# GUIDELINES FOR THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT REPORT

## FOR:

The Maritime Link Transmission Project
ENL Maritime Link Inc. (ENL)

## PURSUANT TO:

The *Canadian Environmental Assessment Act*
The *Environmental Protection Act* (NL)
The Nova Scotia *Environment Act*

September 28, 2012

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## DISCLAIMER

The Guidelines provide information only, and should not be used as a substitute for Newfoundland and Labrador's *Environmental Protection Act*, Nova Scotia's *Environment Act* or the *Canadian Environmental Assessment Act* or other federal legislation. In the event of a discrepancy, the named Acts and regulations prevail. Portions of the Acts have been paraphrased in the Guidelines, and should not be relied upon for legal purposes. The procedures described in these Guidelines may be deviated from, based on specific Project circumstances.

# LIST OF ACRONYMS

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|---|---|
| **ACCDC** | Atlantic Canada Conservation Data Centre |
| **Agency** | Canadian Environmental Assessment Agency |
| **ARD/ML** | Acid Rock Drainage/Metal Leaching |
| **CEAA** | *Canadian Environmental Assessment Act* |
| **CEAR** | Canadian Environmental Assessment Registry |
| **COSEWIC** | Committee on the Status of Endangered Wildlife In Canada |
| **Crown** | Federal and Provincial Government |
| **DFO** | Fisheries and Oceans Canada |
| **DND** | Department of National Defence |
| **EA** | Environmental Assessment |
| **EC** | Environment Canada |
| **ECBC** | Enterprise Cape Breton Corporation |
| **EMF** | Electric and Magnetic Fields |
| **EMP** | Environmental Management Plan |
| **ENL** | ENL Maritime Link Inc. |
| **EPR** | Environmental Preview Report |
| **FA** | Federal Authority |
| **FPWC** | Federal Policy on Wetland Conservation |
| **GDP** | Gross Domestic Product |
| **GHG** | Greenhouse Gas |
| **HC** | Health Canada |
| **HVAC** | High Voltage Alternating Current |
| **HVDC** | High Voltage Direct Current |
| **KMKNO** | Kwilmu'kw Maw-klusuaqn Negotiation Office |
| **MBBA** | Maritime Breeding Bird Atlas |
| **MBCA** | *Migratory Birds Convention Act* |
| **MEKS** | Mi'kmaq Ecological Knowledge Study |
| **MPMO** | Major Projects Management Office |
| **NOC** | National Occupation Classification |
| **NRCan** | Natural Resources Canada |
| **NSDNR** | Nova Scotia Department of Natural Resources |
| **NSESA** | *Nova Scotia Endangered Species Act* |
| **NSFEC** | Nova Scotia Forest Ecosystem Classification |
| **NSOAA** | Nova Scotia Office of Aboriginal Affairs |
| **NWPA** | *Navigable Waters Protection Act* |
| **Proponent** | ENL Maritime Link Inc. |
| **PWGSC** | Public Works and Government Services Canada |
| **RA** | Responsible Authority |
| **RoW** | Right-of-Way |
| **SAR** | Species at Risk |
| **SARA** | *Species at Risk Act* |
| **SOCC** | Species of Conservation Concern |
| **TC** | Transport Canada |
| **VEC** | Valued Ecosystem Component |

# PART 1 – BACKGROUND

# 1 INTRODUCTION

## 1.1 Purpose of the Guidelines

The purpose of this document is to identify for Maritime Link Inc. (ENL) (the proponent) the information requirements for the preparation of the Environmental Assessment (EA) Report. The EA Report will be used to meet the requirements of a federal screening report, Nova Scotia registration document, and Newfoundland and Labrador Environmental Preview Report (EPR).

The Guidelines were developed cooperatively between the Governments of Canada, Newfoundland and Labrador and Nova Scotia.

While the Guidelines provide a framework for preparing a complete EA Report, it is the responsibility of the proponent to provide sufficient data and analysis on any potential environmental effects to permit proper evaluation by governments, Aboriginal groups and the public. The Guidelines outline the minimum information requirements while providing the proponent with flexibility in selecting methods to compile data for the EA Report.

## 1.2 Proposed Project

The Maritime Link Transmission Project (the Project), as proposed by the proponent, involves the construction and operation of a new electrical power transmission system, including a proposed 500-megawatt (MW), +/- 200 to 250-kilovolt high voltage direct current (HVDC) and high voltage alternating current (HVAC) transmission line between the Island of Newfoundland and Cape Breton, Nova Scotia.

## 1.3 EA Requirements

A screening is required pursuant to section 5(1)(b), 5(1)(c) and 5(1)(d) of the *Canadian Environmental Assessment Act* (CEAA) because consideration is being given to exercising the following powers, duties or functions in respect to the Project, for the purpose of enabling the Project in whole or in part:

- Enterprise Cape Breton Corporation (ECBC) for providing federal lands;
- Natural Resources Canada (NRCan) for providing financial assistance in the form of a loan guarantee;
- Fisheries and Oceans Canada (DFO) for authorization(s) under Section 32 and subsection 35(2) of the *Fisheries Act* with respect to the

construction associated with the shore grounding facilities, towers and cables in or near aquatic environments;

- Transport Canada (TC) for approval(s) under Part 1, Section 5 of the *Navigable Waters Protection Act* (NWPA) with respect to the subsea cable, shoreline protection measures, sea electrodes, aerial transmission lines, and any temporary construction bridges;
- Public Works Government Services Canada (PWGSC) for authorization under the Federal Real Property Regulations enacted under the *Federal Real Property and Federal Immovable Act* with respect to the use of the subsea land in the Cabot Strait; and
- Environment Canada (EC) for authorization under Section 122(1)(b) and 122(1)(ii) of the *Canadian Environmental Protection Act* with respect to the Project, if construction of the shore grounding facilities and cable installation requires dredging and ocean disposal of the dredged material.

NRCan is a responsible authority (RA), and the remainder of the above federal entities are the likely RAs for the screening. Health Canada (HC) and Department of National Defence Canada (DND) have been identified as federal authorities (FAs) possessing expert information relevant to the EA.

The proposed Project has been determined to be a Class I undertaking under Nova Scotia's *Environmental Assessment Regulations* made under the *Environment Act* and has been determined to require an EPR under Newfoundland and Labrador's *Environmental Assessment Regulations,* pursuant to the *Environmental Protection Act.*

The federal scope of the Project includes the entire Project as described by the proponent. The provincial scopes of the Project are based on their respective jurisdictions. For ease of review by governments, the public and Aboriginal groups, the EA Report will include the entire Project regardless of federal and provincial jurisdictions. The EA Report will be divided geographically into three parts: Nova Scotia, the Cabot Strait and Newfoundland and Labrador.

## 1.4 Harmonization of the EA Processes and Conduct of the EA

The Governments of Canada, Newfoundland and Labrador and Nova Scotia, are conducting a harmonized EA process for the Project, beginning with the development of one guideline document and one EA Report prepared by the proponent to meet the requirement of all three jurisdictions.

## 1.5 Contacts for the EA

Information on the federal EA may be obtained from:

Joanne Weiss Reid, Project Manager
Canadian Environmental Assessment Agency
1801 Hollis Street, Suite 200
Halifax, NS B3J 3N4
Tel: 902-426-0564 Fax: 902-426-6550
Email: MaritimeLink@ceaa-acee.gc.ca

Information on the Nova Scotia EA may be obtained from:

Steve Sanford, Environmental Assessment Officer
Environmental Assessment Branch
Nova Scotia Environment
5151 Terminal Road, 5th Floor
Halifax, NS B3J 2T8
Tel: 902-424- 7630 Fax: 902-424-0501
Email: Sanforsl@gove.ns.ca

Information on the Newfoundland and Labrador EA may be obtained from:

Milton Crewe, Environmental Scientist
Environmental Assessment Division
Dept. of Environment and Conservation
P.O. Box 2006
Corner Brook, NL A2H 6J8
Tel: 709-637-2375
Email: miltoncrewe@gov.nl.ca

# 2 PREPARATION AND PRESENTATION OF THE EA REPORT

Pursuant to section 17 of the CEAA, the Government of Canada is delegating the preparation of the EA documentation to the proponent until such a time as RAs make their course of action decisions in relation to the Project.

## 2.1 Study Strategy and Methodology

The proponent is expected to observe the intent of the CEAA, Nova Scotia's *Environment Act*, Newfoundland and Labrador's *Environmental Protection Act* and respective regulations, and these Guidelines and to consider the environmental effects that are likely to arise from the Project (including situations not explicitly identified in these Guidelines), the technically and economically

feasible mitigation measures that will be applied, and the significance of any residual environmental effects.

All significant gaps in knowledge and understanding related to key conclusions presented in the EA Report shall be identified. The steps to be taken by the proponent to address these gaps shall also be identified. Where the conclusions drawn from scientific and technical knowledge are inconsistent with the conclusions drawn from traditional knowledge, the EA Report will contain a balanced presentation of the issues and a statement of the proponent's conclusions.

## 2.2 Presentation and Organization of the EA Report

To facilitate the identification of the documents submitted and their placement in the Canadian Environmental Assessment Registry, the title page of the EA Report and its related documents should contain the following information:

- Project name and location;
- title of the document, including the term “Environmental Assessment Report”;
- subtitle of the document;
- name of the proponent; and
- date.

The EA Report should be written in clear, precise language. A glossary defining technical words, acronyms and abbreviations shall be included. The proponent shall provide charts, diagrams, tables, maps and photographs, where appropriate, to clarify the text. Perspective drawings that clearly convey the various components of the Project shall also be provided. Wherever possible, maps shall be presented in common scales and datum to allow for comparison and overlay of mapped features.

The EA Report will present the Project and associated Valued Ecosystem Components (VECs) by geographic region, commencing with Nova Scotia, Cabot Strait, and Newfoundland.

For purposes of brevity and to avoid repetition, cross-referencing is preferred. The EA Report may make reference to the information that has already been presented in other sections of the document, rather than repeating it. Detailed studies (including all relevant and supporting data and methodologies) shall be provided in separate appendices and shall be referenced by appendix, section and page in the text of the main document of the EA Report.

The proponent shall provide copies of the EA Report and relevant technical studies for distribution, including an electronic version in an unlocked,

searchable, PDF format and MS Word format, as directed by the Canadian Environmental Assessment Agency (the Agency) and the provinces.

A Table of Concordance, which cross references the information presented in the EA Report with the information requirements identified in the Guidelines, shall be provided.

## 2.3 Executive Summary

The EA Report will include an executive summary that includes:

- a concise description of all key facets of the Project;
- a succinct description of the consultation conducted with Aboriginal groups, the public, and government agencies, with a summary of the issues raised and solutions found and/or suggested during these consultations for Nova Scotia, the Cabot Strait and Newfoundland;
- a general overview of the key effects of the Project and proposed technically and economically feasible mitigation measures;
- a summary of cumulative effects identified in the assessment;
- a summary of residual effects; and
- the proponent's conclusions and significance determinations from the assessment.

# PART 2: CONTENT AND STRUCTURE OF THE EA REPORT

# 3 INTRODUCTION AND PROJECT BACKGROUND

## 3.1 The Proponent

The EA Report shall:

- provide contact information (e.g. name, address, phone, fax, email);
- identify itself and the name of the legal entity that would develop, manage and operate the Project;
- explain corporate and management structures, as well as insurance and liability management related to the Project;
- specify the mechanism used to ensure that corporate policies will be implemented and respected for the Project;
- summarize key elements of its environment, health and safety management system and discuss how the system will be integrated into the Project;
- identify key personnel, contractors, and/or sub-contractors responsible for preparing the EA Report; and
- provide the qualifications of biologists conducting surveys for migratory

birds, species at risk, species of conservation concern, and wetland delineations in an appendix to the EA Report.

## 3.2 Project Overview

The EA Report will include a summary of the Project, by presenting the Project components, associated and ancillary works, activities, scheduling details, the timing of each phase of the Project and other key features. If the Project is part of a larger sequence of Projects, the proponent shall outline the larger context and present the relevant references, if available.

The intent of this overview is to provide the key components of the Project, not a detailed description, which is outlined in Section 4 of this document.

## 3.3 Non-Government Participants in the EA

The EA Report shall clearly identify the main non-government participants in the EA including the Mi'kmaq of NS, other Aboriginal groups, community groups, and environmental organizations.

## 3.4 Regulatory Framework and the Role of Government

The EA Report shall identify, for each jurisdiction, the government bodies involved in regulatory approvals potentially required for the Project. More specifically the EA Report shall identify:

- the environmental and other specific regulatory approvals and legislation that are applicable to the Project at the federal, provincial, regional and municipal levels;
- government policies, resource management, planning or study initiatives pertinent to the Project and/or EA and discuss their implications;
- policies and guidelines of the Mi'kmaq of NS being consulted that are pertinent to the Project and/or EA and discuss their implications;
- any treaty or self-government agreements with Aboriginal groups that are pertinent to the Project and/or EA;
- any relevant Land Use Plans, Land Zoning, or Community Plans;
- major components of the Project and those being applied for and constructed within the duration of approvals under provincial and federal legislation; and
- the regional, provincial and/or national objectives, standards or guidelines that have been used by the proponent to assist in the evaluation of any predicted environmental effects.

# 4 PROJECT DESCRIPTION

## 4.1 Need for and Purpose of the Project

The 'purpose of' and 'need for' the Project[1] should be established from the perspective of the proponent. The Project will be designed to achieve specific objectives and these shall be described. If the objectives of the Project are related to or contribute to broader private or public sector policies, plans or programs, this information shall also be included.

## 4.2 Location

The EA Report shall provide a concise description of the geographical setting in which the Project shall take place (including UTM coordinates depicting the linear distribution of the Project). The description should also integrate the natural and human elements of the environment in order to explain the interrelationships between the physical and biological aspects and the people and their communities.

## 4.3 Components

The EA Report shall provide a detailed description of all Project components and ancillary works including:

- The 500 Megawatt (MW), +/- 200 to 250 kV high voltage direct current (HVDC) and a 230 kV high voltage alternating current (HVAC) transmission line system
- Subsea Cables
- Landfall Components
- Converter Stations and Adjoining Substations
- Grounding Facilities
- Access
- Temporary Infrastructure
- Maintenance Regimes

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[1] Relevant guidance material for addressing "purpose of" and "need for" the Project can be found in the document entitled: "*Addressing "Need for", "Purpose of", "Alternatives to" and "Alternative Means" under the Canadian Environmental Assessment Act*" (Agency 2007).

## 4.4 Activities

The EA Report shall include expanded descriptions of the construction, operation, maintenance, foreseeable modifications, and where relevant, closure, decommissioning and restoration of sites and facilities associated with the proposed Project.

This would include detailed descriptions, to the extent available, of the activities to be carried out during each phase, the location of each activity, timing of each activity, materials and equipment used, expected outputs and an indication of the activity's magnitude and scale. Activities include:

- Preparing marine substrate
- Laying subsea cable
- Construction of and installation of transmission lines, substations, grounding facilities and landfall components
- Material management

Although a complete list of Project activities is required, the emphasis should be on those with the greatest potential to have environmental effects. Sufficient information should be included to predict environmental effects and address public concerns identified. The EA Report should highlight activities that involve periods of increased environmental disturbance or the release of materials into the environment.

## 4.5 Schedule

The EA Report shall include a detailed schedule including time of year, frequency, and duration for all Project activities.

# 5 SCOPE OF THE ASSESSMENT

## 5.1 Factors to be Considered

The EA Report shall include a consideration of the following factors[2]:

1. The environmental effects[3] of the Project, including the environmental effects of malfunctions or accidents that may occur in connection with the

[2] Pursuant to CEAA, all screenings must consider Section 16(1)(a)-(d) factors. At their discretion, the RAs decided to include the “need for” the project under Section 16(e) and the “purpose of” and “alternative means of carrying out the project” as per Sections 16(2)(a) and (b).

[3] Pursuant to CEAA “environmental effect” means, in respect of a project, (*a*) any change that the project may cause in the environment, including any change it may cause to a

Project and any cumulative environmental effects that are likely to result from the Project in combination with other Projects or activities that have been or will be carried out;

2. The significance of the effects referenced above;
3. Comments from the public, stakeholder and Aboriginal groups received during the review;
4. Comments from Mi'kmaq of NS that are received during the EA and consultation processes;
5. Measures that are technically and economically feasible and that would accommodate any adverse impact of the Project on potential or established Aboriginal and Treaty rights;
6. Measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project;
7. The need for and purpose of the Project; and
8. Alternative means of carrying out the Project that are technically and economically feasible and the environmental effects of any such alternative means.

## 5.2 Scope of the Factors

The EA Report shall identify key issues related to the Project. To help focus the EA, the proponent shall identify and justify, based on a clearly defined set of criteria, those components of the biophysical and socioeconomic environment that are most valued and/or sensitive, and which have a meaningful potential to be affected by the Project (the VECs).

The following VECs to be considered in the EA Report were selected based on information gathered from the RAs, FAs, Agency and provinces along with associated written government guidance:

- Geophysical Environment

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listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act*, (*b*) any effect of any change referred to in paragraph (*a*) on (i) health and socio-economic conditions, (ii) physical and cultural heritage, (iii) the current use of lands and resources for traditional purposes by aboriginal persons, or (iv) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, or (*c*) any change to the project.

- Atmospheric Environment
- Water Resources
- Aquatic Environment (marine and freshwater)
- Vegetation
- Wetland Ecosystems
- Wildlife and Wildlife Habitat
- Protected Areas and Area of Conservation Interest
- Economy, Business, and Employment [4]
- Land and Resource Use
- Commercial and Recreational Fisheries
- Archaeological and Heritage Resources
- Current Use of Land and Resources for Traditional Purposes by Aboriginal peoples [5]

### 5.2.1 Spatial Boundaries

The proponent shall clearly indicate the spatial boundaries to be used in assessing the potential adverse and beneficial environmental effects of the proposed Project. The EA Report must contain a justification and rationale for all boundaries chosen. The spatial boundaries for each VEC may differ depending on the nature of the VEC. The EA Report shall identify the proposed spatial study boundaries for the VECs outlined in section 5.2.

### 5.2.2 Temporal Boundaries

The lifespan of the Project will be specified. The temporal boundaries of the Project should span all phases of the Project: construction, operation, maintenance, foreseeable modifications, and where relevant, closure, decommissioning and restoration of the sites affected by the Project. Temporal boundaries shall also consider seasonal and annual variations related to VECs for all phases of the Project, where appropriate.

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[4] Consideration of socio-economic impacts, unless brought about by a change in the environment as a result of the Project, are beyond the scope of the federal assessment but have been included as a provincial requirement.

[5] The evaluation of potential environmental effects of the Project on the Current Use of Land and Resources for Traditional Purposes by Aboriginal Persons is required under *CEAA*, under the definition of "environmental effect" under Section 2(1) of *CEAA*.

If the full temporal boundaries are not used, the EA Report shall identify the boundaries used and provide a rationale for the temporal boundaries selected.

# 6 ALTERNATIVE MEANS OF CARRYING OUT THE PROJECT

The EA Report must identify and describe alternative means of carrying out the Project[6] that are technically and economically feasible. The following procedural steps for addressing alternative means are recommended:

- Identify the alternative means to carry out the Project
    - Develop criteria to determine the technical and economic feasibility of the alternative means;
    - Describe each alternative means in sufficient detail (i.e., optional cables and locations of transmission line system); and
    - Identify those alternative means that are technically and economically feasible.
- Identify the environmental effects of each alternative means
    - Identify those elements of each alternative means that could produce environmental effects in sufficient detail to allow a comparison with the environmental effects of the Project.
- Identify the preferred means
    - Identify the preferred means based on the relative consideration of environmental effects; and of technical and economic feasibility;
    - Determine and apply criteria that identify alternative means as unacceptable on the basis of significant adverse environmental effects; and
    - Determine criteria to examine the environmental effects of each remaining alternative means to identify a preferred alternative.

Any potentially adverse impacts of the technically and economically feasible alternatives on asserted or established Aboriginal and Treaty rights shall also be identified.

[6] See reference in footnote 1

# 7 CONSULTATION

## 7.1 Public and Stakeholder Participation

The EA Report shall describe the ongoing and proposed consultations and information sessions with respect to the Project for any consultations undertaken with the general public and stakeholder groups, at the local, regional and provincial levels, where applicable. The EA report shall include:

- a summary of discussions;
- indicate the methods used and their relevance;
- locations;
- the persons and organizations consulted;
- the concerns raised;
- the extent to which this information was incorporated in the design of the Project as well as in the EA Report;
- the resultant changes;
- any outstanding issues and ways to address them
- a description of efforts made to distribute Project information; and
- a description of information and materials that were distributed during the consultation process

## 7.2 Consultation with the Mi'kmaq of Nova Scotia

The proponent is required to provide up-to-date information describing the Project to the Mi'kmaq of Nova Scotia and especially to the Mi'kmaq communities likely to be most affected by the Project. The proponent shall also involve the Mi'kmaq of Nova Scotia in determining how best to deliver that information (e.g. the types of information required, formats, and the number of community meetings required).

To assist the Governments of Canada and Nova Scotia in their consultation processes, the EA Report must describe the concerns raised by the Mi'kmaq of Nova Scotia with respect of the Project, and where applicable, how they have been or will be considered and, where appropriate, addressed. The EA Report will include a summary of discussions, the issues or concerns raised, and any asserted or established Aboriginal and treaty rights as conveyed to the proponent by the Mi'kmaq of Nova Scotia or the Crown. Where applicable, the EA Report must document any significant adverse effects of the Project on the current use of land and resources for traditional purposes by the Mi'kmaq of Nova Scotia, as well as any measures taken or recommended that would

prevent, mitigate, or otherwise accommodate such environmental effects, as applicable. This information will be then used by governments towards fulfilling any duty to consult the Mi'kmaq of Nova Scotia regarding the Project.

The proponent is encouraged to engage the Mi'kmaq of Nova Scotia as referenced in the Nova Scotia Office of Aboriginal Affairs' (NSOAA) *Proponents' Guide: The Role Of Proponents in Crown Consultation with the Mi'kmaq of Nova Scotia, 2011*.

The proponent will actively solicit concerns by the Mi'kmaq of Nova Scotia during the course of the EA. The Governments of Canada and Nova Scotia and the proponent will examine opportunities to mitigate the environmental effects of the Project on the Mi'kmaq of Nova Scotia's current use of lands and resources for traditional purposes. The Governments of Nova Scotia and Canada and the proponent will also consider the potential need to take further actions to accommodate the Mi'kmaq of Nova Scotia for adverse impacts to asserted or established Aboriginal and treaty rights caused by the proposed Government of Canada and Nova Scotia conduct in relation to the Project.

For each Mi'kmaq community in Nova Scotia contacted, the EA Report shall include:

- contact information;
- a description of the consultation process;
- a list of all factors suggested for inclusion in the EA Report, whether or not the factors were included, and the rationale for any exclusions;
- a description of the traditional territory and asserted or established Aboriginal and treaty rights that are exercised in relation to the assessment area;
- the potential adverse impacts to the Aboriginal and treaty rights resulting from the Project;
- the proposed accommodation measures to avoid or mitigate the impacts to Aboriginal and treaty rights; and
- efforts made to solicit the above information from groups if the proponent is unable to obtain all the information.

The proponent is required to provide the NSOAA with an Aboriginal Consultation Report (template will be provided to the proponent by NSOAA) every 2 months from the day the proponent receives these Guidelines. This report should be addressed to Laurent Jonart, NSOAA and copied to Twila Gaudet, Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO).

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| Laurent Jonart, Consultation Advisor<br>Nova Scotia Office of Aboriginal Affairs<br>5251 Duke St., 5th Floor, PO Box 1617<br>Halifax, NS B3J 2Y3<br>Tel: 902-424-8088<br>Fax: 902-424-4225<br>E-mail: jonartla@gov.ns.ca | Twila Gaudet, Consultation Liaison Officer<br>Mi'kmaq Rights Initiative Negotiation Office<br>851 Willow Street<br>Truro, NS B2N 6N8<br>Tel: 902-843-3880<br>Fax: 902-843-3882<br>E-mail : twilagaudet@mikmaqrights.com |

# 8 EXISTING ENVIRONMENT

The EA Report shall provide a baseline description of the environment, including the components of the existing environment and environmental processes, their interrelations and interactions as well as the variability in these components, processes and interactions over time scales appropriate to the Project. The description shall be in sufficient detail to permit the identification, assessment and determination of the significance of potentially adverse environmental effects that may be caused by the Project, to adequately identify and characterize the beneficial effects of the Project, and provide the data necessary to enable effective testing of predictions during the follow-up program. The information describing the existing environment shall be integrated into clearly defined sections within the effects assessment of each VEC.

The baseline description should include results from studies done prior to any physical disruption of the environment due to initial site preparation activities and characterization of environmental conditions resulting from historical and present activities in the local and regional study area.

# 9 ENVIRONMENTAL EFFECTS ASSESSMENT

## 9.1 Assessment Methodology

The EA Report shall explain and justify methods used to predict the effects from all components of the Project on each VEC. The EA Report shall indicate the Project's effects during construction, operation, maintenance, foreseeable modifications, and where relevant, closure, decommissioning and restoration of sites and facilities associated with the Project, and describe these effects using appropriate criteria.

To the maximum extent possible, this documentation should include, for each potential Project-related environmental effect, an indication of the nature of the effect, mechanism, magnitude, direction, duration, frequency and timing, and geographic extent. The proponent shall consider both the direct and indirect, reversible and irreversible, short- and long-term and cumulative environmental effects of the Project.

In undertaking the environmental effects assessment, the best available information and methods will be used in preparing the EA Report. All conclusions shall be substantiated. Any assumptions upon which predictions are based shall be clearly stated.

The assessment of the effects of each of the components and activities, in all phases, shall be based on a comparison of the biophysical and human environments between the predicted future conditions with the Project and the predicted future conditions without the Project.

## 9.2 Mitigation Measures

The EA Report shall describe the standard mitigation practices, policies and commitments that constitute technically and economically feasible mitigation measures and that will be applied as part of standard practice regardless of location. As a first step, the proponent is encouraged to use an approach based on the avoidance and reduction of the effects at the source. Such an approach may include the modification of the design of the Project or relocation of Project components.

The environmental protection plan and its environmental management system, through which it will deliver this plan shall be described. The plan shall provide an overall perspective on how potentially adverse effects would be minimized and managed over time. As well, commitments, policies and arrangements directed at promoting beneficial or mitigating adverse socioeconomic effects shall be descibed. Mechanisms used to require contractors and sub-contractors to comply with these commitments and policies and with auditing and enforcement programs shall be discussed.

The EA Report shall specify the actions, works, minimal disturbance footprint techniques, best available technology, corrective measures or additions planned during the Project's various phases (construction, operation, modification, decommissioning, abandonment or other undertaking related to the Project) to eliminate or reduce the significance of adverse effects. The EA Report shall also present an assessment of the effectiveness of the proposed technically and economically feasible mitigation measures. The reasons for determining if the mitigation measure reduces the significance of an adverse effect shall be made explicit.

## 9.3 Residual Effects

After having established the technically and economically feasible mitigation measures, the EA Report shall present any residual effects of the Project on the biophysical and human environments after these mitigation measures have been taken into account. The residual effects, even if very small or deemed insignificant should be described.

## 9.4 Determination of the Significance of Residual Effects

The EA Report shall identify the criteria used to assign significance ratings to any predicted adverse effects and contain a detailed analysis of the significance of the potential residual adverse environmental effects it predicts. It must contain clear and sufficient information to enable the reviewers to understand the proponent's judgment of the significance of effects. The EA Report shall define the terms used to describe the level of significance.

The following elements should be used in determining the significance of residual effects:

- magnitude;
- geographic extent;
- timing, duration and frequency;
- reversibility;
- ecological and social context; and
- environmental standards, guidelines or objectives for assessing the impact.

In assessing significance against these criteria the EA Report shall, where possible, employ relevant existing regulatory documents, environmental standards, guidelines, or objectives such as prescribed maximum levels of emissions or discharges of specific hazardous agents into the environment. The EA Report shall contain a section which explains the assumptions, definitions and limits to the criteria mentioned above in order to maintain consistency between the effects on each VEC.

The EA Report shall provide a summary of the regional, provincial, Aboriginal or national objectives, standards or guidelines that have been used to assist in the evaluation of the significance of environmental effect.

If significant adverse effects are identified, the proponent shall determine the probability (likelihood) that they will occur. The EA Report shall also address the degree of scientific uncertainty related to the data and methods used within the framework of its environmental analysis.

The EA Report shall clearly explain the method and definitions used to describe the level of the adverse effect (e.g., low, moderate, high) for each of the above

categories and how these levels were combined to produce an overall conclusion on the significance of adverse effects for each VEC. This method must be transparent and reproducible.

## 9.5 Effects of the Environment on the Project

The EA Report shall take into account how local conditions and natural hazards, such as severe and/or extreme weather conditions and external events (e.g. flooding, ice jams, icing, wind, rock slides, landslides, fire, outflow conditions, seismic events and tsunamis) could adversely affect the Project and how this in turn could result in impacts to the environment (e.g., extreme environmental conditions result in malfunctions and accidental events). For the marine component of the assessment, this list would include sediment mobilization by waves and currents, variability and mobility of nearshore bars systems (if present on the route), sediment mass transport if any (e.g., in submarine canyons), fluid escape from pockmarks, etc.

The sensitivity of the Project to long-term climate variability and effects must be identified and discussed. This discussion should include a description of climate data used. With respect to the effects of climate change the EA Report will include a description of the long-term stability of landfall sites (e.g. rates of coastal retreat, predicted rates under postulated sea-level rise scenarios). The Agency Procedural Guide, *Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners* (Agency, 2003), provides guidance for incorporating climate change considerations in an EA. In conducting the analysis, the proponent shall also look at the following source: *Guide to Considering Climate Change in Environmental Assessments in Nova Scotia* (NSE, 2010).

The EA Report shall provide details of planning, design and construction strategies intended to minimize the potential environmental effects of the environment on the Project.

## 9.6 Effects of Potential Accidents or Malfunctions

The EA Report shall identify the probability of potential accidents and malfunctions (e.g., electrical hazards; air, ground and marine traffic hazards; hazardous material handling; bird collision events and avian electrocutions) related to the construction and operation of transmission lines, substations, grounding facilities, right-of-way clearing, and subsea cables. The EA Report must include an explanation of how those events were identified, potential consequences (including the environmental effects), the worst-case scenarios and the effects of these scenarios.

The geographical and temporal boundaries for the assessment of malfunctions and accidents may be different than those in the scope of factors for each VEC. This must include an identification of the magnitude of an accident and/or malfunction, including the quantity, mechanism, rate, form and characteristics of the contaminants and other materials likely to be released into the environment during the accident and malfunction events.

The EA Report shall also describe the safeguards (i.e., industry standard safety procedures and protocols) that have been established to protect against such occurrences and the contingency/emergency response procedures in place if an accident and/or malfunction does occur.

## 9.7 Cumulative Environmental Effects

The EA Report shall include an assessment of the effects of the Project in tandem with the effects of other projects and activities that have been or shall be carried out, and for which the effects are expected to overlap with those of the Project. Past and present projects and ongoing activities e.g., existing marine traffic in the Cabot Strait, shall be reviewed under the description of existing conditions for each VEC.

The proponent shall consider different types of effects (e.g., synergistic, additive, induced, spatial or temporal) and identify impact pathways and trends. Generally speaking, the information available to assess the environmental effects from other projects and activities can be expected to be more conceptual and less detailed as those effects become more remote in distance and time to the Project, or where information about another project or activity is not available. The EA Report shall determine the significance of the residual cumulative environmental effects that remain after mitigation has been implemented.

The Agency guidance documents, *Operational Policy Statement - Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act* (Agency 2007) and *Cumulative Effects Assessment Practitioners Guide* (Agency 1999) should be consulted regarding the assessment of cumulative impacts in the EA Report.

## 9.8 Summary

For all key VECs assessed, the EA Report should contain tables summarizing the following key information:

- potential adverse environmental effects;
- proposed mitigation and compensation measures;
- a brief description of potential residual effects;
- a brief description of potential cumulative effects;

- applicable standards or guidelines;
- who is responsible for implementing the mitigation measure and the timing of implementation;
- whether the mitigation measure is likely to be included in future regulatory authorizations;
- whether the effectiveness of the mitigation measures will be included in a Follow-Up Program;
- comments from the public and responses;
- comments from Aboriginal groups and individuals and responses;
- relationship of the VEC to an asserted or established Aboriginal or Treaty right of the Mi'kmaq of Nova Scotia; and
- the proposed commitments, summarizing the timing and responsibility of each of the actions for which a commitment (including special management practices or design features) will be provided.

# 10 ENVIRONMENTAL MANAGEMENT

## 10.1 Planning

The EA Report shall describe the proposed environmental management plans (EMPs) for all stages of the Project and include a commitment by the proponent to implement them, should the Project proceed. The finalization of detailed EMPs will occur through consultation with federal and provincial government agencies, Aboriginal groups, the public and other stakeholders. This may occur after the EA but must be consistent with the information presented in the EA Report. Pertinent legislation, regulations, industry standards, documents and legislative guides shall be used in the development of the EMPs.

### 10.1.1 Decommissioning and Reclamation Plan

The EA Report shall provide the preliminary outline of a decommissioning and reclamation plan for any components associated with the Project. This shall include ownership, transfer and control of the different Project components as well as the responsibility for monitoring and maintaining the integrity of some of the structures. The full preparation and submission of the plan to appropriate authorities will occur prior to the decommissioning of the temporary components of the Project. For permanent facilities, a conceptual discussion on how decommissioning may occur shall be provided.

### 10.1.2 Fish Habitat Compensation Strategy

An acceptable fish habitat compensation strategy, to compensate for the potential loss of fish habitat shall be included in the EA Report. DFO will work with the proponent on the development of the strategy.

## 10.2 Follow-Up Program

A follow-up program is designed to verify the accuracy of the EA and to determine the effectiveness of the measures implemented to mitigate the adverse environmental effects of the Project. Should RAs determine that a follow-up program is required, additional guidance will be provided during the technical review phase of the Project.

# PART 3: GUIDANCE ON SELECT ENVIRONMENTAL COMPONENTS

The following section provides an overview of the proposed studies and approach to be undertaken in the EA Report for each VEC. Detailed study approaches and analytic methods and assumptions shall be provided in the EA Report.

# 11 GEOPHYSICAL ENVIRONMENT

## 11.1 Existing Environment

### 11.1.1 Physiography and Topography

The EA Report shall describe terrestrial and topographical features for the proposed Project area. The EA Report will also include terrain features, including: coastal features, marine features, watercourses, wetlands and glaciated and post-glaciated landforms. This should include a description of the submarine seascapes (e.g. features such as nearshore bars, bedrock terrains, submarine canyons, pockmark fields, submerged channels of fluvial or glacial origin, etc.)

### 11.1.2 Geology and Soils

A description of bedrock geology, surficial geology and sediment/soils along the transmission corridor will be included. The submarine component of the project should also include a description surficial sediment character, thickness, and mobility under modern environmental conditions.

The EA Report shall consider the potential for Acid Rock Drainage/Metal Leaching (ARD/ML) where new bedrock may be exposed and/or excavated.

### 11.1.3 Sediment Quality

The EA Report shall include an analysis of sediment quality along the proposed route for the subsea cable. Sediment sampling shall be conducted in accordance with EC's disposal at sea requirements.

### 11.1.4 Geotechnical and Natural Hazards

The EA Report will include a summary of existing or, if required, conduct new terrain stability mapping for the relevant areas of the transmission corridor.

The EA Report will include information, evidence for historic, active and human-induced land movements and flood hazards at major stream crossings and at the landfall locations of the Project.

The EA Report will include identification of the major faults and tectonic features including geotechnical and soils/stability information along the transmission corridor, as appropriate. For the submarine component of the Project, the EA Report will note/describe the presence of hazards such as: submarine mass transport, major faults, fluid escape, and impact of sea ice in shallow water, as appropriate. The coastal stability (erosion rates, future erosion rates, cyclic coastal changes in response to winter storms) will also be included.

## 11.2 Effects Assessment and Mitigation

The effects assessment shall identify and evaluate:

- Potential effects of increased sediment and erosion along the transmission corridor and at the substations due to construction and operations. Include potential effects due to right-of-way clearing and excavation during construction and right-of-way maintenance during operation;
- Potential for induced slope failures along the entire transmission corridor, due to construction and operation activities;
- Potential for transmission line right-of-way clearing to increase the risk of terrain instability and accelerated erosion events and their potential for impact on downslope biophysical, transportation infrastructure and land use values;
- Risk of flood hazards at major stream crossings and potential for damage or disruption during construction and operation of the transmission line; and
- The impact of landfall structures on coastal processes.

In conducting the analysis, the EA Report shall consider pertinent acts, policies, guidelines and directives relating to the geophysical environment. The EA Report will also provide a prediction of the potential cumulative and residual effects of the overall Project on the geophysical environment and their significance.

# 12 ATMOSPHERIC ENVIRONMENT

## 12.1 Existing Environment

### 12.1.1 Climate

The EA Report shall include a discussion of climate conditions in the region of the proposed Project corridor, including predominant wind conditions (i.e., wind direction, velocity) and seasonal variation. Relevant data obtained from EC or other sources will be provided.

A summary of data and trends of annual precipitation including precipitation; fog/low visibility conditions, storm surge and extreme water levels (both positive and negative), and both climate normals and extreme conditions applicable to the proposed Project area will be included. A review of available climate data (climate normals) from the nearest meteorological stations shall be conducted to establish baseline climate information.

The climate discussion will also include sea level rise (using latest published Projections) and climate variability and trends.

### 12.1.2 Air Quality

The EA Report shall:

- Provide a summary of ambient air quality levels to characterize baseline air quality conditions in each of the communities and jurisdictions in the proposed Project area. Include $PM_{2.5}$ and $PM_{10}$ measurements from the nearest regional government monitoring stations and dustfall baseline measurements from the proposed Project area.
- Identify potential fixed and transient emission sources to be used during construction and operation activities for the transmission line and at the substations.
- Identify sources of air emissions and potential air quality effects from other industries and activities in the proposed Project area.
- In conjunction with climatic studies, identify the areas of potential adverse changes in air quality.

### 12.1.3 Acoustic Environment

The EA Report shall:

- Describe ambient noise levels along the transmission corridor in the terrestrial environment.
- Identify the locations of all potentially noise-sensitive human receptors in relation to the Project.
- Identify all potential noise sources during construction, operation and decommissioning, including any tonal (e.g. sirens), low frequency (which can result in the production of vibrations), implusive (e.g. blasting) and/or highly impulsive noises (e.g. hammering, pile driving), and their expected durations.
- Compare baseline noise levels with predicted noise levels at sensitive receptor locations to determine whether expected noise levels may result in adverse health effects.
- Ensure that noise levels do not exceed provincial or municipal acceptable noise levels, and if exceedences are predicted, discuss potential mitigative measures.

More information about evaluating human health effects associated with noise can be found in Health Canada's "*Useful Information for Environmental Assessments*", (Health Canada, 2010b).

### 12.1.4 Electric and Magnetic Fields

The intensity of the Electric and Magnetic Fields (EMF) emitted by power lines depends on wiring and tower configurations, as well as the line voltage, the current flow (direct or alternating), and distance from the lines.

At present, there are no Canadian guidelines for EMF at extremely low frequencies as there is no conclusive evidence of any harm caused by EMF exposure at levels found in Canadian homes and schools, including those located just outside the boundaries of power line corridors (Health Canada, 2010a). Nevertheless, public concern about the possible health risks from EMF exposure may be an issue with transmission line projects. If public concern is expressed, it is advisable to carry out exposure assessments in areas accessible to the general public.

An assessment of possible EMF exposure would include:

- a discussion on the current state of scientific knowledge with respect to possible health effects from EMF exposure and a review of current exposure guidelines and/or position statements from health-related

organizations (e.g. World Health Organization 2007a and 2007b, Federal-Provincial-Territorial Radiation Protection Committee 2008);

- identification of all potential sources of EMF and potential human residents in the project area;
- assessment of background EMF levels at selected locations at the proposed site prior to construction, and their corresponding estimated levels after construction; and
- a description of measures that will be taken to mitigate potential public concern over project-related EMF exposure.

## 12.2 Effects Assessment and Mitigation

The EA Report shall list and predict the direct and indirect GHG emissions and the potential impact on carbon sinks for activities associated with the construction, operations, and decommissioning phases of the Project. Greenhouse gas emissions that should be considered as applicable include carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_20$), sulphur hexafluoride ($SF_6$), perfuorocarbons (PCFs), and hydrofluorocarbons (HFCs). The assessment will also be in consideration of existing conditions, standard good practice and procedures, and planned mitigation. Climate information will be used to assess the potential effects of the environment on the proposed Project.

The proponent shall evaluate potential for effects on air quality during construction of overhead transmission lines from construction machinery and from fugitive dust during right-of-way clearing and site preparation and increased highway construction traffic.

The proponent shall assess the impacts on the acoustic environment at all stages of the Project.

If there is public concern associated with potential EMF issues, the proponent shall provide a discussion of measures that will be taken to mitigate public concern over Project-related EMF exposure.

The EA Report shall identify intended measures to avoid, minimize or otherwise mitigate effects of construction and operation of the proposed Project on biological receptors (e.g., vegetation, fish, wildlife, human health).

# 13 WATER RESOURCES

## 13.1 Existing Environment

The location and extent of water resources in the Project area shall be mapped. The EA Report shall identify all water bodies which may be impacted by the

project along the transmission link corridor, at the converter station sites and grounding facilities sites. This will include all water bodies showing on 1:50,000 scale topographic mapping, as well as all surface water and groundwater resources located in protected and unprotected public water supply areas.

The EA Report will compare baseline water quality parameters with appropriate guidelines and standards, such as the Canadian Council of Ministers for the Environment, *Canadian Water Quality Guidelines for Protection of Aquatic Life*, *Guidelines for Canadian Recreational Water Quality* and the *Guidelines for Canadian Drinking Water Quality*.

The EA Report shall identify licensed and, if possible, unlicensed surface water withdrawal locations transected upstream by the transmission corridor and summarize baseline water quality by reviewing existing and collected data. The boundaries of any community watersheds will be noted.

The EA Report shall include a description of hydrological flow regimes for each of the major watercourses, including major wetlands along the transmission corridor. Hydrographs for major watercourses crossed by the transmission corridor or within the footprint of the converter stations will be included.

The EA Report shall include a desktop study describing the general hydro-geological and groundwater conditions along the transmission corridor (for western NL information is available at http://www.env.gov.nl.ca/env/waterres/reports/hydrogeology_westernnl/index.html ) with potential to be affected by construction of the grounding facilities, converter stations and other infrastructure, including a discussion about the use of groundwater as a drinking water source for nearby residences (if applicable).

Furthermore, for all protected and unprotected public water supply areas in the Project area, the EA Report must:

- include delineation of natural drainage basins, at appropriate scales;
- identify groundwater flow patterns, recharge and discharge areas, and groundwater interaction with surface waters; and
- summarize the chemical and physical surface water and groundwater chemistry using available data.

## 13.2 Effects Assessment and Mitigation

The EA Report shall identify and assess potential effects on water resources during all phases of the Project including, site preparation, construction and operation, site restoration and maintenance. In conducting the effects assessment, the EA Report shall consider:

- pertinent acts, policies, guidelines and directives relating to water resources (e.g., NL *Water Resources Act and Policy for Land and Water Related Developments in Protected Water Supply Areas*);
- potential effects to water quality on fisheries resources, aquatic biology and community water supply systems due to steep terrain, unstable slopes and erodible soils;
- its importance to ecosystem function and human use (including potable water supplies; recreational use and protection of aquatic life);
- effects on drinking water supplies;
- effects on water quantity and quality for both surface water and groundwater;
- all protected and unprotected water supply areas within the Project area; and
- erosion and sedimentation, including dust deposition.

The EA Report must describe measures to mitigate effects water resources, and predict adverse residual effects and their significance.

# 14 AQUATIC ENVIRONMENT (FRESHWATER & MARINE)

## 14.1 Existing Environment

The EA Report shall include a description of the freshwater and marine environments, with emphasis on the abundance and distribution of fish[7] and their associated habitats[8] within the regional and local study areas. This description shall be based on the results of baseline information collected from field studies, the hydrological assessment, published information and information resulting from community and stakeholder consultation.

The EA Report shall include:

[7] For the purpose of this EA "Fish" will be defined as in the *Fisheries Act*, as: "(a) parts of fish, (b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and (c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals."

[8] For the purpose of this EA "Fish Habitat" is defined as in the *Fisheries Act* as: "spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes."

- a general overview of the freshwater and marine environments in the study area;
- details regarding the design, construction, installation, and operation of all project components that may impact fish and fish habitat;
- characterization and quantification of the fish habitat and fish populations by species and life stage (including marine mammals) affected by the Project, a description of rare, threatened and endangered species as per the *Species at Risk Act (SARA)*, NL *Endangered Species Act,* Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and Atlantic Canada Conservation Data Centre (ACCDC), including fish, marine mammals and sea turtles;
- details of programs, data collection methodologies and sources, and interpretation/reporting with respect to fish and fish habitat classification and quantification;
- an assessment of critical and sensitive habitats for spawning, nursing, rearing, feeding, and migration by fish, amphibians and invertebrate species;
- an assessment of work windows and sensitive times of the year (e.g. migration, feeding and spawning) which are critical for fish populations identified in the study area;
- a description of coral and sponge communities present in the Project areas;
- water and marine sediment quality, including associated levels of contamination, as components of habitat quality (*i.e.*, as they potentially affect biological receptors); and
- a description of ecologically sensitive areas, protected areas and candidate protected areas

## 14.2 Effects Assessment and Mitigation

The EA Report will consider potential environmental effects of construction and operation activities along the transmission corridor, including the site access roads that may be required to facilitate construction access and transmission line installation, on aquatic environments, including fish and fish habitat. The EA Report shall describe measures for avoiding, minimizing or otherwise mitigating environmental effects to fish and fish habitat and will identify potential residual effects and their significance including:

- maintenance/construction: any herbicide/pesticide use near waterbodies;
- influences of increased access;

- effects of the Project on movement/migration of fish (e.g. lobster);
- effects of noise during construction and EMF during operation;
- development and implementation of an EMP to reduce or eliminate impacts to fish and fish habitat, applicable to construction and operation of the transmission line, converter stations and grounding facilities;
- description and quantification of harmful alteration, disruption or destruction of fish and fish habitat expected from Project activities, along with conceptual habitat compensation options to offset such alterations or losses to ensure that the proposed Project will not result in a net loss of the productive capacity of fish habitat;
- measures to mitigate impacts on coral and sponge communities in the area;
- measures to mitigate impacts to fish species that may occur in the Project area, including measures to mitigate impacts to *SARA*-listed species and those assessed as 'at risk' by COSEWIC (including fish, marine mammals and turtles), and their critical habitat;
- measures to mitigate impacts on aquatic environment and its components, including creeks, streams, wetlands, and the Cabot Strait, to fish, fish habitat, marine mammals, species at risk, sensitive areas (marine and freshwater) and water quality resulting from modifications (including site access) and operation at substations and grounding facilities;
- measures to mitigate impacts on ecologically sensitive areas; and
- design requirements for bridges and culverts.

In conducting the analysis, the proponent shall consider pertinent acts, policies, guidelines and directives relating to fish and fish habitat. The EA Report shall provide a description of measures to mitigate effects to fish and fish habitat and predict potential residual effects and their significance.

# 15 VEGETATION

## 15.1 Existing Environment

The EA Report shall describe the terrestrial ecosystem and existing vegetation species and plant communities present within the area potentially affected by the Project. The description will include species lists and dominant species by community type. In particular, the EA Report shall provide information on key indicator communities, and species groups or ecosystems that have ecological,

cultural or social value. This discussion shall include various habitat types (i.e., forests, wetlands, riparian habitat) as well as plant species and ecological communities of conservation concern.

The EA Report shall identify data sources, data collection methods and surveys to delineate vegetation units and to assess potential effects on vegetation resources. The EA Report will also include base maps to delineate vegetation units within the study area.

The EA Report will apply habitat modeling based on existing data. Available information on the known occurrence of rare and uncommon plant species from public and private sources shall be reviewed including the *SARA* Registry, the NS *Endangered Species Act*, the Nova Scotia Nature Trust, the NL *Endangered Species Act*, the significant habitat database, the ACCDC database, NSDNR, the NL Species Status Advisory Committee, species recommended for legal listing by COSEWIC, and species with a general status (as per the NL Department of Environment and Conservation – Wildlife Division General Status of Wildlife Ranks) as maybe at risk or undetermined.

Field surveys shall be conducted with a focus on areas of high potential for species at risk (SAR), rare vascular plants, uncommon species assemblages and species of conservation concern (SOCC) within the Project boundary. The surveys must be undertaken during the seasons appropriate to capture the presence of SAR and SOCC. The locations of SAR and SOCC identified during the field surveys will be presented in the EA Report.

In addition to habitats within the Project footprint, the EA Report will also consider habitats that may be indirectly affected by the Project (e.g., wetlands outside the immediate footprint that may experience a change in hydrology).

The discussion shall include vegetation that is harvested or grown for subsistence, social, cultural, ceremonial or medicinal purpose, as appropriate.

## 15.2 Effects Assessment and Mitigation

The EA Report shall include an estimate (in hectares) of each ecosystem type to be newly cleared along the transmission corridor, at the converter stations and grounding facilities. The EA Report shall identify and assess potential effects on vegetation species/communities during construction and operation phases of the Project. The assessment shall consider extent and type of rare or threatened habitat and SAR and SOCC as defined above that may be potentially disturbed, altered, or removed during construction and operation of the proposed transmission line.

The EA Report shall provide an evaluation of fire hazard risk to the nearby communities and land uses resulting from invasive weeds, accumulation of slash and other potential fuel sources along the right-of-way.

Pertinent acts, policies, guidelines and directives relating to vegetation/ecological communities shall be considered during the analysis. The EA Report shall describe measures to mitigate impacts to vegetation species/ecological communities which may include but are not limited to measures to prevent the spread of invasive species, reclamation and revegetation, and mitigation against impacts to Aboriginal traditional use for food, social, cultural, and/or ceremonial purposes.

# 16 WETLAND ECOSYSTEMS

## 16.1 Existing Environment

The locations and extent of all wetlands in the Project area, including coastal wetlands (e.g., salt marshes and eelgrass beds), shall be mapped. The EA Report shall provide an estimate (in hectares) of each type of wetland ecosystem along the transmission link corridor and at the converter station sites and grounding facilities sites. This will include all wetlands previously mapped by NSDNR, as well as wetlands identified by the study team through desktop analysis and field survey programs.

The desktop study to identify and determine extent of wetlands within the Project area will be conducted using the NS Wetland Database, NS Wet Areas Mapping, aerial imagery, and 1:50,000 topographic mapping.

An assessment, including a full delineation, should be completed for all wetlands that will be directly impacted by this Project. The EA Report should apply the US Army Corps of Engineers (1987) Wetland Delineation Method to formally define wetland habitat; and the Canadian Wetland Classification System (NWWG 1997) to classify and characterize wetland habitat. The assessment and delineation should be completed in accordance with protocols established by the Nova Scotia Environment and the Canadian Wildlife Service (CWS).

Potentially affected wetlands outside of the Project area will be mapped using the NSDNR data only, for Nova Scotia.

## 16.2 Effects Assessment and Mitigation

The EA Report shall evaluate the potential effects of construction and operation activities, such as site development, laydown areas, and access roads, including;

- the direct loss of wetland habitat within the Project footprint and indirect effects on wetland habitat, quality, ecosystem integrity and function

through changes in hydrology to areas immediately adjacent to the footprint;

- the potential for new corridors to increase access to wetlands (e.g., by ATVs); and
- the potential for introduction of invasive species from other areas from the operation of equipment within and adjacent to wetlands.

The EA Report shall evaluate the extent and type of wetland ecosystem that may be potentially disturbed, altered, or removed during the construction or operation of the new transmission line, substations, and grounding facility sites. The *Federal Policy on Wetland Conservation* (FPWC) and related implementation guidance identify the importance of planning, siting and designing a project in a manner that accommodates a consideration of mitigation options in a hierarchical sequence – avoidance, minimization, and as a last resort, compensation. The EA Report shall assess direct and indirect impacts on wetlands and describe how proposed mitigation measures will adhere to the FPWC, the NS *Wetland Conservation Policy*, the NL *Policy for Development in Wetlands* and related implementation guidance. Measures to ensure no net loss of wetland function should be detailed. In the event that avoidance of wetlands is not possible, the reasons why elimination of adverse effects on wetland function was not possible should be clearly demonstrated in the EA Report. Guidance related to the assessment of impacts to wetlands can be found in the EC publication "*Wetland Ecological Functions Assessment: An Overview of Approaches*" (Hanson et al., 2008).

Where wetland avoidance is not possible, mitigation plans shall be presented for minimizing the affected area of wetland (e.g., water management, erosion prevention and sediment control). The area of wetlands affected by the Project should be quantified, and the expected functional change described. The mitigation measures and monitoring plan, as well as a proposed compensation plan, should be consistent with those proposed for other projects in Atlantic Canada.

Opportunities to offset the loss of wetland area and function through wetland compensation shall be presented conceptually to Nova Scotia Environment, the NL Department of Environment and Conservation, EC, and DFO.

In conducting the analysis, the proponent shall consider pertinent acts, policies, guidelines and directives relating to wetlands. The EA Report shall provide a description of measures to mitigate effects to wetlands and predict potential residual effects and their significance. Since wetlands are indicators of possible change in groundwater regimes within the Project area, their extent and characteristics should be monitored.

# 17 WILDLIFE AND WILDLIFE HABITAT

## 17.1 Existing Environment

The EA Report shall describe wildlife and wildlife habitat including all terrestrial and marine fauna (excluding fish), avifauna and associated habitat located within the Project and surrounding areas potentially affected by the Project (e.g., as a result of noise or visual stimulus). This includes:

- birds, including those species protected under the *Migratory Birds Convention Act (MBCA)* and associated regulations, and those species under provincial responsibility,
- mammals (including fur bearers and ungulates) and their habitats, including rare or sensitive species;
- amphibians and reptile populations and their habitats, including rare or sensitive species;
- all SARA and COSEWIC-listed species, including species recommended for legal listing by COSEWIC;
- all species ranked by the ACCDC as S1, S2, or S3
- all species listed in the NL *Endangered Species Act* and species protected under the NL *Wildlife Act*, all species recommended for legal listing by the NL Species Status Advisory Committee, and all species with general status (according to the NL Department of Environment and Conservation – Wildlife Division General Status of Wildlife Ranks) as maybe at risk or undetermined;
- all species listed in the NS *Species at Risk Regulations* made under Sections 10 and 12 of the *Endangered Species Act* and those ranked extremely rare (S1) or rare (S2) in the ACCDC;
- sensitive coastal habitats (e.g. dunes, beaches, flats); and
- areas of concentration for other wildlife species (e.g., deer wintering areas).

The EA Report shall include a description of other wildlife (e.g., ungulates, furbearers, amphibians, and marine mammals) and their habitats, which may occur at the Project site and within local and regional study areas, including the results of any surveys conducted. The EA Report shall also include a description of any wildlife corridors and physical barriers to movement that exist within the Project area.

The description of wildlife shall be based on existing information and databases (e.g., ACCDC, Maritime Bird Breeding Atlas), field surveys, and consultation with federal and provincial agencies, hunting and trapping associations, local residents, and the results of the Mi'kmaq Ecological Knowledge Study (MEKS).

*Newfoundland Caribou*

Particular attention should be paid to the Newfoundland Woodland Caribou as it is being reviewed for legal listing by COSEWIC, SARA and the NL *Endangered Species Act*. For caribou in Newfoundland, the proponent will undertake the following:

- Plot all current caribou point data from current and previous collaring programs, by time period and season, to determine present and previous caribou occurrence in the Project footprint, and calculate relevant summary statistics (number of locations per time period, percentage of point locations in footprint per time period, etc.).
- Based on the above, determine the number and percentage of individuals that occur within the Project footprint by time period and by season.
- Determine the level of occurrence within the Project footprint and in adjacent areas by animals by time period and by season to assess annual and seasonal movements. This effort is to determine if the area might be used by migrating caribou that don't spend much time in the area per se, but use the area for an important purpose.
- Overlay caribou point location data on the Ecological Land Classification (ELC) and identify those polygon types where caribou locations fall, and provide summary statistics as well as percent occurrence by polygon type. Identify those polygon types containing higher percentages of caribou point locations spatially, and in relation to the overall Project footprint, and especially the proposed routing for the 26-28 km of new transmission line.
- two helicopter flights in 2012, one each during the first two weeks of June, to determine presence of caribou by age and sex within the 26-28 km of new transmission line portion of the Project footprint.

*Migratory Birds*

Migratory birds are protected under the MBCA and associated regulations. Migratory birds protected by the MBCA generally include all seabirds except cormorants and pelicans, all waterfowl, all shorebirds, and most landbirds (birds with principally terrestrial life cycles). Most of these birds are specifically named in the EC publication *Birds Protected in Canada under the Migratory Birds Convention Act* (Environment Canada 1991).

Preliminary data from existing sources should first be gathered on migratory bird use of the area for all four seasons (e.g., winter, spring migration, breeding season, fall migration). In addition to information obtained from the ACCDC and naturalists, other datasets should also be consulted (see below). Datasets are downloadable through Bird Studies Canada's web portal, Nature Counts, at: http://www.birdscanada.org/birdmon/default/datasets.jsp .

In particular, data from the Maritime Breeding Bird Atlas (1st and 2nd atlas) should be considered. Data from the 2nd atlas is not yet fully available through the ACCDC. Special requests for species at risk information from the Maritime Bird Breeding Atlas (MBBA) can be made directly via the Nature Counts website but will require special approval before the data are released. In addition to the MBBA, other datasets of relevance to this Project include: Bird Studies Canada's High Elevation Landbird Survey (contact Greg Campbell, gcampbell@bsc-eoc.org), Atlantic Canada Nocturnal Owl Survey, Christmas Bird Count, and the Breeding Bird Survey.

This data should then be supplemented by surveys. In designing required surveys, the proponent should consult with the Canadian Wildlife Service (CWS) of EC and refer to CWS's Technical Report No. 508, *A Framework for the Scientific Assessment of Potential Project Impacts on Birds* (Hanson *et al*. 2010). Appendix 3 of this Framework provides examples of Project types and recommended techniques for assessing impacts on migratory birds. The CWS may be able to provide data for certain portions of the Project footprint, as well as additional advice regarding priority species.

The EA report shall include the methodology and results of breeding, staging, and migratory bird surveys with maps (to scale) showing areas where surveys were undertaken in relation to the proposed Project infrastructure. Information on migratory birds should be structured by species groups i.e., waterbirds, shorebirds, waterfowl, landbirds. Maps showing any SAR and SOCC, designated or protected areas, areas of concentrations of birds or other wildlife, flight corridors, wetlands, interior and mature forest habitat, etc, should be shown in relation to Project infrastructure on appropriately scaled maps.

The EA Report shall give particular, but not exclusive, consideration to birds or habitat that meets one of the following criteria:

- species listed under the *SARA* and/or provincial species at risk legislation; designated, under review or identified as candidate species by the COSEWIC; and/or, with rarity ranks assigned by the provinces and/or the ACCDC;

- areas of concentration of migratory birds, such as breeding areas, colonies, spring and fall staging areas, flight corridors, and wintering areas;
- breeding and nesting areas of species low in number and high in the food chain;
- use interior and mature forest habitat;
- species that are identified by priority ranking systems (Partners-In-Flight[9]); or
- habitats in or near areas that have been or are in the process of being identified by land managers as particularly important to the survival of the species globally, regionally, or locally, or habitats valued by local users of the resource. These include, but are not limited to, areas with the following existing, proposed, or potential designations:
  - Migratory Bird Sanctuaries;
  - National Wildlife Areas;
  - Ramsar sites;
  - Western Hemisphere Shorebird Reserve Network sites;
  - Important Bird Areas; or
  - Other types of protected or designated areas that have been established, in part, to protect migratory birds and their habitat, such as those established through the Eastern Habitat Joint Venture.

## 17.2 Effects Assessment and Mitigation

The EA Report shall evaluate the effects of the Project footprint, construction, maintenance and operations that have the potential to interact with wildlife and wildlife habitat. As a starting point, the analysis shall include:

- quantitative and qualitative determination of direct loss and alteration of habitat within the Project footprint caused by clearing, grubbing and removal of vegetation along the transmission corridor, laydown area, access roads and converter station and grounding facilities sites;

[9] For information on Partners-in-Flight priority species in Newfoundland and Labrador, please consult the Canadian Wildlife Service. Information on Partners-in-Flight priority species in the Maritimes can be found in: Busby, D., P.J. Austin-Smith Sr., R. Curley, A. Diamond, T. Duffy, M. Elderkin, S. Makepeace, D. Diamond, R. Melanson, C. Staicer and B. Whittam. 2006. Partners in Flight Maritime Canada Landbird Conservation Plan. Technical Series No. 449, Canadian Wildlife Service, Atlantic Region. 43pp.

- an assessment of potential effects on birds from collisions and avian electrocution (e.g., demonstrate whether (and if so, how) the proposed structures and transmission line configuration are optimized for avoidance of avian collisions and electrocution; clearly identify any areas where the proposed RoW crosses areas used as flight paths by birds e.g., from nesting to foraging areas; and identify any areas where lights, both existing and proposed, may attract birds and thus increase the risk for collisions with structures);
- an assessment of the potential effects on birds shall include nesting and chick-rearing, staging, and wintering life-stages (if applicable) in addition to other appropriate life stages;
- habitat fragmentation due to alteration, habitat loss, access, and increased ungulate predation and decreased habitat availability for certain species, including birds (Note: If habitat fragmentation already occurs in the Project area, it must not be used to dismiss potential effects of further loss or fragmentation of habitat, as this would ignore potential for cumulative effects.);
- an analysis of Project impacts on mature and interior forest habitat for migratory birds on a local scale taking into account cumulative losses (and taking into account the species of migratory birds that use these habitats, as demonstrated by bird surveys);
- displacement and/or disturbance affecting mating, feeding, foraging, migration, or movement of wildlife as well as increasing the risk of encounters with humans;
- physical hazards and attractants (e.g., assessment of the potential impacts of roads, transmission lines, and other structural features on wildlife feeding, migration and movement, denning and refuge, reproductive behaviour and success, nesting and chick-rearing, and direct mortality);
- loss of habitat, decreased foraging success, decreased availability of denning/nesting sites, and less cover for wildlife;
- sensory disturbances and/or other impacts (e.g., assessment of the potential impacts of noise, light, odours, and human presence on wildlife feeding, migration and movement, denning and refuge, reproductive behaviour and success, and direct mortality);
- chemical hazards and attractants (e.g., assessment of the potential impacts of identified contaminants of potential concern on wildlife feeding, migration and movement, denning and refuge, reproductive behaviour and success, and direct mortality);

- displacement, disturbance, injury or direct mortality of marine mammals that may be present;
- an assessment of the potential effects on species known to be important to the Mi'kmaq in Nova Scotia; and
- the potential for and impacts of malfunctions and accidental events to wildlife and wildlife habitat throughout all phases of the Project.

The EA Report shall include an analysis of potential impacts in sensitive coastal habitats and shall describe measures to mitigate the effects of Project activities and installations to wildlife and wildlife habitat and will discuss the potential residual environmental effects and their significance. Management tools (i.e., federal and provincial acts and policies, wildlife management guidelines, and provincial or regional strategies and plans) relevant to the protection of wildlife and/or wildlife habitat shall be considered.

# 18 PROTECTED AREAS AND AREAS OF CONSERVATION INTEREST

## 18.1 Existing Environment

The locations and extent of all provincial and federal protected areas and areas of conservation interest/importance (i.e., areas considered by various governmental and non-governmental land-use managers to contain important, imperilled, and/or rare ecosystems, habitats, communities, and/or species) in the Project area shall be considered. This includes but is not limited to Provincial Parks, Wildlife Reserves, ecologically unique sites or special features, any candidate sites for ecological or cultural heritage preservation and conservation, Environmentally Sensitive Areas, Important Bird Areas, International Biological Program sites, conservation agreement lands, and habitat enhancement projects. The following areas should be included: Barachois Pond Provincial Park, Cheeseman Provincial Park, T'Railway Provincial Park, Little Grand Lake Wildlife Reserve, and the globally-rare wave forest habitat which occurs approximately 5 km north of the proposed landing site at Cape Ray.

The EA Report shall note the type of protected area or area of conservation importance (i.e., camping park, Important Bird Area, etc), its size, the ecological region the area represents, and any important biotic or abiotic feature(s) occurring in the protected area or area of conservation importance which may potentially be affected by the Project (e.g., as a result of noise or visual stimulus). The value of the protected area or area of conservation interest within the greater landscape context as it relates to functional landscape connectivity and landscape intactness should also be noted.

The EA Report shall address the value of a protected area or area of conservation interest not only as it relates to its environmental role, but also to the value placed on it by humans (e.g., cultural and social values, aesthetics, etc).

## 18.2 Effects Assessment and Mitigation

The EA Report shall evaluate the potential effects of the Project footprint, construction, and maintenance and operations on the environmental, cultural, social, and aesthetic values of protected areas and areas of conservation interest. The analysis shall include, among others:

- direct Project effects on protected areas and areas of conservation importance;
- potential isolation of protected areas and areas of conservation importance due to habitat fragmentation caused by habitat alteration and loss;
- effects on features within protected area boundaries due to potential changes to features outside protected areas boundaries, such as increased access by humans and other predators;
- an assessment of effects on the viewshed within the vicinity of the protected area or area of conservation interest, including a determination of the likely appearance of the proposed transmission line and associated infrastructure, and the potential visibility from key/high-value locations of the proposed transmission line and associated infrastructure. The analysis should include: 1) conceptual drawings or photosimulations of the transmission line and infrastructure; and 2) viewshed / visibility modelling and associated maps showing protected areas boundaries and other easily-recognizable landmarks (towns, large waterbodies, etc). The proponent shall comment on impacts of changes to the viewshed on cultural and aesthetic values that protected areas provide; and
- a description of measures to mitigate the effects of Project construction, maintenance, and visual impact on the environmental, cultural, and social benefits of protected areas and areas of significant conservation interest.

# 19 ECONOMY, BUSINESS AND EMPLOYMENT[10]

## 19.1 Existing Environment

The EA Report shall describe existing conditions with a focus on population and labour force, training and education, employment / unemployment, income levels and economic production; and business and industry in the province as a whole, including tourism. This information will be obtained from publically available sources (e.g., Statistics Canada, the province of Nova Scotia and Newfoundland and Labrador) and the Municipalities.

*Tourism*

Using existing research, the EA Report shall describe the existing tourism markets using the area adjoining the powerline corridor, paying particular attention to the activities participated in by those spending nights in the study area, their spending, and the general sensitivity to environmental alteration. In this regard the EA Report shall include:

- the area's scenery (viewpoints from roads, towns and the Trailway Park);
- the outfitting industry (lodges in the area based on success rate, type and size of game, crowding/competition for game and prime hunting/fishing locations, pristineness/scenery);
- the area's unique salmon stocks and recreational fishery (areas where the Project will cross or run parallel and close to rivers, especially salmon pools in terms of existing naturalness, accessibility/crowding and quality of pools); and
- special places ( inventory of special places/unique features e.g., estuary of the Codroy River, the Estuary flowing into the southwest shore of Victoria Lake, waterfalls, wave forest, fossil sites, and unique geological formations, classified according to their value to the area's tourism operators).

## 19.2 Effects Assessment and Mitigation

The effects assessment shall present information on expected direct and indirect employment and expenditures throughout all phases the Project, which will enable estimates to be made regarding effects on labour, supply and services

[10] Consideration of socio-economic impacts, unless brought about by a change in the environment as a result of the Project, are beyond the scope of the federal EA but will be considered by the provinces.

requirements, direct and indirect employment income, and provincial GDP and taxation.

The EA Report shall include the following information:

- National Occupation Classification (NOC) codes (at the 4-digit level) associated with each position for all phases of the Project, including the number of positions associated with each NOC code.
- The approximate time lines for each of the positions during the construction and operations phases of the Project. Including the number of positions for each 4-digit NOC code throughout the Project at specified time intervals (monthly or at least quarterly) that show levels of employment throughout the Project timeline.
- An indication of whether the positions are full-time equivalent or if they are the actual number of positions; specifying full-time vs. part-time.
- An estimate of the number of apprentices (by level) and journeypersons required.
- The anticipated source of the workforce, including an estimate of local employment (local area, provincial) and any strategies for recruitment.
- An identification of any specialized training, such as post-journeyperson training, that may be required.

The EA Report shall indicate the proponent's commitment to provide quarterly Reports during the construction phase, including information on the number employed by 4-digit NOC, the number of full-time/part-time employees, the number of apprentices (by level) and journeypersons, gender, and source of the workforce.

The EA Report shall indicate the proponent's commitment to execute a benefits agreement with the Province of Newfoundland and Labrador for the Maritime Link Transmission Project which is aligned with:

- The Term Sheet between Emera and Nalcor Energy and subsequent commercial agreements;
- The Memorandum of Understanding between the Government of Newfoundland and Labrador and the Government of Nova Scotia.

and which contains Gender and Diversity provisions and various reporting requirements consistent with Government of Newfoundland and Labrador policy.

*Tourism*

The EA Report shall include an assessment of:

- the quality of scenery affected by the Project using existing checklist systems used in British Columbia, including overlaying the Project on the scenic settings and describing visual impacts;
- the Project's impacts on the outfitting industry, in particular, hunting lodges and potential impacts to success rates and competition for resources resulting from increased access;
- the Project's impacts to scenic viewscapes used by the lodges;
- the Project's impacts on unique salmon stocks and the recreational fishery, in particular crowding/competition and catch rates resulting from increased access to prime angling location; and
- the effects of the Project on special places, including impacts on their value to the area's tourism operators who depend on them for their livelihood.

The EA Report shall describe measures to mitigate any adverse effects to economy, business and employment and will identify any potential residual effects and their significance.

# 20 LAND AND RESOURCE USE

## 20.1 Existing Environment

The EA Report shall evaluate potential interactions between the Project and use of land and resources and shall address compatibility with rural planning, as well as natural, environmentally-significant or protected areas that are designated or formally recognized by government agencies.

The EA Report will describe relevant land and resources use within the study area including:

- current use of land and resources, including freshwater and marine aquatic resources (e.g. recreational and commercial fishing, tree harvesting, agricultural use, petroleum and mineral exploration, quarries, structural development such as cabins, outfitting camps, trapper's camps, etc), as well as current access to these sites;
- current navigational use (e.g., vessel/boat traffic) and winter travel in areas of electrodes, sub-sea cables, temporary/permanent water crossings, and any other works than are placed in, on, over, through, or across any navigable water; and
- location and description of unique sites or special features, including any candidate sites for ecological or cultural heritage preservation and

conservation, Environmentally Sensitive Areas, reserves or protected areas, areas of conservation interest (e.g. the globally-rare wave forest approximately 5 km north of the proposed landing site at Cape Ray), conservation agreement lands and habitat enhancement projects.

## 20.2 Effects Assessment and Mitigation

The EA Report shall assess the potential effects of any change in the environment as a result of the Project on land and resource Use. This assessment shall include indirect and direct impacts to satisfy the requirements of the federal government and the provinces.

The EA Report shall assess the effects of any change to the use of surrounding lands and resources by the public and private sectors as a result of the Project. The EA Report shall consider the environmental effects that will restrict the ability of people to use and enjoy adjacent lands and/or the marine area presently or in the future (e.g., exclusion or disruption of recreation activities, loss of areas of special community or social value, and changes to the local visual aesthetics).

The potential for Project-related emissions, noise, and vibration to adversely affect current land and resource use shall be assessed and the degree or extent of impact shall be described. The EA Report shall describe measures to mitigate any adverse effects to land and resource use and will identify any potential residual effects and their significance. Types of mitigation may include controls on dust, noise, lighting and other potential disturbances associated with Project activities. Mitigation may also include an information program to notify local residents, businesses and planners of upcoming Project activities and requirements.

With respect to effects of the Project on navigation and navigable waters, the Proponent shall describe effects on the navigability and the navigation patterns of all waters impacted by any Project phase (construction, installation, operation) of the Project. Impacts on traditional (e.g., hunting, fishing) and current recreational and commercial waterway use shall be identified and assessed.

The proponent shall identify measures to reduce or eliminate impacts on safe navigation during the construction, installation, and operation of the sub-sea cable crossing, sea electrode sites, temporary and permanent stream crossings, and all aerial transmission lines over navigable waters.

# 21 COMMERCIAL AND RECREATIONAL FISHERIES

## 21.1 Existing Environment

A detailed review of fishing activity, including traditional, existing and potential commercial, recreational and aboriginal fisheries shall be provided. This shall include most recent and available information, discussions with provincial and federal agencies and consultation with fishing associations and individuals who fish in the vicinity of the Project shall be presented.

The EA Report shall include a description of the types and intensity of commercial fisheries in the marine Project site and the area affected by Project activities and infrastructure. The description will include the species and seasons fished, the number of fishing licenses in the region and a summary of landings and landed values. To the extent that the information is available, the EA Report will include a description of the spatial distribution of commercial fishers in the marine Project area to identify areas that are fished more intensively and areas that are avoided. The nature and location of aquaculture operations, if present, will be described.

The EA Report will also include a description of any recreational and tourism-related fishing that occurs in marine Project area, with a focus on the Project area and its immediate vicinity. Fishing, both licensed commercial fishing and fishing conducted for traditional purposes in the area by Aboriginal peoples will be described.

## 21.2 Effects Assessment and Mitigation

The EA Report shall assess the potential interaction with commercial/recreational fish species and commercial/recreational fishing operations in the region during construction, operation, and maintenance activities including changes in commercial/recreational fish populations (i.e., displacement, direct mortality, loss or alteration of habitat and use), loss of fishing gear due to entanglement with Project infrastructure, navigation restrictions and constricted vessel movements associated with additional marine construction traffic, and loss of access to traditional fishing areas.

The potential for malfunctions and accidental events and potential interactions with Commercial and Recreational Fisheries throughout all phases of the Project will be addressed.

The effects assessment for commercial fisheries shall be completed based on the results of the desktop and benthic studies and consultation with DFO representatives, resource experts and input from the fisheries consultation. The assessment will focus on anticipated changes to fishing patterns due to loss of or displacement from fishing grounds and changes to commercial fishery incomes

from the factors above, as well as from habitat loss or degradation from Project infrastructure and activities.

It is assumed that habitat compensation shall be provided to achieve no net loss of productive capacity of fish habitat in consideration of the importance of commercial species. Other types of issues and mitigation (e.g., potential avoidance of marine construction during key fishing seasons) shall also be discussed. The proponent may consult with local fishing industry representatives regarding any specific fishing mitigation and habitat compensation plans.

In conducting the analysis, the proponent shall consider pertinent acts, policies, guidelines and directives relating to the commercial fisheries. The EA Report shall provide a description of measures to mitigate effects to commercial and recreational fisheries and predict potential residual effects and their significance.

# 22 ARCHAEOLOGICAL AND HERITAGE RESOURCES

## 22.1 Existing Environment

To characterize the existing environment within the Project site with regards to archaeological and heritage resources[11], the following methods will be used:

- marine and terrestrial archaeological and heritage resources and sites providing evidence of past use and occupation;
- known resources shall be determined through a review of the provincial archives, provincial heritage records, documented archaeological sites, provincial and local museum records, local historical societies, community historians, and the Mi'kmaq of Nova Scotia, if applicable; and
- a reconnaissance-level search will be undertaken for those resources that may exist within the property boundaries, but of which there is currently no knowledge (e.g., undiscovered archaeological resources).

The EA Report shall identify any terrestrial and aquatic areas known to contain features of historical, archaeological, paleontological, architectural or cultural

[11] Archaeological and heritage resources are defined under *CEAA* as any structure, site or item of historical, archaeological, paleontological or architectural significance, including physical remnants and buildings, found below and / or on top of the ground surface informing us of past human use of, and interaction with, the physical environment; paleontological resources; and buildings of architectural significance (i.e., provincially designated as heritage buildings).

importance. A description of the nature of the features located in the Project area will be provided including resources of interest to the Mi'kmaq of Nova Scotia.

It is recommended that prior to commencing the archaeology assessment, the proponent will meet with the NSOAA, the Nova Scotia Department of Communities, Culture and Heritage, the archaeology consultant and with the Archaeology Research Division of the KMKNO to provide the Archaeology Research Division with an opportunity to comment on the proposed methodology for the archaeology assessment. Upon review of these comments, the archaeology consultant might be provided with additional direction if it is required.

## 22.2 Effects Assessment and Mitigation

The EA Report shall assess the potential effects of any change in the environment as a result of the Project on physical and cultural heritage resources and on structures, sites or things of historical, archaeological, or paleontological significance. Potential Project interactions with documented archaeological and historic features (terrestrial and marine) shall be assessed with mitigation and monitoring proposals provided.

An archaeological potential model shall also be provided including proposals for monitoring and contingency planning in the event that previously undocumented resources are discovered during Project development. Provisions for notification and involvement of relevant regulators and the Mi'kmaq of Nova Scotia shall also be included.

In conducting the analysis, the proponent shall consider pertinent acts, policies, guidelines and directives relating to archaeological and heritage resources. The EA Report shall provide a description of measures to mitigate effects to archaeological and heritage resources and predict potential residual effects and their significance. The potential for malfunctions and accidental events may also have interactions with Archaeological and Heritage Resources throughout all phases of the Project.

# 23 CURRENT USE OF LAND AND RESOURCES FOR TRADITIONAL PURPOSES BY ABORIGINAL PERSONS

## 23.1 Existing Environment

The EA Report will assess the effects on current use of land and resources (including terrestrial, freshwater and marine aquatic resources) by Aboriginal

persons for traditional purposes[12], including locations of camps, harvested species, and transportation routes, if the effect results from a change in the environment caused by the Project.

The EA Report shall describe fishing for food and ceremonial purposes (not related to commercial fisheries) by Aboriginal persons potentially impacted by the Project. The EA Report shall describe flora and fauna that is harvested for subsistence, social, cultural, ceremonial or medicinal purposes.

In Nova Scotia, an MEKS shall be conducted to gain an understanding of current and past use of the Project area by the Mi'kmaq. The MEKS will be conducted in accordance with the Protocol established by the Kwilmu'kw Maw-klusuaqn, which consists of defined procedures for the planning/design, development, implementation and reporting stages of an MEKS. It is recommended that prior to commencing the MEKS, the proponent contact the NSOAA and KMKNO to seek directions on conducting an MEKS.

While respecting the intellectual property rights of Aboriginal communities and individuals, the information collected during discussions with Aboriginal persons will be reflected in the EA Report and will be used, as appropriate, to carry out the environmental effects assessment.

Community and Aboriginal leadership engagement activities will be conducted to ensure that the Aboriginal persons are informed of the Project, to hear concerns that will need to be considered, and to identify opportunities for their participation in the Project.

Traditional activities carried out by Aboriginal people should be described based on information provided by Aboriginal groups or, if Aboriginal groups do not provide this information, on available information from other sources (to be cited).

## 23.2 Effects Assessment and Mitigation

Should discussions with Aboriginal persons indicate that the Project area is used for traditional purposes, Project effects shall be assessed through consideration of the nature and duration of those uses, the locations within the Project boundary, including the marine footprint, at which those uses occur, and the spiritual, cultural and economic significance of that use.

The EA Report will identify:

[12] See footnote 5

- potential adverse social and/or economic effects to Aboriginal groups that may arise as a result of any change in the environment due to the Project;
- effects of any change in the environment due to the Project on current and proposed uses of land and resources by Aboriginal groups for traditional purposes;
- effects of any change in the environment due to the Project on hunting, fishing, trapping and cultural uses of the land (e.g., collection of medicinal plants, use of sacred sites), as well as related effects on lifestyle, culture and quality of life of Aboriginal groups; and
- effects of any change in the environment as a result of the Project on heritage and archaeological resources in the Project area that are of importance or concern to Aboriginal groups.

The EA Report will provide a description of measures to mitigate effects to the Current Use of Land and Resource Use for Traditional Purposes by Aboriginal persons and predict potential residual effects and their significance.

# REFERENCES


Atlantic Canada Conservation Data Centre. http://www.accdc.com/

Assembly of Nova Scotia Mi'kmaq Chiefs. 2007. *Mi'kmaq Ecological Knowledge Study Protocol*. http://66.29.197.94/uploads/KMKMEK.pdf

Barnthouse, L.W., W. R. Munns Jr. and M. T. Sorensen. 2008. *Population-Level Ecological Risk Assessment.* CRC Taylor and Francis, NY. Society of Environmental Toxicology and Chemistry.

Busby, D., P.J. Austin-Smith Sr., R. Curley, A. Diamond, T. Duffy, M. Elderkin, S. Makepeace, D. Diamond, R. Melanson, C. Staicer and B. Whittam. 2006. *Partners in Flight Maritime Canada Landbird Conservation Plan*. Technical Series No. 449, Canadian Wildlife Service, Atlantic Region. 43pp.

Canada. Privy Council Office. 2003. *A Framework for the Application of Precaution in Science-based Decision Making About Risk*. Accessed January 26, 2012. http://www.pco-bcp.gc.ca/docs/information/Publications/precaution/Precaution-eng.pdf

Canadian Environmental Assessment Agency. Operational Policy Statement. 2007. *Addressing "Need for", "Purpose of", "Alternatives to" and "Alternative Means" under the Canadian Environmental Assessment Act*. Canadian Environmental Assessment Agency - Policy & Guidance - Operational Policy Statement - Addressing "Need for", "Purpose of", "Alternatives to" and "Alternative Means" under the CEAAct

Canadian Environmental Assessment Agency. Operational Policy Statement. 2007. *Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act.* Canadian Environmental Assessment Agency - Policy & Guidance - Operational Policy Statement - Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act

Canadian Environmental Assessment Agency. Procedural Guide. 2003. *Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners*, prepared by: The Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment. Canadian Environmental Assessment Agency - Policy & Guidance - Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners

Canadian Environmental Assessment Agency, Reference Guide 1994. *Addressing Cumulative Environmental Effects*. Canadian Environmental Assessment Agency - Policy & Guidance - The Responsible Authority's Guide

Canadian Environmental Assessment Agency, Procedural Guide 1999. *Cumulative Effects Assessment Practitioners Guide,* Hegmann, G., C. Cocklin, R. Creasey, S. Dupuis, A. Kennedy, L. Kingsley, W. Ross, H. Spaling and D. Stalker. Prepared by: The Cumulative Effects Assessment Working Group and

AXYS Environmental Consulting Ltd. http://dsp-psd.pwgsc.gc.ca/Collection/En106-44-1999E.pdf

Environment Canada, 1991. *Birds Protected in Canada under the Migratory Birds Convention Act*, Canadian Wildlife Service Occasional Paper No. 1. http://www.ec.gc.ca/Publications/default.asp?lang= En&xml=97AC4B68-69E6-4E12-A85D-509F5B571564

Federal-Provincial-Territorial Radiation Protection Committee. 2008. *Response Statement to Public Concerns Regarding Electric and Magnetic Fields (EMF) from Electrical Power Transmission and Distribution Lines.* www.hc-sc.gc.ca/ewh-semt/radiation/fpt-radprotect/emf-cem-eng.php

Government of Canada. 2003. *A Framework for the Application of Precaution in Science-based Decision Making About Risk*. http://www.pco-bcp.gc.ca/index.asp?lang=eng&page=information&sub=publications&doc=precaution/precaution_e.htm

Hanson, A., L. Swanson, D. Ewing, G. Grabas, S. Meye, L. Ross, M. Watmough, and J, Kirby. 2008. *Wetland Ecological Functions Assessment: An Overview of Approaches*. Canadian Wildlife Service Technical Report Series No. 497. Atlantic Region. 59 pp. http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=B8737F25-B456-40ED-97E8-DF73C70236A4

Hanson, A., L. Goudie, A. Lang, C. Gjerdrum, R. Cotter and G. Donaldson. 2009. *A Framework for the Scientific Assessment of Potential Project Impacts on Birds*. Canadian Wildlife Service's Technical Report Series No. 508. Atlantic Region. 61 pp.

Health Canada. 2010a. *It's Your Health – Electric and Magnetic Fields at Extremely Low Frequencies*. www.hc-sc.gc.ca/hl-vs/alt_formats/pdf/iyh-vsv/environ/magnet-eng.pdf

Health Canada. 2010b. *Useful Information for Environmental Assessment*. Prepared for Her Majesty the Queen in Right of Canada, represented by the Minister of Health. http://www.hc-sc.gc.ca/ewh-semt/pubs/eval/environ_assess-eval/index-eng.php

Minister of the Department of Indian Affairs and Northern Development. 2011. *Aboriginal Consultation and Accommodation - Updated Guidelines for Federal Officials to Fulfill the Duty to Consult.* http://www.ainc-inac.gc.ca/eng/1100100014664

National Wetlands Working Group (NWWG). 1997. *The Canadian Wetland Classification System*, second edition, B.G. Warner and C.D.A. Rubec (ed.). Wetlands Research Centre, University of Waterloo, Waterloo. 68 p.

Newfoundland and Labrador Department of Environment & Conservation, Wildlife Division. Newfoundland and Labrador: A Provincial Policy Regarding the Conservation of Species at Risk. http://www.env.gov.nl.ca/env/wildlife/endangeredspecies/index.html

Newfoundland and Labrador Department of Environment & Conservation. Wildlife Division General Status of Wildlife Ranks. http://www.env.gov.nl.ca/env/wildlife/all_species/general_status.html

Newfoundland and Labrador Species Status Advisory Committee. http://www.env.gov.nl.ca/env/wildlife/endangeredspecies/ssac/index.html

Nova Scotia Environment. 2010. *Guide to Considering Climate Change in Environmental Assessments in Nova Scotia*. http://climatechange.gov.ns.ca/files/02/65/EA_CC_Guide1.pdf

Nova Scotia Office of Aboriginal Affairs. 2011. *Proponents' Guide: The Role of Proponent's in Crown Consultation with the Mi'kmaq of Nova Scotia*. http://www.gov.ns.ca/abor/office/what-we-do/consultation/

U.S. Army Corps of Engineers. 1987. *Corps of Engineers Wetlands Delineation Manual*. http://el.erdc.usace.army.mil/elpubs/pdf/wlman87.pdf

Terms of Reference for a Mi'kmaq-Nova Scotia-Canada Consultation Process. 2010. http://www.gov.ns.ca/abor/docs/MK_NS_CAN_Consultation_TOR_Sept2010_English.pdf

WHO. 2007a. Fact sheet No. 322. *Electromagnetic fields and public health: Exposure to extremely low frequency fields.* www.who.int/mediacentre/factsheets/fs322/en/index.html

WHO. 2007b. *Environmental Health Criteria Monograph No.238. Extremely Low Frequency Fields*. www.who.int/entity/peh-emf/publications/Complet_DEC_2007.pdf