

Maritime Link Environmental Assessment Report

Emera Newfoundland and Labrador

JANUARY 10 2013



EXECUTIVE SUMMARY

NSP Maritime Link Inc. (operating as ENL), a wholly owned subsidiary of Emera Newfoundland and Labrador Holdings Inc., is proposing to construct and operate a new 500 megawatt (+/-200 kV) high voltage direct current and a 230 kV high voltage alternating current transmission line, and associated infrastructure, between Granite Canal, on the island of Newfoundland, and Woodbine, Nova Scotia.

The primary objective of the Maritime Link is to provide a direct, safe, reliable and cost-effective connection between the electrical system of Newfoundland and Labrador and the electrical system in Nova Scotia, thereby enabling both provinces to share in the economic opportunities afforded by the increase in renewable energy resulting from the Lower Churchill Hydroelectric Generation Project. The objective is to plan, design, build and operate the Maritime Link Project with minimal adverse environmental, economic, social and cultural effects.

With the emerging federal greenhouse gas regulations and the existing Nova Scotia regulations for reduction of carbon dioxide emissions, there is a need for replacement energy to reduce coal-based generation. The Maritime Link Project offers an opportunity to build a diversified energy portfolio within Nova Scotia that meets provincial Renewable Energy Standards and reduces emissions of greenhouse gasses and other air pollutants associated with thermal combustion. In general, the Maritime Link Project will foster economic cooperation and shared benefits between Newfoundland and Labrador and Nova Scotia.

Construction will commence in the fall of 2013, with completion planned for late 2016 and site exit late 2017 when fully commissioned. Construction will be timed to take advantage of seasonal conditions and in consideration of the potential environmental and socio-economic constraints that have been identified and incorporated into the planning and design of the Project. Total employment during Construction is expected to be approximately 1,350 person-years. There will be some additional work force requirements during Operation and Maintenance; however, employment will be minor compared to the Construction phase.

The Maritime Link Project is divided into three distinct geographical regions, the associated infrastructure components of which are described below:

<u>Island of Newfoundland</u>: the Project overview for the island of Newfoundland includes approximately 293 km of transmission line along new and existing corridors between Granite Canal and Cape Ray. Associated infrastructure includes one switchyard; one converter station; one transition compound; one anchor site; up to approximately 28 km of grounding lines; and approximately 2 km of underground cable. The transmission line from Granite Canal to Bottom Brook will be HVac; the overland HVdc portion of the Project will run from Bottom Brook and end near Cape Ray.

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<u>Cabot Strait</u>: Two subsea HVdc cables will span approximately 180 km from Cape Ray, Newfoundland and Labrador, to Point Aconi, Nova Scotia. This portion of the Project includes two grounding sites and two landfall sites where the cables come ashore in Nova Scotia and on the island of Newfoundland.

<u>Nova Scotia:</u> The Project overview for Nova Scotia includes approximately 46 km of new HVdc transmission line, parallel to an existing transmission corridor, between the Point Aconi and an existing substation at Woodbine. Associated infrastructure includes one converter station; one transition compound; one anchor site; up to approximately 50 km of grounding line; and approximately 1 km of underground cable.

Consultation and engagement with the public and stakeholders, as well as engagement with the Nova Scotia Mi'kmaq, are important planning aspects of the Maritime Link Project, and have been underway since the spring of 2011. These activities have provided opportunities for exchange of information regarding the Project as well as a means for the identification, scoping and resolution (including mitigation) of potential issues or concerns. The stakeholders and Aboriginal groups listed below were identified based on the anticipated level of impact that the Maritime Link Project may have on them, or their anticipated level of interest in the Project:

- government regulators;
- municipal officials;
- Aboriginal groups;
- local residents/communities;
- landowners;
- commercial fishing interests;
- special interests; and
- economic development association.

Project stakeholders and Aboriginal groups have been, and will continue to be, engaged using various methods including:

- one-on-one meetings;
- technical workshops;
- supplier information sessions;
- speaking engagements at industry associations;
- open houses; and
- information sessions.

Emera places a priority on fostering positive long-term relationships with First Nations building upon positive experiences through our activities within Atlantic Canada. The ENL team has met

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with First Nations groups and is committed to meaningful and productive collaboration on this and future projects. Since 2011, ENL has had more than 50 exchanges, including meetings, workshops, conversations and collaborative reviews, with Mi'kmaq leadership, organizations and businesses. Engagement with First Nations will continue for the duration of the Project, looking for opportunities for mutual benefit from this and future projects.

General issues and concerns raised to date during the stakeholder consultation and Mi'kmaq engagement process have primarily related to:

- local benefits of the Project, including employment opportunities and economic benefits; the process for ongoing communication, notification, and liaison with stakeholders and the Mi'kmaq;
- subsea cable installation activities and associated potential environmental effects (particularly potential Project interactions with commercial fisheries and the marine environment);
- details of land-based Project activities and associated environmental effects;
- the timing and duration of Project construction;
- potential risk and effects of accidents and malfunctions;
- potential Project effects on archaeological resources; and
- environmental effects monitoring.

In an effort to increase the general understanding of the issues involved, information regarding these concerns has been shared with Aboriginal groups, the public and stakeholders. In addition, the knowledge and suggestions that were offered through the consultation and engagement activities have been useful in developing or modifying mitigation measures, (e.g., the avoidance of sensitive areas and time periods).

ENL will also establish community liaison committees to foster constructive working relationships within communities and build on community engagement. The committees are expected to be implemented by Q1 2013. The details regarding the number, and geographic location, of the committees will be determined based on further discussion with local community organizations and representatives. The role of the committees will be to provide a forum for discussion between ENL, community members, municipal government, landowners and other stakeholders on issues and opportunities related to the Project. The mandate will include keeping the community informed on the Project as it progresses from the regulatory approval process through construction and operation. Each committee will consist of local stakeholders, including the general public, representatives of municipal government and representatives of ENL. Focused engagement will continue with special interest groups such as commercial fish harvesters and outfitters.

A number of field studies and reviews of research publications and databases were also undertaken in direct support of the environmental assessment. These included surveys to

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characterize physical and biological conditions within the transmission corridor; land, marine and freshwater surveys to define and map habitats; surveys to locate species of conservation interest; studies to determine vulnerability of receptors to various environmental effects; studies on the scope and scale of resource harvesting; reconnaissance surveys to locate areas of high potential for archaeological and cultural resources; studies to characterize baseline socioeconomic conditions; and studies to determine the cultural use of resources for traditional purposes. Marine benthic surveys and an ecological land classification of the transmission corridor provided information important for both environmental and engineering purposes. A Mi'kmaq Ecological Knowledge Study and a Mi'kmaq Fisheries study also provided relevant information of current use of land and resources for traditional purposes by the Mi'kmaq of Nova Scotia.

This document is intended to fulfill the environmental assessment requirements for the construction and operation of the Project. Specifically, this document addresses the requirements of a transitional screening-level assessment under the former *Canadian Environmental Assessment Act* (1992); an Environmental Preview Report under the Newfoundland and Labrador *Environmental Protection Act*, and a Registration for a Class 1 Undertaking under the Nova Scotia *Environment Act*. In addition, this report has been prepared to respond to the Guidelines for the Preparation of an Environmental Assessment Report (the Guidelines) which were developed for the Project by the Governments of Canada, Newfoundland and Labrador, and Nova Scotia.

As recommended in the Guidelines, this environmental assessment uses a generally accepted methodology that focuses on a set of valued environmental components (VECs) that reflect key issues of concern. Within specified spatial and temporal boundaries, the potential for interaction between individual environmental components and Project activities during construction and operation and maintenance was determined. Where there is potential for Project-related environmental effects, each effect was assessed using the results of supporting field studies (baseline studies), relevant databases, published scientific research and expert opinion. The assessment for each valued environmental component utilizes an evaluation framework involving standardized methods for identifying, collecting, analyzing, interpreting and presenting relevant data and information This leads to the identification of residual Project-related environmental effects (after mitigation has been applied), which are characterized using specific criteria, (i.e., direction, magnitude, geographic extent, duration, frequency, and reversibility) that are defined for each valued environmental component. The significance of the residual effects is then determined based on criteria or thresholds that are defined for each valued environmental component.

Potential Project-related accidents and malfunctions and the effects of the environment on the Project are also assessed in this Report.

There is potential for environmental effects from various sources to interact in a cumulative manner. For that reason, it is standard practice to conduct a cumulative effects assessment as part of a Project-specific environmental assessment. The methodology for addressing

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cumulative effects in this Report generally conforms to the approach recommended in the *Cumulative Effects Assessment Practitioners Guide* published by the Canadian Environmental Assessment Agency. Consultations with stakeholders and regulators identified the potential for overlap between the Maritime Link and current projects or activities, as well as future projects that can reasonably be predicted. A specific cumulative effects assessment was conducted for each valued environmental component, focused on evaluating the potential for, and significance of, overlapping environmental effects.

All of the key issues identified in the Guidelines have been assessed in this Report. Some issues have been covered as specific valued environmental components, while others have been addressed within various parts of the Report, depending on the scope, scale and risk of the potential environmental effects and how they relate to, or have been integrated into, the chosen valued environmental components.

The specific valued environmental component assessed (as applicable for each geographical region) are:

- Caribou;
- Species of Conservation Interest;
- Socio-economic Environment;
- Archaeological and Heritage Resources;
- Commercial Fisheries;
- Marine Environment: and
- Current Use of Land and Resources for Traditional Purposes by the Mi'kmaq.

Following the general approach and methodology outlined above, each of the above-noted components was subjected to a detailed and structured assessment based on the following considerations:

- Scope of the assessment;
- Baseline Conditions:
- Potential Project-VEC Interactions;
- Mitigation of Project Environmental Effects;
- Characterization of Residual Environmental Effects:
- Summary of Residual Environmental Effects;
- Assessment of Cumulative Environmental Effects;
- Determination of Significance; and
- Follow-Up and Monitoring.

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Mitigation, including Project planning and design, is an important aspect of environmental assessment. This Report explains how key planning and design decisions, environmental best practices, standard and specific mitigation measures, environmental management and protection systems and permitting requirements provide the means to reduce or eliminate adverse environmental effects of the Project. Monitoring and follow-up programs have been proposed to verify the accuracy of effects predictions or effectiveness of mitigation.

These and other measures that must be implemented for each phase of the Project will be included in a Project-specific Environmental Management System (equivalent to the ISO 14001 Environmental Management Systems Standard) that will be developed to manage the environmental risks of operations in a systematic manner. A Project Environmental Management Plan will be developed that will encompass all environmental regulatory requirements and commitments and will evolve throughout the life of the Project. An important component of the Environmental Management Plan is the Environmental Protection Plan which will set out specific plans for implementation of protection procedures and mitigation measures associated with Project construction activities. As such, it is the primary mechanism for ensuring effective and efficient implementation and compliance with regulatory and other requirements set out in the Environmental Management Plan.

A Project Emergency Response Plan, based on the National Standard of Canada, is currently under development and is directed primarily toward the development of effective tools and systems to support emergency preparedness and response. This Emergency Response Plan is closely linked to the Health, Safety and Security Management Plan, which provides guidance on how the Maritime Link Project work scope will be safely executed. This plan is focused on all levels of ENL Management and specifically identifies the strategies and practices that Project personnel will employ so that health and safety performance excellence is achieved.

The majority of the transmission corridor will be located parallel with, or adjacent to, other linear features (existing transmission corridors and/or roads), and most of the other Project infrastructure is sited in areas already affected by varying degrees of general economic development. Although a few current and foreseeable projects and activities were identified that might overlap with the Maritime Link Project, given the development setting and planned mitigation, combined with the low risk of interaction with the Project, the assessment indicated that cumulative environmental effects were predicted to be not significant.

The exception to the discussion of Project components noted above is the Area of New Access on the island of Newfoundland. Increase in access to this area is a concern, particularly since it is located within the seasonal migration route for caribou. Although there is currently some access, particularly by off-road motorized vehicles, resource managers want to limit the potential for further effects that are associated with increased human presence. Through careful planning and route selection, the transmission line corridor through this area will be accessed through a combination of existing roads and travel within the cleared transmission corridor. In addition, travel through the area on the new transmission line corridor will be interrupted by "break points", (i.e., major water crossings or steep rock slopes that cannot be negotiated). For

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these reasons, the assessment indicates that cumulative environmental effects within the Area of New Access were predicted to be not significant.

The environmental effects of potential Project accidents or malfunctions that may occur can be addressed with appropriate environmental management and contingency response planning. Provided that the mitigation and response plans outlined in this Report are implemented, no significant adverse environmental effects are likely to occur as a result of Project-related accidents and malfunctions. Significant, adverse residual environmental effects from Project-related accidents and malfunctions are therefore predicted to be not likely.

Effects of the environment on the Project, which could potentially result in an interruption of service or damage to infrastructure or adverse effects to valued environmental components, are evaluated in consideration of mitigation and design measures, and are found to be not significant.

In summary, the environmental assessment employs a structured, comprehensive and rigorous methodology, supported by information and data from focused field studies, the scientific literature and expert opinion. This Report shows that the planning and design for the Maritime Link Project takes into account environmental constraints. The construction and operation and maintenance phases of the Project will be carefully planned and managed to minimize potential environmental effects through the application of environmental best practices, standard and specific mitigation measures, and regulatory permitting procedures. Monitoring and follow-up programs will determine the validity of effects predictions and the efficacy of the planned mitigation measures, with adjustments, where necessary.

Assuming that all of these measures will be successfully implemented, the environmental assessment indicates that the adverse residual environmental effects from routine Project activities and cumulative environmental effects are predicted to be not significant. Also, the effects of the environment on the Project are considered to be not significant.

CONCORDANCE TABLE

Reference from the Guidelines for the Preparation of an Environmental Assessment Report ¹			Applicable EA Report Reference
PART	1 - BACKGROUND		
1	INTRODUCTION		N/A
1.1	Purpose of the Guidelines		N/A
1.2	Proposed Project	1 2	Introduction Project Description
1.3	EA Requirements	1.4	Regulatory Framework
1.4	Harmonization of the EA Processes and Conduct of the EA	1.4	Regulatory Framework
1.5	Contacts for the EA	1.1	The Proponent
2	PREPARATION AND PRESENTATION OF THE EA REPORT		EA Report
2.1	Study Strategy and Methodology	5	Environmental Assessment Methods and Scope of Assessment
2.2	Presentation and Organization of the EA Report		EA Report
2.3	Executive Summary		Executive Summary
PART	2 – CONTENT AND STRUCTURE OF THE EA	REPOF	RT
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3.1	The Proponent	1.1	The Proponent
3.2	Project Overview	2.4	Project Overview
3.3	Non-Government Participants in the EA	3	Consultation and Engagement
3.4	Regulatory Framework and the Role of	1.4	Regulatory Framework
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4.2	Location	1	Introduction
			[Includes geo-referenced Figure 1.1.1 Project Site Location]
		2.4	Project Overview
		4	Environmental Setting

¹ See Appendix A

Ro	eference from the Guidelines for the Preparation of an Environmental Assessment Report ¹		Applicable EA Report Reference
4.3	Components	2.5	Project Components
4.4	Activities	2.6 2.7 2.8	Construction Activities Operation Maintenance
4.5	Schedule	2.10	Project Schedule
5	SCOPE OF THE ASSESSMENT	5	Environmental Assessment Methods and Scope of Assessment
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5.2	Scope of the Factors	5.3.3	Scoping and Selection of VECs
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5.2.2	Temporal Boundaries	2.2 6 7 8	Project Purpose and Rationale Environmental Assessment – Island of Newfoundland Environmental Assessment – Cabot Strait Environmental Assessment – Nova Scotia [Sections 6, 7 and 8 include Temporal Boundaries subsections for each VEC]
6	ALTERNATIVE MEANS OF CARRYING OUT THE PROJECT	2.3	Alternative Means of Carrying Out the Project
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7.2	Consultation with the Mi'kmaq of Nova Scotia	3.2 [3.2.1	Aboriginal Engagement Mi'kmaq of Nova Scotia]
8	EXISTING ENVIRONMENT	4 6 7 8	Environmental Setting Environmental Assessment – Island of Newfoundland Environmental Assessment – Cabot Strait Environmental Assessment – Nova Scotia [Sections 6, 7 and 8 include Baseline Conditions subsections for each VEC]
9	ENVIRONMENTAL EFFECTS ASSESSMENT	6 7 8	Environmental Assessment – Island of Newfoundland Environmental Assessment – Cabot Strait Environmental Assessment – Nova Scotia
9.1	Assessment Methodology	5 6 7 8	Environmental Assessment Methods and Scope of Assessment Environmental Assessment – Island of Newfoundland Environmental Assessment – Cabot Strait Environmental Assessment – Nova Scotia

R	eference from the Guidelines for the Preparation of an Environmental Assessment Report ¹		Applicable EA Report Reference
			[Sections 6, 7 and 8 include Scope of Assessment subsections for each VEC]
9.2	Mitigation Measures	2.6.7	Environmental Mitigation/Best Practices
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		7	Environmental Assessment – Cabot Strait
		8	Environmental Assessment – Nova Scotia
			[Sections 6, 7 and 8 include Mitigation of Project Environmental Effects subsections for each VEC]
9.3	Residual Effects	6	Environmental Assessment – Island of Newfoundland
		7	Environmental Assessment – Cabot Strait
		8	Environmental Assessment – Nova Scotia
			[Sections 6, 7 and 8 include Characterization of Residual Project Environmental Effects subsections for each VEC]
9.4	Determination of the Significance of	6	Environmental Assessment – Island of Newfoundland
	Residual Effects	7	Environmental Assessment – Cabot Strait
		8	Environmental Assessment – Nova Scotia
			[Sections 6, 7 and 8 include Determination of Significance subsections for each VEC]
9.5	Effects of the Environment on the Project	9	Effects of the Environment on the Project
9.6	Effects of Potential Accidents or Malfunctions	10	Accidents and Malfunctions
9.7	Cumulative Environmental Effects	5.3.4	Cumulative Environmental Effects Assessment Scoping
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		2.12	Environmental Management
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	ference from the Guidelines for the Preparation of an Environmental Assessment Report ¹		Applicable EA Report Reference
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10.2	Follow-Up Program	6	Environmental Assessment – Island of Newfoundland
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LIST OF ACRONYMS

AC alternating current
AFE Acadian Forest Ecozone

Amps amperes

AOI Area of Interest

ASF Atlantic Salmon Federation

asl above sea level
ATV all-terrain vehicle
BP before present

CCG-MCTS Canadian Coast Guard Marine Communication and Traffic Services

CEA cumulative effects assessment

CEA Agency Canadian Environmental Assessment Agency
CEAA CEPA Canadian Environmental Assessment Act
Canadian Environmental Protection Act

CESCC Canadian Endangered Species Conservation Council

CLC Community Liaison Committee

CO₂ carbon dioxide

COSEWIC Committee on the Status of Endangered Wildlife in Canada

CSA Canadian Standards Association

CWS Canadian Wildlife Service

dBA decibels adjusted DC direct current

DFO Fisheries and Oceans Canada

DU designatable units

EA environmental assessment

EBSA Ecologically and Biologically Significant Area

EC Environment Canada

ECBC Enterprise Cape Breton Corporation

Emera Inc.

EMF electromagnetic field

EMS Environmental Management System
EMP Environmental Management Plan

ENL NSP Maritime Link Inc.

EPP Environmental Protection Plan EPR Environmental Preview Report ERP Emergency Response Plan

EPSGA Environmental Goals and Sustainable Prosperity Act

GHG greenhouse gas GPR ground potential rise

ha hectare

HDD horizontal directional drilling HDPE high density polyethylene

HPDD high-pressure directional drilling

HSSMP Health, Safety and Security Management Plan

HVac high voltage alternating current

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LIST OF ACRONYMS

HVdc high voltage direct current

IARC International Agency for Research on Cancer

IBA Important Bird Area

IBP International Biological Programme

ICNIRP International Commission on Non-Ionizing Radiation Protection

ISQG Interim Sediment Quality Guidelines

Hz kilo hertz

KMKNO Kwilmu'kw Maw-klusuaqn Negotiation Office

kt kilo tonnes kV kilo volts

LiDAR Light Detection and Ranging LOMA Large Ocean Management Area

MARPOL Convention for the Prevention of Pollution From Ships

MBCA Migratory Birds Convention Act

MBS Migratory Bird Sanctuary

MEKS Mi kmaq Ecological Knowledge Study MGS Membertou Geomatics Solutions

MHz mega hertz

MI mass impregnated ML Maritime Link

MPA Marine Protected Area

MPMO Major Projects Management Office

MRP Major Resource Project MSDS material safety data sheets

MW megawatt Nalcor Nalcor Energy

NCNS Native Council of Nova Scotia NGO non-governmental organization NL Newfoundland and Labrador

NLDEC Newfoundland and Labrador Department of Environment and Conservation

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NL*EPA*Newfoundland and Labrador *Environmental Protection Act*NL *ESA*Newfoundland and Labrador *Endangered Species Act*

NLH Newfoundland Hydro

NLOA Newfoundland and Labrador Outfitters Association

NO_x nitrogen oxides

NRCan Natural Resources Canada

NS Nova Scotia

NSDNR Nova Scotia Department of Natural Resources

NSE Nova Scotia Environment
NSEA Nova Scotia Environment Act

NS ESA Nova Scotia Endangered Species Act
NSMNH Nova Scotia Museum of Natural History
NSOAA Nova Scotia Office of Aboriginal Affairs

NSPI Nova Scotia Power Inc. NWA National Wildlife Area

NWPA Navigable Waters Protection Act
OPEP Oil Pollution Emergency Plan
PAA Protected Areas Association

LIST OF ACRONYMS

PAO Provincial Archaeology Office PEV Provincial Energy Ventures psu practical salinity units

PWGSC Public Works and Government Services Canada

RA Responsible Authorities
RES Renewable Energy Standards
ROV remotely operated vehicle

SAEN Salmonid Association of Eastern Newfoundland

SANS Snowmobile Association of Nova Scotia

SAR species at risk SARA Species at Risk Act

SDSS Sustainable Development and Strategic Science

SMT Sydney Marine Terminal

SO₂ sulphur dioxide

SOCI species of conservation interest

SPAWN Salmon Preservation Association for the Waters of Newfoundland

SSEPP Site Specific Environmental Protection Plan

TC Transport Canada

TL 250 Newfoundland Hydro Transmission Line 250 UINR Unama'ki Institute of Natural Resources

μT microtelsa

μV/m microvolts per metre

VEC valued environmental component

V/m volts per metre

WHO World Health Organization

WHMIS Workplace Hazardous Materials Information System

XLPE cross-linked polyethylene

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