

1.0 INTRODUCTION

This document is an environmental impact assessment (EIA) report for the proposed construction and operation of the submarine electrical transmission cables replacement to the Fundy Isles, New Brunswick (“the Project”).

The Proponent, New Brunswick Power Corporation (NB Power), is proposing to install and operate two new submarine electrical transmission cables: one from Deer Island to Campobello Island, and one from Campobello Island to Grand Manan Island (see Figure 1.1), to provide continued electrical service to the three Fundy Isles from mainland New Brunswick. The existing cables supplying these islands (Line 0045) are nearing the end of their service life and need to be replaced. The Project includes two segments of 69 kilovolt (kV) alternating current (AC) submarine cables and the modification of four land-based overhead-to-underground cable riser stations. The cables would be installed so that they can operate in parallel with the existing Line 0045 cables currently powering these islands, until the existing cables are eventually retired. The new submarine cables will be owned, operated, and maintained by NB Power. The Project would connect to electrical transmission infrastructure on mainland New Brunswick via the existing overhead electrical transmission line between Deer Island and the mainland.

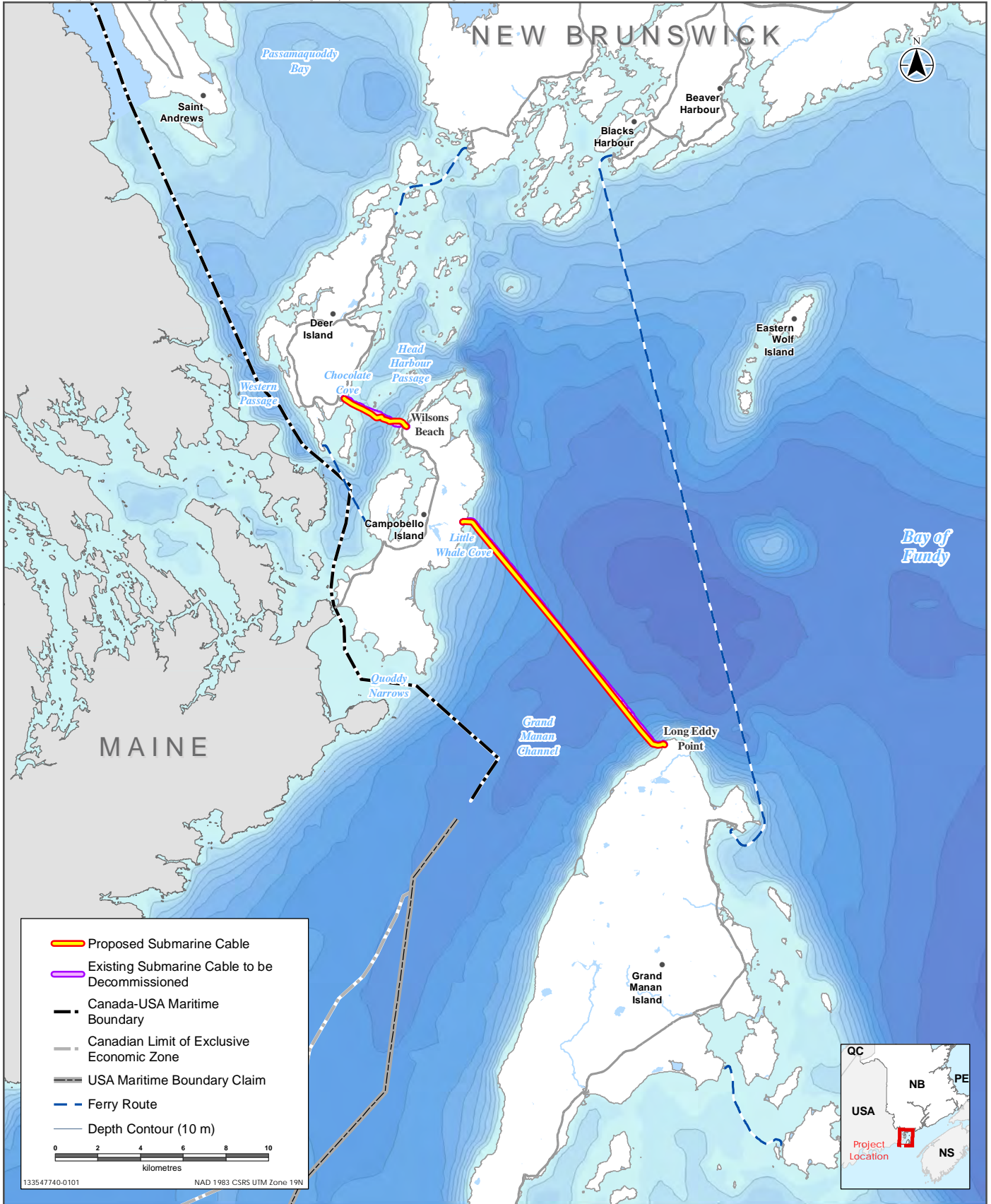
A summary of the activities related to the construction and operation, and eventual decommissioning of the existing submarine cables to the Fundy Isles is described in this EIA report. A summary of the existing environment is also provided. This EIA report was prepared from information provided by NB Power and through review of existing, publicly-available data and field collected data for the surrounding environment.

1.1 OVERVIEW/BACKGROUND

1.1.1 Existing Fundy Isles Submarine Cables and Infrastructure

The existing submarine cables currently servicing the Fundy Isles (Line 0045) were installed in 1978 and use obsolete nitrogen gas-filled laminated paper insulation cable technology. The existing submarine cables run from the overhead-underground cable riser stations located at Chocolate Cove on Deer Island, Wilsons Beach and Little Whale Cove on Campobello Island, and Long Eddy Point on Grand Manan Island. Based on a condition assessment study completed in 2005, by Marengo Engineering, the cables have a normal life expectancy of 40 years, suggesting the replacement of the cables by approximately 2018.

Since their original installation, the cables have been exposed above the shorelines due to soil erosion. Substantial corrosion has been noted and repaired on the protective collars used to protect the cables in these areas.



Sources: Government of New Brunswick, Canadian Seabed Research

Project Overview

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The existing submarine cable crossing route between Campobello Island and Grand Manan Island was studied in 2005 by Marenco and deemed to be subject to high activity by local fisheries, resulting in numerous anchors getting caught in the cable. Portions of the existing cable were found to be laying on boulders which are not conducive to cable burial.

1.1.2 New Submarine Cables and Infrastructure

The proponent (NB Power) is proposing to construct and operate two segments of submarine cable from Deer Island to Campobello Island and from Campobello Island to Grand Manan Island in New Brunswick. The main elements of the Project include:

- four landfall sites (where the submarine cable is brought ashore)
- a 50 megawatt (MW), 69 kV submarine cable from Deer Island to Campobello Island, approximately 3.4 km in length
- a 50 MW, 69 kV submarine cable from Campobello Island to Grand Manan Island, approximately 14.5 km in length
- modifications (installation of cable riser station and associated infrastructure) to existing termination sites at Chocolate Cove, Wilsons Beach, Little Whale Cove, and Long Eddy Point

The Project is divided into five different areas; Figure 1.1 illustrates the complete Project footprint:

- I. Deer Island – landfall site construction and modifications to the existing termination site in Chocolate Cove
- II. Head Harbour Passage – a high voltage AC submarine cable would span 3.4 km from Deer Island to Campobello Island
- III. Campobello Island – construction of two landfall sites and modifications to the existing termination sites in Wilsons Beach and Little Whale Cove
- IV. Grand Manan Channel – a high voltage AC submarine cable would span approximately 14.5 km from Campobello Island to Grand Manan Island
- V. Grand Manan Island – landfall site construction and modifications to the existing termination site in Long Eddy Point

Both submarine cable segments (Head Harbour Passage and Grand Manan Channel) would follow a route similar to the existing submarine cables.

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1.2 PROPONENT INFORMATION

The Project title and details of the Project Proponent, and the environmental consultant hired by the Proponent to author this Project Description are as follows:

Project Title:	Environmental Impact Assessment (EIA) Report: Fundy Isles Submarine Cables Replacement Project, New Brunswick
Project Proponent:	New Brunswick Power Corporation 515 King Street Fredericton, NB E3B 4X1
Chief Executive Officer:	Mr. Gaëtan Thomas
Proponent's Principal Contact Person For the purposes of this report:	Mr. R. Anthony Bielecki, P.Eng. Manager, Environment New Brunswick Power Corporation P.O. Box 2040, 515 King Street Fredericton, NB E3B 5G4 Tel.: (506) 458-6701 Fax: (506) 458-4000 Email: ABielecki@nbpower.com
Environmental Consultant and Principal Contact Person for this report:	Mr. Dale Conroy, M.Sc. Senior Associate, Environmental Services Stantec Consulting Ltd. 165 Maple Hills Avenue Charlottetown, PE C1C 1N9 Tel: (902) 566-2866 Fax: (902) 566-2004 Email: dale.conroy@stantec.com

1.3 PURPOSE/RATIONALE/NEED FOR THE PROJECT

Based on a condition assessment study completed in 2005 by Marengo Engineering, the existing Line 0045 cables have a normal life expectancy of 40 years, suggesting the need to replace those cables by approximately 2018 (Marengo 2007). The Project is being carried out in order to continue to provide reliable electrical service to the three Fundy Isles from the existing NB Power electrical grid on mainland New Brunswick. The new submarine cable connections would supplement the existing Line 0045 cables, which would operate on standby until the end of their service life.

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1.4 REGULATORY CONTEXT

The anticipated regulatory framework applicable to the Project is discussed below.

1.4.1 Provincial Legislation

The primary provincial environmental legislation potentially relevant to the Project includes the New Brunswick *Environmental Impact Assessment Regulation–Clean Environment Act*, the New Brunswick *Watercourse and Wetland Alteration Regulation – Clean Water Act*, the New Brunswick *Quarriable Substances Act*, the New Brunswick *Crown Lands and Forests Act*, and the New Brunswick *Species at Risk Act*. Further details are provided below.

1.4.1.1 New Brunswick Environmental Impact Assessment Regulation–Clean Environment Act

The New Brunswick *Environmental Impact Assessment Regulation 87-83* under the *Clean Environment Act* (EIA Regulation) governs the environmental impact assessment (EIA) process in the province. The EIA Regulation requires that all “undertakings” listed in Schedule “A” of the Regulation (including the proposed construction, operation, modification, extension, abandonment, demolition or rehabilitation of one of 24 categories of undertakings listed in Schedule “A”) require registration with the New Brunswick Department of Environment and Local Government (NBDELG).

The Project meets the requirement of an “undertaking” pursuant to Schedule “A” of the EIA Regulation as follows:

“(d) all electric power transmission lines exceeding sixty-nine thousand volts in capacity or five kilometres in length.”

Following registration, NBDELG would form a Technical Review Committee (TRC) to undertake, at minimum, a determination review of the submitted EIA documentation. During or following this review, the TRC may require additional information and pose questions for NB Power to address. At the conclusion of the determination review, the TRC would make a recommendation to the Minister of Environment and Local Government who would decide if the Project can proceed under certain conditions, or if a more detailed EIA (“comprehensive review”) is required. Should a comprehensive review be required, a more extensive review and assessment process would be required.

1.4.1.2 New Brunswick Watercourse and Wetland Alteration Regulation–Clean Water Act

The New Brunswick *Watercourse and Wetland Alteration Regulation–Clean Water Act* requires a watercourse and wetland alteration (WAWA) permit to be issued for any activity carried out within 30 m of a watercourse or wetland. A WAWA permit will not be required for this Project, as construction activities will occur in tidal waters and there are no wetlands located within 30 m of the PDA.

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1.4.1.3 New Brunswick Quarriable Substances Act

Through the *Quarriable Substances Act*, the Minister of Energy and Resource Development manages the extraction of quarriable substances from Crown Land and the area of shore within 300 m above and 300 m below the ordinary high water mark. A Quarry Permit is required from the Department of Energy and Resource Development (NBDERD) in order to remove more than one half cubic metre of material from a pit or quarry located on Crown Land.

1.4.1.4 New Brunswick Crown Lands and Forests Act

A License of Occupation under the *Crown Lands and Forests Act* is required from NBDERD for the temporary occupation and use of provincial Crown Lands under terms and conditions as determined by the Minister. A license can be issued for coastal work, access roads, utility poles and anchors.

1.4.1.5 New Brunswick Species at Risk Act

The New Brunswick Species at Risk Act (NB SARA) is administered by NBDERD and is intended to protect species from extirpation and extinction. Species that are included in the *Prohibitions Regulation* of NB SARA currently have some regulatory protection. Schedule A of NB SARA lists species in New Brunswick that are classified as being extirpated, endangered, threatened, or of special concern. The NB SARA, by way of Section 28(2), prohibits the killing, harming, harassing, or taking of any species listed in its Schedule A.

1.4.1.6 Other Potential Provincial Permit Requirements

The following table contains a representative list of potential additional permits, approvals, and authorizations that may be applicable to the Project.

Table 1.1 Other Potential Provincial Permit Requirements

Permit, Approval, or Authorization	Issuing Provincial Agency
Archaeological Field Research Permit (<i>Heritage Conservation Act</i>)	Archaeological Services Branch, New Brunswick Department of Tourism, Heritage, and Culture
Site Alteration Permit (<i>Heritage Conservation Act</i>)	Archaeological Services Branch, New Brunswick Department of Tourism, Heritage, and Culture
Work Permit (<i>Forest Fires Act</i>)	Forest Fire Management Section, New Brunswick Department of Energy and Resource Development

1.4.2 Federal Legislation

The primary federal environmental legislation of potential relevance to the Project includes the *Canadian Environmental Assessment Act, 2012*, the *Fisheries Act*, the *Navigation Protection Act*, the *Migratory Birds Convention Act (MBCA)*, and the *Species at Risk Act (SARA)*. Further details are provided below.

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1.4.2.1 Canadian Environmental Assessment Act, 2012

The federal requirements for conducting an environmental assessment are described in the *Canadian Environmental Assessment Act, 2012 (CEAA 2012)* and the *Regulations Designating Physical Activities (SOR/2012-147)*.

Whether a new transmission line is a designated project, requiring an assessment under *CEAA 2012*, depends on the length and voltage of the transmission line. As per the *Regulations Designating Physical Activities* under *CEAA 2012*, transmission lines that are more than 75 km of length within new right-of-way (RoW) and have a voltage of more than 345 kV are considered designated projects. Since the transmission line (i.e., cable) is less than 75 km in length and considerably less than the voltage trigger, it is not anticipated that the Project will be considered a designated project under the *CEAA 2012*.

A small portion of the proposed cable route in Chocolate Cove on Deer Island is located within federal Crown land under management of the Department of Fisheries and Oceans Canada (DFO). An environmental assessment, and subsequent authorization, for installation and operation of the submarine cable on this property, is required under Section 67 of *CEAA 2012*. This authorization will require an environmental review under Section 67 of *CEAA 2012* which sets the framework for the environmental review of projects being carried out on federal land that are not considered designated projects. Thus, a federal environmental assessment will be required under Section 67 of *CEAA 2012*.

1.4.2.2 Fisheries Act

Under Section 35(1) of the federal *Fisheries Act*, serious harm to fish that are part of a commercial, recreational, or Aboriginal (CRA) fishery, or fish that support CRA fisheries, is prohibited without authorization from Fisheries and Oceans Canada (DFO). Section 36 (3) also prevents the introduction of deleterious substances into a fish bearing watercourse or waterbody. A deleterious substance is considered any substance that has the ability to degrade water quality such that it becomes harmful to fish or fish habitat.

Based on the proposed preferred construction methods (i.e., horizontal directional drilling (HDD) from the cable riser stations to approximately 3 metres (m) water depth at lower low water large tide (LLWLT)) and recent experience on a similar marine cable project, DFO may not need to issue an authorization under Section 35(1) if it considers such activities to not constitute serious harm to fish. However, the discharge of a deleterious substance into water frequented by fish may occur but neither of these can be confirmed until baseline marine studies characterizing the habitat and sediment chemistry in the area of the cables is completed and submitted to DFO. Consultation with DFO will need to be conducted to determine the precise authorization requirements.

1.4.2.3 Navigation Protection Act

According to the Navigation Protection Program (NPP), this Project is not classified as a designated work under the *Navigation Protection Act*. A self-assessment of the Project against the provisions of the Minor Works Orders for Submarine Cables – Power and Telecommunication and the Aerial Cables–Power and Telecommunication indicates the Project may be excluded from authorization under the NPP provided

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several conditions are met regarding the placement of the submarine cables. Consultation with Transport Canada is continuing to determine if this Act will be triggered by the Project.

1.4.2.4 Migratory Birds Convention Act

The *Migratory Birds Convention Act (MBCA)* is administered by Environment and Climate Change Canada (ECCC) and contains provisions for the protection and conservation of migratory bird populations, individuals, and their nests within all lands in Canada. The *MBCA* prohibits the killing, harming, or other harassment of migratory birds and their nests. An estimated 450 native species of migratory birds (including their nests and eggs) are protected under the *MBCA*.

1.4.2.5 Species at Risk Act

The federal *Species at Risk Act (SARA)* is administered by ECCC with the intent to protect species from extirpation or extinction as a result of human activity. The purpose of these provisions under *SARA* is to prevent species at risk from becoming threatened or endangered and to allow for recovery of species that are considered threatened, endangered or extirpated. Section 32(1) affords protection to individuals of species that are listed under *SARA* as extirpated, endangered, or threatened, while Section 33 protects the habitat of these species.

Schedule 1 of *SARA* lists species in Canada that are classified as being extirpated, endangered, threatened, or of special concern. The more than 300 wild plant and animal species listed in Schedule 1 are afforded special measures to protect them and assist in their recovery. These measures include, amongst other things, prohibitions against:

- the killing, harming, or harassment of these species;
- the damage or destruction of their residences; and
- the destruction of any part of their critical habitat.

1.5 PROPERTY OWNERSHIP

The Government of New Brunswick has jurisdiction over the intertidal zones; NB Power would apply for created lease agreement or easement for the submarine cable portion of the Project. Land acquisition requirements for the Fundy Isles Project are anticipated to be minimal and limited to the expansion of existing termination sites on Deer Island, Campobello Island and Grand Manan Island. All land acquisitions, or easements required for the project will be coordinated in an equitable and consistent manner that is fair to all parties. NB Power land agents will initiate land discussions with affected property owners and the related acquisition process in early fall of 2017.

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1.6 ORGANIZATION OF THIS DOCUMENT

The intent of this document is to provide the results of the environmental impact assessment (EIA) carried out to satisfy the regulatory requirements of the Project under the following jurisdictions:

- Section 5(1) of the New Brunswick *Environmental Impact Assessment Regulation*, as outlined in the NBDELG document entitled “*A Guide to Environmental Impact Assessment in New Brunswick*” (NBDELG 2012a)
- the sector guidelines entitled “*Additional Information Requirements for Linear Facilities*” (NBDELG 2004)
- Section 5 of the *Canadian Environmental Assessment Act, 2012 (CEAA 2012)*

The EIA report is organized as follows:

- Section 1 provides introductory information regarding the Project, including Project scope, information on the proponent, the purpose of the Project, and the regulatory framework that is anticipated to apply to the Project.
- Section 2 provides a description of the Project as it is currently conceived. This description includes information on the Project location, specific Project components and infrastructure, the means by which construction, operation, and decommissioning of the Project would be achieved, mitigation by design of the Project, and the anticipated Project workforce and schedule.
- Section 3 provides an overview of the environmental setting of the Project.
- Section 4 outlines the scope of the EIA and methods that would be used to carry it out.
- Sections 5 to 15 contain details of the potential interactions between the Project and valued components (VCs), including the scope of the VC, a description of existing conditions, and a discussion of potential Project-environment interactions and assessment of Project-related environmental effects. An assessment of effects of the environment on the Project, as well as an assessment of accidents, malfunctions and unplanned events and cumulative environmental effects, are also provided.
- Section 16 provides a summary of mitigation for the Project, both by design and in response to potential environmental interactions.
- Section 17 includes closing remarks and a statement of limitations about the document.
- Section 18 lists the references cited in this work.

Additional information is provided in Appendices A through C of this document.