary and likewise, the volume of effluent discharge will vary greatly.

Two proposed discharge scenarios are being considered for this reject water. The first scenario is the discharge to the proposed site ditch adjacent to the access road, and eventual discharge into a wetland approximately 300 m to the west of the Project site. The secondary scenario is conveying effluent to the provincial ditch located along Route 940. Studies are currently underway to understand the design and environmental implications of the discharge scenarios with respect to fish and fish habitat. WattBridge will also engage applicable landowners and regulatory agencies as part of the alternatives evaluation option for reject water discharge.

Routine backwashing of all of the systems' components involves reversing the flow of water to clean the filter media by removing trapped contaminants. During system backwash of the filters, TSS levels may be elevated. Since the raw water source is groundwater, TSS is expected to be low to negligible in waste streams on average compared to a surface water treatment system. However, some solids will still be released in short durations during a backwash. Backwash water will be routed to the stormwater pond for gravity settling.

CIP water is chemically concentrated wash water. Since discharge will be an intermittent, infrequently produced effluent stream with an anticipated higher chemical concentration than the reject process water or backwash water, it will be collected separately and hauled away for treatment and disposal at an approved facility.

Stormwater will be conveyed to an onsite stormwater management pond via roadside ditches, swales, and culverts. The stormwater management pond will be used to attenuate peak flows discharging from the site to an offsite wetland.

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If onsite washroom facilities are required to accommodate onsite workers, WattBridge will obtain the necessary approvals for onsite septic disposal services.

24.6 Solid and Hazardous Waste

Other types of wastes expected to be generated by the Project include non-hazardous domestic solid waste (e.g., food waste, office waste, packing materials); hazardous solid waste (e.g., oily waste [e.g., filters, rags, waste oil, lubricants], batteries, paints); construction and demolition wastes (e.g., scrap metals, insulation waste, asphalt, concrete); and organic material (e.g., cleared vegetation, excavated rocks and soils).

Merchantable timber cleared from the site as applicable. Uncontaminated excavated clean soil/stone will be used onsite as backfill material, bunding, and/or landscaping. Other wastes will be sorted and stored in appropriate receptacles and removed from site for disposal at licensed treatment and/or disposal facilities. Hazardous waste will be stored in a dedicated area before being transported by a licensed contractor for disposal in accordance with the *Transportation of Dangerous Goods Act*.

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