



## **ENVIRONMENTAL IMPACT STATEMENT GUIDELINES**

### **Port au Port-Stephenville Wind Power and Hydrogen Generation Project (Project Nujio'qonik GH2)**

December 1, 2022

# Table of Contents

<b>SECTION 1 – BACKGROUND.....</b>	<b>5</b>
<b>Purpose of the EIS.....</b>	<b>5</b>
<b>Purpose of the Guidelines .....</b>	<b>5</b>
<b>Proposed Project Description .....</b>	<b>5</b>
<b>SECTION 2 – PREPARATION AND PRESENTATION OF THE EIS.....</b>	<b>6</b>
<b>SECTION 3 - OUTLINE OF THE EIS.....</b>	<b>7</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>7</b>
<b>PROJECT INFORMATION.....</b>	<b>7</b>
<b>1.0 INTRODUCTION.....</b>	<b>7</b>
<b>1.1 Name of the Undertaking .....</b>	<b>7</b>
<b>1.2 The Proponent.....</b>	<b>7</b>
<b>1.3 Overview of the Undertaking .....</b>	<b>8</b>
<b>2.0 THE PROPOSED UNDERTAKING .....</b>	<b>8</b>
<b>2.1 Study Areas.....</b>	<b>8</b>
<b>2.2 Rationale for the Undertaking .....</b>	<b>10</b>
<b>2.3 Project Description .....</b>	<b>10</b>
2.3.1 General Layout.....	10
2.3.2 Construction .....	11
2.3.3 Operation and Maintenance .....	13
2.3.4 Decommissioning and Rehabilitation .....	14
2.3.5 Regulatory Framework and Government Oversight .....	15
<b>3.0 ALTERNATIVES .....</b>	<b>16</b>
<b>3.1 Alternatives to the Undertaking.....</b>	<b>16</b>
<b>3.2 Alternative Methods of Carrying Out the Undertaking .....</b>	<b>17</b>
<b>4.0 ENVIRONMENT .....</b>	<b>17</b>
<b>4.1 Key Issues.....</b>	<b>17</b>
<b>4.2 Existing Environment .....</b>	<b>18</b>
4.2.1 Atmospheric Environment .....	19
4.2.2 Aquatic Environment .....	19

4.2.3	Terrestrial Environment .....	20
4.2.4	Land and Resource Use.....	20
4.2.5	Heritage and Cultural Resources .....	21
4.2.6	Communities .....	21
4.2.7	Economy, Employment and Business .....	22
<b>4.3</b>	<b>Baseline Studies .....</b>	<b>22</b>
4.3.1	Atmospheric Environment .....	23
4.3.2	Aquatic Environment .....	24
4.3.3	Terrestrial Environment .....	26
4.3.4	Land and Resource Use.....	28
<b>5.0</b>	<b>DATA GAPS .....</b>	<b>30</b>
<b>6.0</b>	<b>ENVIRONMENTAL EFFECTS .....</b>	<b>30</b>
<b>6.1</b>	<b>Predicted Future Condition of the Environment if the Undertaking Does Not Proceed .....</b>	<b>30</b>
<b>6.2</b>	<b>Predicted Environmental Effects of the Undertaking.....</b>	<b>31</b>
<b>6.3</b>	<b>Accidents and Malfunctions .....</b>	<b>36</b>
<b>6.4</b>	<b>Cumulative Environmental Effects .....</b>	<b>36</b>
<b>6.5</b>	<b>Effects of the Environment on the Project.....</b>	<b>37</b>
<b>7.0</b>	<b>Environmental Protection – Mitigations and Plans .....</b>	<b>37</b>
<b>7.1</b>	<b>Mitigations .....</b>	<b>37</b>
<b>7.2</b>	<b>Plans .....</b>	<b>42</b>
7.2.1	Emergency Response/Contingency Plan .....	42
7.2.2	Waste Management Plan.....	43
7.2.3	Hazardous Materials Response and Training Plan .....	43
7.2.4	Transportation Impact Study and Traffic Management Plan .....	43
7.2.5	Public Participation Plan .....	44
7.2.6	Workforce and Employment Plan .....	44
7.2.7	Domestic Wood Cutting Consultation Plan .....	45
7.2.8	Environmental Effects Monitoring Programs (EEMPs).....	45
7.2.8.1	Species at Risk Impacts Mitigation and Monitoring Plan .....	46
7.2.8.2	Groundwater and Surface Water Monitoring Program .....	46
7.2.8.3	Avifauna Impacts Mitigation and Monitoring Plan.....	46
7.2.8.4	Outfitter Environmental Effects Monitoring Plan: (OEEMP).....	47
<b>8.0</b>	<b>RESIDUAL EFFECTS AND DETERMINATION OF SIGNIFICANCE .....</b>	<b>47</b>
<b>9.0</b>	<b>ASSESSMENT SUMMARY AND CONCLUSIONS .....</b>	<b>47</b>

<b>10.0</b>	<b>PUBLIC CONSULTATION.....</b>	<b>47</b>
<b>11.0</b>	<b>ENVIRONMENTAL PROTECTION PLAN (EPP).....</b>	<b>48</b>
<b>12.0</b>	<b>REFERENCES.....</b>	<b>48</b>
<b>13.0</b>	<b>PERSONNEL .....</b>	<b>49</b>
<b>14.0</b>	<b>COMMITMENTS MADE IN THE EIS.....</b>	<b>49</b>
<b>15.0</b>	<b>COPIES OF REPORTS .....</b>	<b>49</b>
<b>APPENDIX A .....</b>		<b>50</b>
<b>APPENDIX B .....</b>		<b>51</b>

## **SECTION 1 – BACKGROUND**

### **Purpose of the EIS**

The purpose of the EIS is to identify the important beneficial and adverse environmental effects associated with the Project, to identify measures to mitigate against adverse effects, to determine the significance of residual environmental effects, and to consult with the public and respond to public concerns. The environmental effects and mitigations associated with the Project may be subject to a comprehensive evaluation through the licensing and permitting processes and regulatory oversight of federal and provincial government agencies. Information provided in the EIS shall not be considered as redundant, but rather shall be used to inform other regulatory processes.

### **Purpose of the Guidelines**

On August 5, 2022, the Minister of Environment and Climate Change (ECC) informed World Energy GH2 Inc. (the Proponent) that an environmental impact statement (EIS) is required for the proposed Port au Port-Stephenville Wind Power and Hydrogen Generation Project (Project Nujio'qonik GH2) (the Project). The purpose of this document is to identify for the Proponent the nature, scope and extent of the information and analysis required in the preparation of the EIS. The Proponent will prepare and submit an EIS that examines the potential environmental effects of the construction, operation, maintenance, decommissioning, reclamation, and abandonment of the Project; identifies mitigation measures; and evaluates the significance of residual effects. Section 3 of these guidelines outlines in detail the content of the EIS to be prepared. The EIS is a statement of the Proponent's environmental conclusions and commitments related to the Project, and must be explicitly endorsed by the Proponent.

### **Proposed Project Description**

The proponent is proposing to construct and operate a maximum 1 gigawatt (GW), 164-turbine onshore wind farm on the Port au Port Peninsula with the associated transmission and supporting infrastructure to power a 0.5 GW hydrogen and ammonia production facility in the port of Stephenville. Future expansion of the Project includes the potential to create up to a total of 3 GW of renewable electricity from the Port au Port wind farm and two additional onshore wind farms to power a 1.5 GW hydrogen and ammonia production facility. The EIS shall describe all components and sites that are needed to make the Project operational and viable (i.e. Sites B and C referenced in the Proponent's environmental assessment registration document if applicable and other sites if required).

## **SECTION 2 – PREPARATION AND PRESENTATION OF THE EIS**

The EIS shall be written in terms understandable to the general public, however, where the complexity of the issues addressed requires the use of technical language, a glossary defining technical words and acronyms shall be included.

Where external sources of information or data are used, they shall be referenced within the body of the EIS and listed as References at the end. Where conclusions that are critical to the assessment of environmental effects are cited from other reports, the EIS shall provide sufficient detail of the original data and analysis to enable a critical review of that material and submit reference material as an appendix to the EIS. All conclusions regarding the receiving environment and predictions of the environmental effects shall be substantiated. The EIS shall reference, rather than repeat, information previously presented in other sections of the document. For clarity and ease of reference, the EIS shall include a Table of Concordance that cross- references the EIS guidelines so that points raised in the guidelines are easily located in the EIS. A Table of Contents, providing location of information in the final document by volume (if applicable), section, sub-section and page number, is required.

The EIS shall provide charts, diagrams, and maps wherever useful to clarify the text, including a depiction of how the developed Project sites will appear from both an aerial and terrestrial perspective. Where possible, maps shall use common scales to allow for comparison and overlay of mapped features and shall indicate common and accepted local place names. Geographic information shall be provided in standard Geographic Information System (GIS) mapping (digital) format, where feasible. The EIS and all associated reports and studies shall use System International (SI) units of measure and terminology.

The EIS shall be a stand-alone document upon which a critical review can be undertaken. The Proponent shall explain and justify all methods used in the preparation of the EIS, including the use of scientific, engineering, Indigenous, local, and other knowledge. All hypotheses and assumptions shall be clearly identified and justified. All data collection methods, models, and studies shall be documented so that the analyses are transparent and reproducible. The degree of uncertainty, reliability, and sensitivity of models used to reach conclusions shall be indicated.

The information included in this document is not intended to be exhaustive - additional detail, studies, and/or examination of components may be required. The content of the EIS should be organized according to the format described in Section 3.

## **SECTION 3 - OUTLINE OF THE EIS**

### **EXECUTIVE SUMMARY**

The executive summary shall contain the following information:

- identification of the Proponent;
- a brief Project description;
- predicted biophysical environmental effects (including cumulative effects associated with the Project, and other existing and reasonably expected future projects in the vicinity of the Project site);
- socio-economic factors;
- alternatives;
- mitigation measures;
- residual effects;
- follow up and monitoring programs;
- all studies and plans required by the EIS guidelines;
- a summary of the fundamental conclusions of the EIS; and
- a glossary of terms.

The Table of Concordance may be included in the executive summary.

### **PROJECT INFORMATION**

#### **1.0 INTRODUCTION**

##### **1.1 Name of the Undertaking**

##### **1.2 The Proponent**

This section shall introduce the Proponent by providing the following pertinent information:

- name of, and contact information for corporate body;
- name of, and contact information for chief executive officer;
- principle contact person for the purpose of environmental assessment, and contact information;
- key personnel, contractors, and/or sub-contractors responsible for preparing the EIS, and contact information; and
- disclosure of any affiliation or partnership with governmental or non-governmental organizations.

This section shall include a description of the Proponent's history of wind energy generation and hydrogen and ammonia production, identifying any previous and current such projects and their associated successes, failures and lessons learned.

### **1.3 Overview of the Undertaking**

The intent of the overview is to identify the key Project components, rather than provide a detailed description of the Project, which will follow under section 2.0. The Proponent shall briefly summarize the Project by presenting the major Project components, associated activities, scheduling details, timing of each phase of the Project and other key features. If development of the Project will follow a phased approach, information about the incremental and phased development of the Project, including the timing of each phase of the Project, shall be described. The key components of the undertaking shall include but not be limited to:

- a) all wind energy generation sites (wind farms) required to make the Project operational and viable (i.e. Sites B and C referenced in the Proponent's environmental assessment registration document and other sites if required);
- b) transmission lines and substations associated with each wind energy generation site and the transport of energy to the hydrogen and ammonia production facility;
- c) the hydrogen and ammonia production facility, ancillary structures, and auxiliary power sources;
- d) above ground and underground storage facilities for explosives, hazardous materials, and gases and liquids, including but not limited to hydrogen, ammonia and carbon dioxide;
- e) water source(s) required to support electrolysis and the hydrogen and ammonia production processes; and
- f) mode and route of transport of hydrogen and ammonia from Stephenville to markets.

## **2.0 THE PROPOSED UNDERTAKING**

### **2.1 Study Areas**

The EIS shall contain a description of the geographical settings in which all components of the Project will take place. Aerial images and a precise description of geographic boundaries of all proposed Project sites shall be provided, including but not limited to the following sites:

- wind turbines, transmission lines, substations, access roads, and laydown areas;
- hydrogen and ammonia production facility and ancillary structures, flaring/venting radius, auxiliary power sources, and storage facilities for explosives and hazardous materials, gas and liquid fuel;
- water sources and infrastructure to support the hydrogen and ammonia production facility;



- above ground and underground sites associated with salt deposits intended for the storage of carbon, hydrogen and/or ammonia; and
- mode and route of transport of hydrogen and ammonia from Stephenville to markets.

A precise description of the geographic boundaries of the Project shall be presented in relation to the study area for each valued environmental component (VEC) (discussed in section 4.2). The boundary description shall be accompanied by recent maps/aerial imagery of appropriate scale (e.g. 1:30,000, 1:20,000, or other) showing the entire Project study areas, as well as illustrating the boundary of each study area with principle structures and ancillary works. The delineation of the study areas is crucial to scope the extent of the environmental assessment. The rationale used to delineate the boundaries of the study areas shall be provided. This description shall focus on those aspects of the Project and its settings that are important in order to understand the potential environmental effects of the Project, and shall provide the following information:

- a) GPS locations and proximity of Project components to existing environmental features, including but not limited to:
  - i. nearest temporary and permanent residential dwellings and commercial and industrial sites;
  - ii. municipal boundaries, planning areas and infrastructure;
  - iii. communities and jurisdictions without municipal plans and development regulations;
  - iv. traditional, cultural and recreational sites;
  - v. tourist establishments and attractions, outfitter camps and trails;
  - vi. domestic wood cutting areas;
  - vii. industrial, private and public water supplies;
  - viii. existing electrical infrastructure; and
  - ix. commercial fishing areas, navigation routes and aquaculture sites;
- b) identification of any project location overlap with existing land, freshwater and marine users, and municipal boundaries and planning areas; and
- c) description of the environmental significance and value of the geographical setting in which the Project is proposed to take place, and the surrounding area, including but not limited to:
  - i. environmentally sensitive areas, such as national, provincial, and regional parks and reserves;
  - ii. ecologically and biologically significant areas (EBSA) and protected areas including proposed protected areas (e.g., proposed Cape St. George Ecological Reserve);
  - iii. wetlands, estuaries, lakes and rivers; and
  - iv. habitats of federally or provincially listed species at risk, including critical habitat for the designated species and other sensitive areas.

An overview map(s)/ image(s) shall be provided, noting the proximity of the study area to the above features.

## **2.2 Rationale for the Undertaking**

The EIS shall describe the rationale for the Project in terms of its the need and purpose, including but not limited to opportunities that the Project is intended to satisfy, as well as the current and future markets for the hydrogen produced from the Project (e.g. domestic or export use; markets). If the objectives of the Project are related to broader private or public sector policies, plans or programs, this information shall also be included (e.g. federal and provincial government commitments to reductions in GHG emissions).

The need for the Project refers to a problem or opportunity that the proposed Project is intending to solve or satisfy, and establishes the fundamental justification or rationale for the Project. The purpose of the Project is defined as what is to be achieved by carrying out the Project. The need for and purpose of the Project should be established from the perspective of the Proponent and provide the context for the consideration of alternatives.

## **2.3 Project Description**

The Proponent shall describe the scope of the Project for which the EIS is being conducted including: the construction, operation, maintenance, foreseeable modifications of all Project-related facilities, and the closure, decommissioning and rehabilitation of Project sites.

### **2.3.1 General Layout**

The EIS shall provide a written and graphic description (e.g. maps, aerial imagery and drawings) of the following physical features of the undertaking:

- a) each wind energy generation site required to make the Project operational and viable (i.e. Sites B and C referenced in the Proponent's environmental assessment registration document if applicable and other sites if required) including but not limited to a description of the following:
  - i. wind turbines, base areas and transformers (e.g. height of wind turbines, length of blades, anchoring and elevating devices);
  - ii. electrical transmission lines (including buried transmission lines) and substations;
  - iii. access roads, water course crossings and laydown areas;
  - iv. storage areas for explosives associated with blasting; and
  - v. the geographic boundaries of the Project areas.
- b) the hydrogen and ammonia production facility, including but not limited to, a description of the following:
  - i. buildings, structures, and infrastructure required for water electrolysis and hydrogen and ammonia production;

- ii. above ground and underground hydrogen, ammonia and carbon storage, including transportation to storage;
- iii. flaring and venting radius for hydrogen and ammonia;
- iv. office buildings, worker accommodations and associated infrastructure;
- v. auxiliary energy sources, including gas turbines to support hydrogen and ammonia production;
- vi. elevating devices, pressure systems and gas installations at the hydrogen and ammonia production facility and ancillary structures;
- vii. waste management structures, including solid waste and waste water effluent discharge; and
- viii. storage facilities for hazardous materials, gas and liquid fuel;
- c) water supply source(s) and associated infrastructure to support hydrogen and ammonia production, including water control structures, diversions and/or pump stations that may be required to facilitate the Project;
- d) land use zoning and interactions with Project components for communities with approved municipal development plans; and
- e) known existing contaminated sites within and near the Project study area.

### 2.3.2 Construction

Details of materials, methods, schedule, and locations of all construction activities (including permanent and temporary infrastructure related to physical features) shall be described, including, but not limited to, the following:

- a) construction planning and development schedule;
- b) site preparation, clearing, blasting, etc., for the installation of
  - i. wind turbines, laydown areas, transmission lines (including buried transmission lines), substations, and access roads (including water crossings) for all wind energy generation sites; and
  - ii. hydrogen and ammonia production facility, and ancillary buildings, structures and infrastructure;
- c) sources, predicted decibel levels and duration of noise, including noise during blasting;
- d) sources of light emissions;
- e) construction and establishment of Project structures and infrastructure in protected public water supply areas, and wellhead protected areas, if applicable;
- f) the timing and duration of the construction period for in-water works, including whether installation of

- infrastructure is required, such as culverts (open or bottom-less culverts) or bridge structures;
- g) Project components for in-water works, such as fording, removal of aquatic and/or stream side vegetation, infilling, dewatering, water use activities, and changes to natural flow regime;
  - h) transport, storage, and use of all hazardous materials, fuels and lubricants required during construction, including a description of best management practices for the storage of waste dangerous goods/hazardous waste;
  - i) details of development of each salt deposit or other feature intended for the underground storage of carbon dioxide and/or hydrogen and/or ammonia;
  - j) location of existing and proposed primary and alternate quarry sites, including boundaries, that are or may be needed to supply materials to the Project;
  - k) the classes (i.e. granular, concrete, etc.) and quantities of quarry materials that are or may be required for the Project; including for road construction and upgrading, the preparation and construction of tower base sites, the preparation of laydown areas, and any other Project uses;
  - l) details of quarry materials exploration or testing activities that may be required to evaluate quarry materials in advance of developing a new quarry site for the Project or in evaluating materials at an existing quarry site;
  - m) all heavy equipment to be used during construction and an estimate of all emissions during construction;
  - n) details on projected annual greenhouse gas (GHG) production by type, annual energy consumption by type (i.e., on-site stationary combustion, on-site electricity generation and mobile transportation but excluding purchased electricity generated off-site), and associated annual GHG emissions by source;
  - o) identification of any non-combusted and industrial process emissions at the site; and
  - p) details on annual energy consumption by type and annual GHG emissions by source for activities outside the Project boundary such as on-road, air and marine transportation, solid waste, and significant purchased services from providers outside the Project boundary (e.g., a marine port facility).

The following plans for the construction of the Project shall be included in the EIS and may be referenced here and included as appendices (see section 7 of the EIS Guidelines):

- i. Waste Management Plan;
- ii. Hazardous Materials Response and Training Plan for NL Community Fire Departments/First Responders in High Risk Areas;
- iii. A Transportation Impact Study and Traffic Management Plan;
- iv. Public Participation Plan; and
- v. Workforce and Employment Plan, including a commitment to develop a Benefits Agreement.

### 2.3.3 Operation and Maintenance

All aspects of the operation and maintenance procedures for the undertaking shall be described in this section of the EIS, including but not limited to the following:

- a) details of each phase of operations (if the Project will be developed in phases);
- b) description of any regulatory requirements related to the incremental development of the Project, requiring the Proponent to demonstrate that the Project is being conducted in an environmentally acceptable manner prior to increasing production;
- c) wind turbines at all sites needed to make the Project operational and viable (i.e. Sites B and C referenced in the Proponent's environmental assessment registration document if applicable and other sites if required);
- d) transmission lines and substations associated with each wind energy generation site and the transport of energy to the hydrogen and ammonia production facility;
- e) sources and predicted decibels, duration, and geographic reach of noise, , including long-term, low frequency noise emissions;
- f) sources of lighting emissions and shadow flicker;
- g) chemicals to be used as part of operations;
- h) standard operating procedures for water electrolysis;
- i) proposed water source(s), estimated daily and annual volume of water quantity and water quality requirements, and any treatment needed to meet the required water quality for hydrogen and ammonia production;
- j) other water withdrawal requirements and sources during Project operation, including water for cooling;
- k) characterization of wastewater effluent from hydrogen and ammonia production, estimation of annual volume of effluent discharge, description of treatment required for effluent to meet regulatory standards for discharge, and a description of the receiving environment for wastewater discharged during hydrogen and ammonia production;
- l) procedures for regular source water and wastewater quality and quantity monitoring;
- m) procedures for regular ambient climate, water quantity and quality monitoring;
- n) characterization and estimation of annual and daily atmospheric discharges from hydrogen and ammonia production, including detailed specifications and air emission estimates on the emergency back-up power generation, the electrolyzer cooling system, and the air separation unit;
- o) procedures for, and estimated frequency of, flaring and/or venting of hydrogen/ammonia;
- p) procedures for carbon capture, transport and storage;
- q) above-ground and underground storage of hydrogen and ammonia, including method of transportation to storage locations;
- r) description of best management practices for the storage of waste dangerous goods/hazardous waste;

- s) transportation of hydrogen and ammonia from the production facility to markets;
- t) transport, storage, and use of all hazardous materials, fuels and lubricants required during operations and maintenance, including a description of best management practices for the storage of waste dangerous goods/hazardous waste;
- u) market intentions for all end products, including wind energy, hydrogen and ammonia;
- v) description of energy use, including amount and frequency of energy and capacity to be provided to or from the electrical grid, and energy buffering needs;
- w) estimates of fuel consumption, GHG emissions associated with fuel combustion, and GHG emissions from any non-combusted and industrial process sources at the facility, by source per year of operation;
- x) volume of carbon dioxide sequestered by year of operation;
- y) identification, by year or appropriate multi-year period, of the volume of carbon dioxide emissions that may be emitted and sequestered on-site, be emitted and exported to a separate site for sequestration, and may be purchased off-site and sequestered on-site;
- z) details on annual energy consumption by type and annual GHG emissions by source for activities outside the Project boundary such as on-road, air and marine transportation and purchased electricity (i.e., from Newfoundland and Labrador Hydro or Newfoundland Power), solid waste, and significant purchased services from providers outside the Project boundary (e.g., a marine port facility).
- aa) identification of potential sources of quarry materials required for Project operation and maintenance, including primary and alternate sites for all classes of quarry materials required for the Project; and
- aa) site security and management of public access to Project components (wind energy generation sites, hydrogen/ammonia production facility, transmission lines and substations, carbon sequestration sites).

The following plans for the operation of the Project may be referenced here and included as appendices (see section 7 of the EIS Guidelines):

- i. Waste Management Plan;
- ii. Hazardous Materials Response and Training Plan for NL Community Fire Departments/First Responders in High Risk Areas;
- iii. Transportation Study and Traffic Management Plan;
- iv. Public Participation Plan; and
- v. Workforce and Employment Plan, including a commitment to develop a Benefits Agreement.

#### 2.3.4 Decommissioning and Rehabilitation

The EIS shall predict the lifespan of the undertaking and present an approach for decommissioning, which sets out a commitment from the Proponent to address:

- a) expected useful life of major Project infrastructure and life cycle management plans for such

infrastructure;

- b) proposed decommissioning schedule and activities, including dismantling and removal of infrastructure and facilities (e.g., wind turbines, access roads, transmission lines, hydrogen/ammonia facility) and site rehabilitation, including a seed collection schedule and a revegetation plan;
- c) decommissioning and rehabilitation of above ground and underground carbon dioxide, hydrogen and ammonia storage facilities associated with the Project;
- d) estimates of fuel consumption, GHG emissions associated with fuel combustion, and GHG emissions from any non-combusted and industrial process sources at the facility, by source per year during decommissioning and rehabilitation;
- e) details on annual energy consumption by type and annual GHG emissions by source for decommissioning and rehabilitation activities outside the Project boundary such as on-road, air and marine transportation, solid waste, and significant purchased services from providers outside the Project boundary (e.g., a marine port facility). These GHG emissions, excluding solid waste, will be subject to RAA carbon tax provisions; and
- f) decommissioning of industrial water supply.

The following plans shall be included in the EIS for the decommissioning of the Project and the rehabilitation of Project sites, and may be referenced here and included as appendices (see section 7 of the EIS Guidelines):

- i. Waste Management Plan;
- ii. Hazardous Materials Response and Training Plan for NL community Fire Departments/First Responders in High Risk Areas;
- iii. Transportation Impact Study and Traffic Management Plan;
- iv. Public Participation Plan; and
- v. Workforce and Employment Plan, including a commitment to develop a Benefits Agreement.

### 2.3.5 Regulatory Framework and Government Oversight

The EIS shall provide a comprehensive list of permits and regulatory approvals (municipal, provincial, and federal) required for the undertaking. The list shall include the following details:

- activity requiring regulatory approval;
- name of permit, license or regulatory approval;
- name of legislation applicable in each case; and
- regulatory agency responsible for each permit, license, and approval.

The EIS shall identify:

- a) government policies, resource management plans, and planning or study initiatives pertinent to the

Project and/or the environmental assessment (e.g. IET's Renewable Energy Plan);

- b) regulations, codes, standards, guidelines and best industry practices applicable to wind projects and the locations of wind turbines. In cases where the project is outside the scope of adopted codes/standards, the EIS shall identify the requirements that will maintain an equivalent level of safety;
- c) established and evolving developments in hydrogen and ammonia installation, production, storage, handling and transportation codes and standards;
- d) the land nomination and competitive bidding process for Crown land for wind development;
- e) municipal or provincial land use plans, land zoning, community plans, protected road zoning plans and regulations; and regional, provincial, and/or national objectives, standards, codes and/or guidelines that have been used by the Proponent to assist in the development of the EIS; and
- f) any governmental or non-governmental working groups or committees that provide guidance to municipal and or provincial bodies with respect to land use, ecological and recreational stewardship in the Project area.

The EIS shall evaluate whether the Environmental Emergency Regulations, 2019 (E2 Regulations) apply to the Project, and whether the Project meets the published reporting requirements of the National Pollutant Release Inventory (NPRI).

The E2 Regulations can be found at <https://www.laws-lois.justice.gc.ca/eng/regulations/SOR-2019-51/index.html>.

Technical guidelines for the E2 Regulations is available at <https://www.canada.ca/en/environment-climate-change/services/environmental-emergencies-program/regulations/technical-guidelines.html>.

The NPRI can be accessed at <https://www.canada.ca/en/environment-climate-change/services/national-pollutant-release-inventory/report.html>.

### **3.0 ALTERNATIVES**

#### **3.1 Alternatives to the Undertaking**

The EIS shall include a detailed analysis of the advantages and disadvantages to the environment of the undertaking as proposed; an analysis of the alternatives to the undertaking; and a summary with clearly described methods and sufficient information to justify the selection of the preferred alternative, as well as an explanation for rejecting other alternatives. This section shall include a comparative analysis of the environmental effects and technical and economic feasibility of alternatives that led to the selected Project alternative. The Proponent shall consider describing:

- a) functionally different methods of meeting the Project need and achieving the Project purpose; and



- b) market and regulatory circumstances that may have influenced the preferred alternative.

### **3.2 Alternative Methods of Carrying Out the Undertaking**

The EIS shall identify and consider the environmental effects of alternative methods of carrying out the undertaking that satisfy the need for the undertaking. The preferred alternatives shall be identified, with the selection based on clearly described methods. An explanation shall be included of how environmental factors affect the design and consideration of alternatives.

The EIS shall provide the rationale for selecting Project components and shall discuss the state of the art of the various technologies being proposed. The EIS shall indicate known experience with, and effectiveness and reliability of the equipment, techniques, procedures, and policies, for each alternative, particularly under climate conditions in Newfoundland and Labrador and elsewhere, and their relation to best practice in Newfoundland and Labrador.

The EIS shall analyze and compare the design alternatives for the Project in relation to their environmental and social costs and benefits, including those alternatives which cost more to build and/or operate but which cause less harmful environmental effects. The range of alternatives considered for the annual production and scale of the operation shall be discussed, and the chosen alternative justified. In describing alternative means of carrying out the Project, the Proponent may consider, but not be limited to, a discussion of the following:

- a) Sources of energy, including the Newfoundland and Labrador Hydro (NL Hydro) power grid, offshore wind energy generation, etc.;
- b) Wind energy turbine sizes and types (e.g. bladeless) and options for transformer chemicals;
- c) Locations, land area requirements and access routes for wind energy generation sites, transmission lines, hydrogen and ammonia production facility, including consideration of locating all wind turbines outside protected public water supply areas or protected wellhead areas;
- d) Water source(s) for the hydrogen and ammonia production facility;
- e) Order and timelines for construction and operational phases; and
- f) Options for aboveground and underground storage of hydrogen and carbon dioxide including the feasibility of utilizing salt deposits for underground storage.

## **4.0 ENVIRONMENT**

### **4.1 Key Issues**

To better focus the EIS, the Proponent shall identify the key issues related to the Project. The issues can be

revised and adjusted in relation to the information acquired in the field and during consultations held by the Proponent in the preparation of the EIS.

The following factors shall be included in the selection of key issues:

- Effects of the Project on existing electrical infrastructure;
- Effects of the hydrogen and ammonia production facility on water resources;
- Effects of proposed wind energy generation sites on migratory birds and species at risk and related habitats;
- Effects on of the Project on existing mining operations and planned expansions; and
- Effects of the Project on communities, human health and quality of life.

The ensuing sections focus on the components relevant to the key issues and effects of the Project.

## **4.2 Existing Environment**

The EIS shall describe relevant aspects of the existing environment prior to implementation of the Project, which constitute the reference state of the environment. Using qualitative and quantitative surveys, this section shall include a description of the existing bio-physical and socio-economic environment that will be affected or might reasonably be expected to be affected, directly or indirectly, by the undertaking with emphasis on the valued environmental components (VECs). If the information available from government or other agencies is insufficient or no longer representative, the EIS shall complete the description of the environment by conducting original surveys and research according to generally accepted practices and local knowledge. The EIS shall provide the information required to understand or interpret collected data (methods, survey dates and times, weather conditions, location of sampling stations, etc.). The methods used should be sufficient for the purposes of identifying and assessing the environmental effects.

A description of the existing environment shall be developed for the Project and each alternative, drawing specific reference to the VECs. Detailed descriptions shall be developed for the following valued environmental components:

- Atmospheric environment;
- Aquatic environment;
- Terrestrial environment;
- Land and resource use;
- Heritage and cultural resources;
- Communities; and

- Economy, employment and business.

VECs for each environmental component shall be described.

#### 4.2.1 Atmospheric Environment

The EIS shall describe the relevant components of the atmospheric environment within the study area of the VECs, including, but not limited to, the following:

- a) Climate information, including monthly and annual minimum, maximum and mean values for precipitation, temperature and wind speed, prevailing wind direction, and storm events;
- b) Provincial climate change projections for Stephenville and coastal sea level rise projections for western Newfoundland;
- c) Indications of recent climate change observations and trends;
- d) Historical and current provincial GHG emissions including emissions specifically from the industrial sector;
- e) Ambient light, vibration and noise levels, including low frequency noise;
- f) Ambient air quality, including dust and particulate matter; and
- g) Existing weather radar monitoring in/near the study area of the Project.

#### 4.2.2 Aquatic Environment

The EIS shall describe the relevant components of the aquatic environment within the study area of the VECs, including, but not limited to, the following:

- a) Protected public water supply areas, protected wellhead areas, unprotected public drinking water source areas;
- b) Industrial water supply availability and use;
- c) Surface and groundwater resources and locations, including identification of those resources planned to supply the hydrogen and ammonia production facility;
- d) Surface-water flow, groundwater movement and aquifer recharge zones, and the delineation of drainage basins, including wetlands, at appropriate scales;
- e) Hydrologic and hydrogeological assessment of the proposed water-supply for the hydrogen and ammonia production facility, and all testing results for water quantity and quality, including metals;
- f) Commercial, recreational, and Indigenous fisheries, including marine aquaculture operations;
- g) Marine navigation (e.g. commercial and recreational boat traffic) and identification of the marine transportation route for incoming supplies associated with the Project, and outgoing hydrogen/ammonia products;

- h) Biosecurity at the port of Stephenville in relation aquatic invasive species and the movement of international vessels;
- i) Characterization of fish habitat and fish populations by species and life stage affected by the Project including a description of species of special concern, threatened and endangered 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);
- j) An assessment of the critical and sensitive habitats for spawning, nursing, rearing, feeding, and migration by fish species; and
- k) 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 Project area.

#### 4.2.3 Terrestrial Environment

The EIS shall describe the relevant components of wetlands and the terrestrial environment within the study area of the VECs, including, but not limited to, the following:

- a) Terrestrial flora and fauna, including ecological land classifications, and unique geology/geomorphology;
- b) Avifauna, including migratory birds protected by the **Migratory Birds Convention Act** (landbirds, shorebirds, seabirds and waterfowl); and
- c) Species at risk and of conservation concern and their habitats, including designated critical habitat under the **Endangered Species Act**, **Species at Risk Act**, and areas of conservation concern (e.g. environmentally sensitive areas, such as national, provincial, and regional parks and reserves, ecologically and biologically significant areas (EBSA); protected areas, conservation agreement lands and habitat enhancement projects).

#### 4.2.4 Land and Resource Use

The EIS shall describe relevant land and resource use within the study area of the VECs, including, but not limited to, the following:

- a) Existing electrical infrastructure, including the newly constructed HVdc facilities of the Labrador-Island Link and Maritime Link;
- b) Current and historic land use for mining, mineral exploration, and quarrying activities, including the presence of known mineral occurrences of potential economic significance;
- c) Existing land-based aquaculture facilities (including hatcheries);
- d) Domestic wood harvesting areas;
- e) Tourism operators, outfitter operators, cabins, multi-use trails, and recreational activities (e.g. trails,

- scenic lookouts, hiking, hunting, fishing, swimming, berry picking, etc.);
- f) Unique sites (e.g., scenic lookouts, geoparks, etc.);
- g) Landscapes and views, including extent of developed and undeveloped land;
- h) Land tenure, including but not limited to the following:
  - i. Crown lands;
  - ii. Private land ownership;
  - iii. Land tenure under the Petroleum and Natural Gas Act; Mineral Act and Quarry Materials Act; and
  - iv. Municipalities with municipal plan and development regulations.

#### 4.2.5 Heritage and Cultural Resources

The EIS shall describe relevant cultural and heritage resources in the study areas of the VECs, including, but not limited to, the following:

- a) Historic and archaeological resources;
- b) Paleontological resources;
- c) Architectural resources;
- d) Burial, cultural, spiritual and heritage sites; and
- e) Natural attractions and tourism generating resources.

#### 4.2.6 Communities

The EIS shall describe relevant community elements, in jurisdictions with and without municipal plans and development regulations, including municipalities, local service districts and unincorporated communities in the study area of the VECs, including the following:

- a) Population demographics and health status, including physical, mental, and social well-being;
- b) Family life, recreation, and culture;
- c) Education and training facilities and programs;
- d) Housing, accommodations, and property values;
- e) Fire and emergency services;
- f) Health care services including mental health and addiction services, social programs, and other community services;
- g) Active municipal, governmental or non-governmental working groups or committees; and
- h) Municipal infrastructure or services to be used by the Project and the capacity of the infrastructure and services to support the Project, including human resources, equipment and training.

#### 4.2.7 Economy, Employment and Business

The EIS shall describe relevant economy, employment and business elements in the study area of the VECs, including the following:

- a) Economy of the region;
- b) Value of existing industries, including tourism, cultural and recreational; mining, mineral and quarrying; commercial, recreational, and Indigenous fisheries, including marine aquaculture operation; and other major employers;
- c) Employment in the region;
- d) Availability of skilled and unskilled labour in the region and in the province;
- e) Business capacity relative to goods and services; and
- f) Employment equity and diversity including under-represented groups.

### 4.3 Baseline Studies

Baseline studies shall provide a description of existing conditions in biophysical and socio-economic environments that could be affected by the Project, both in the immediate vicinity and beyond. This shall include the components of the existing environment and environmental processes, their interrelations and interactions, as well as their variability over time scales appropriate to the effects analysis. The level of detail shall be sufficient to:

- identify and assess any adverse environmental effects that may be caused by the Project;
- identify and characterize the beneficial effects of the Project; and
- provide the data necessary to enable effective follow-up.

Where appropriate and possible to do so, the EIS shall present a time series of data and sufficient information to establish the averages, trends, and extremes of the data that are necessary for the evaluation of potential environmental effects. For key environmental and social components, the Proponent should consider how far back in time and how far into the future the study should be conducted. Rationale for the temporal boundaries chosen should be provided.

Baseline Studies shall be prepared for at least the following components:

- Atmospheric Environment - Air Quality, Noise, Vibration and Light;
- Aquatic Environment - Water Resources and Use, Wastewater Discharge, Fish- Fish Habitat- Fisheries;
- Terrestrial Environmental - Avifauna, Species at Risk and Relevant Habitat, and Areas of Conservation

- Concern; and
- Land and Resource Use - Traditional, Cultural, Recreational, and Industrial Land Use.

#### 4.3.1 Atmospheric Environment

Atmospheric environment is defined as air quality and the acoustic and visual environments (e.g., noise, vibrations, light) within the vicinity of the Project. The atmospheric environment has been selected for a baseline study to understand the effects of the Project on human health and safety, ecological health and aesthetics, and potentially sensitive human and wildlife receptors.

The baseline study of the atmospheric environment shall be focused on, at a minimum, the following components:

- a. air quality;
  - b. noise;
  - c. vibration; and
  - d. light.
- a) The EIS shall assess the ambient air quality conditions in the vicinity of each wind energy generation site and the hydrogen and ammonia production facility, including air emission sources and dust lift-off (e.g., diesel generators, heavy equipment, roads, laydown areas, etc.). The study shall compare the observed air quality to acceptable standards and shall consider the effects of air quality on nearby human and animal receptors, including habitat quality.
  - b) The effects of noise from the Project, whether strong blasts of short duration of low level, long-term noise, may have an adverse effect on the receiving environment, including human perception of quality of life and effects on migratory corridors and connectivity between seasonal habitats. The baseline study shall assess and report on ambient noise conditions at each of the wind energy generation sites and at the hydrogen and ammonia production facility, including baseline ambient noise surveys. Information on typical sound sources, decibel levels, geographic extent and temporal variations shall be included. The baseline study shall compare observed noise levels to acceptable standards.
  - c) Vibration from the operation of wind turbines may have an effect on the receiving environment, including human and animal receptors. The baseline study shall assess and report on ambient vibrations at each of the wind energy generation sites, and shall provide the distance of the nearest wind turbines to, at a minimum, the following features:
    - i. nearest temporary and permanent residential dwellings and commercial and industrial sites;

- ii. municipal boundaries, planning areas and infrastructure;
- iii. communities and jurisdictions without municipal plans and development regulations;
- iv. traditional, cultural and recreational sites;
- v. tourist establishments and attractions, outfitter camps and trails;
- vi. domestic wood cutting areas;
- vii. industrial, private and public water supplies;
- viii. existing electrical infrastructure; and
- ix. commercial fishing areas, navigation routes and aquaculture sites.

Information on typical vibration sources, geographic extent and temporal variations (i.e. seasonal, day or night, etc.) shall be included. The baseline study shall compare observed vibration levels to acceptable standards.

- d) Shadow flicker (daytime) and night flicker (nighttime) is the effect of the sun shining through the rotating blades of a wind turbine, the effect of rotating blades of a wind turbine blocking a light source at night (e.g. turbine navigation light or moon light) or the blinking of many navigation lights., casting a moving shadow or causing pulsing lighting. Bright lights and shadow flicker can affect humans and avian species, especially during periods of fog, drizzle, and haze. The baseline study shall describe ambient light conditions, including nighttime illumination levels during different weather conditions and seasons at each of the wind energy generation sites and at any other areas where Project activities could have an effect on light levels. The baseline ambient light conditions are needed to inform modelling of shadow flicker, to determine the potential impacts on residents and other sensitive receptors that might be affected.

#### 4.3.2 Aquatic Environment

The baseline study of the aquatic environment shall be focused on, at a minimum, the following components:

- a. Water Resources and Use in the Stephenville area;
  - b. Wastewater Discharge; and
  - c. Fish, Fish Habitat, and Fisheries.
- a) The Project is proposing to access an existing industrial water supply at the Port of Stephenville, for which the source is nearby Mine Pond, to supply its hydrogen and ammonia production facility. The baseline study will describe the relevant components of the water resources and wetlands within the study area of the hydrogen and ammonia generation facility, including the following:
    - i. Hydrological features such as watershed areas and the location of rivers and river inputs;
    - ii. Surface and ground water resources;



- iii. Surface-water flow, groundwater movement, base flow and aquifer recharge zones; iv Water quality;
- iv. Hydrologic/Hydrogeologic assessment of the water-supply, including all testing results for quantity and quality, including metals;
- v. Groundwater and surface water monitoring plan to ensure the long-term security of the water resources. Hydrogeological assessment and groundwater monitoring program will require the drilling of appropriate number of monitoring and production wells; and
- vi. Survey of existing public drinking water source areas that may be affected, including watershed or recharge areas and characteristics, land cover assessment, and a water quality assessment.

The information required by part (a) of the baseline study is needed to inform modeling to determine whether the planned water withdrawal from the industrial water supply can sustain the hydrogen and ammonia production facility for its projected lifetime, and the effects of the water withdrawal on water quality, water quantity and other users of the industrial supply.

- b) The Project is proposing to discharge wastewater from the hydrogen and ammonia production facility into the existing municipal wastewater infrastructure and the subsequent receiving environment. The baseline study shall characterize the wastewater and estimate the annual volume of effluent discharge, describe the capacity of the exiting municipal wastewater collection and treatment system intended for effluent discharge, and describe the receiving environment for wastewater discharged during hydrogen and ammonia production. This information is needed to:
  - i. assess the effects of wastewater discharge and any treatment needed to produce required water quality for hydrogen and ammonia production or other desired use, on the receiving environment; and
  - ii. assess the capacity of the municipal wastewater infrastructure to manage wastewater flow from the facility.
- c) The Fish, Fish Habitat and Fisheries component of this baseline study shall describe, at a minimum, the limnology, hydrology, freshwater and marine biota, fish species (i.e. freshwater and marine species including marine mammals), associated habitats and habitat distribution that have the potential to be affected by Project activities. Information may be based on available published data, community consultation, and results of on-site baseline surveys. Baseline surveys should be conducted in accordance with direction as provided by the Department of Fisheries and Oceans Canada and shall be designed to:
  - i. contribute to the development of mitigation measures to avoid non-compliance with the Fish

and Fish Habitat Protection Provisions of the Fisheries Act;

- ii. contribute to the development of a conceptual reclamation and closure plan; and
- iii. provide necessary baseline data to support on-going monitoring programs that assess the effectiveness of mitigation measures.

Furthermore, the Fish and Fish Habitat Baseline Study shall:

- iv. characterize fish, fish populations and habitat where Project activities have the potential to result in non-compliance with the Fish and Fish Habitat Protection Provisions of the Fisheries Act (i.e., Project footprint, upstream and downstream);
- v. classify and quantify fish habitat, as per the: Standards Methods Guide for the Classification/Quantification of Lacustrine Habitat in Newfoundland and Labrador; and Standards Methods Guide for the Classification and Quantification of Fish Habitat in Rivers of Newfoundland and Labrador for the Determination of Harmful Alteration, Disruption or Destruction of Fish Habitat (Draft).
- vi. enumerate stream discharge measurements and water quality parameters upstream and downstream of affected water bodies;
- vii. list any rare fish species that are known to be present; and
- viii. identify existing marine-based aquaculture facilities and operations and describe the scale of operations.

#### 4.3.3 Terrestrial Environment

The baseline study of the terrestrial environment shall be focused on, at a minimum, the following components:

- a. Avifauna, Species at Risk and Relevant Habitat; and
- b. Areas of Conservation Concern.

a) The Avifauna, Species at Risk and Relevant Habitat component of this baseline study shall address baseline data requirements to support the evaluation of environmental effects and/or to develop mitigation measures and follow up monitoring programs. The baseline study shall describe at least the following VECs:

- i. Avifauna, including migratory birds protected by the Migratory Birds Convention Act (MCBA) and their habitats, as follows:
- ii. Birds protected under the MBCA are specifically named at Environment Canada, Birds Protected in Canada under the Migratory Birds Convention Act <https://www.canada.ca/en/environment-climate-change/services/migratory-birds-legal-protection/convention-act.html>. Preliminary data from existing sources should be gathered on year-round migratory bird use of the area (e.g., winter, spring migration, breeding season, fall

migration). In addition to information obtained from the Atlantic Canada Conservation Data Centre (ACCDC) and naturalists, other relevant datasets should be consulted, such as those available from:

- Bird Studies Canada's "Nature Counts" web portal (<http://www.birdscanada.org/birdmon/default/datasets.jsp>);
  - the Quebec Breeding Bird Atlas 1984-89 (Les oiseaux nicheurs du Québec: atlas des oiseaux nicheurs du Québec méridional). More information is available at: <https://www.atlas-oiseaux.qc.ca/>; and
  - other data and projects, based on consultation with government and other agencies, and Indigenous groups.
- iii. Monitoring is to begin during the construction year (including radar and acoustic) and collected year-round under various types of weather conditions, for a minimum of 2 years, to assess impacts on migratory bird populations and determine the need for additional mitigation and/or inform future guidance.
- iv. Nightjar surveys should be conducted following the Canadian Nightjar Survey Protocols (2022).
- v. The EIS should specifically provide a summary of the baseline information gathered from other sources (such as those identified above), and reference to the sources used throughout the EIS.
- vi. Bats – a pre-construction bat-monitoring program is required and must include the active bat season (April 15 – October 31) to obtain complete information on spring migration, summer resident bat activity, and fall migration. Acoustic monitoring must cover a broad range of the entire study area to capture the spatial distribution of turbines and infrastructure and must incorporate varied suitable habitats for bats. Autonomous recording units must be programmed to record throughout each night, from 30 minutes before sunset until 30 minutes after sunrise. Acoustic monitoring should occur at or near hub height. Call files must be analyzed and manually vetted by a qualified bat biologist. Summarized data and raw call files must be included in the EIS, and consultation with the provincial Department of Fisheries, Forestry and Agriculture - Wildlife Division is encouraged for the development of the bat- monitoring program.
- vii. Plants: A comprehensive pre-construction survey for plants and lichens (including species listed under the Newfoundland and Labrador Endangered Species Act, the federal Species at Risk Act, and species of conservation concern) must be completed. A complete list of rare plants/lichens and plant/lichen species at risk in the Project area is to be provided using current S-ranks. A report and digital GPS plant and lichen locations as well as survey tracks must be submitted to the Department of Fisheries, Forestry and Agriculture - Wildlife Division for approval. Further surveys may be required based on the information provided. Transplantation or propagation from seed may not be an acceptable long-term solution for some of the local rare plants.

Department of Fisheries, Forestry and Agriculture – Wildlife Division requires trials to be conducted for some challenging species such as Mackenzie’s Sweetvetch to determine if it is possible to mitigate for this species if avoidance is not possible.

- viii. Moose: A pre-construction survey for moose must be conducted to evaluate anticipated impacts of the Project and to facilitate the development of potential mitigations. This information, including survey data, must be provided in the EIS. Further surveys may be required based on information provided. Survey protocols must be obtained from the Department of Fisheries, Forestry and Agriculture - Wildlife Division.
  - ix. Caribou: A pre-construction baseline survey for caribou must be conducted and a report must be included in the EIS. Further surveys may be required based on the information provided. Survey protocols must be obtained from the Department of Fisheries, Forestry and Agriculture - Wildlife Division.
  - x. Muskrat: A pre-construction baseline survey for muskrat must be conducted, and a report must be included in the EIS. Further surveys may be required based on the information provided. Survey protocols must be obtained from the Department of Fisheries, Forestry and Agriculture - Wildlife Division.
- b) Areas of Conservation Concern - this component of the baseline study shall identify, at a minimum, environmentally sensitive areas such as national, provincial, and regional parks and reserves; ecologically and biologically significant areas (EBSA); protected areas; conservation agreement lands; and habitat enhancement projects. The baseline study shall demonstrate the interaction of the Project boundaries with the environmentally sensitive areas.

#### 4.3.4 Land and Resource Use

The baseline study of land and resource use shall focus on, at a minimum, the following components:

- a) Traditional, Cultural and Recreational Land Use; and
  - b) Industrial Land Use.
- a) Land use may be positively or negatively affected by changes to the physical and socioeconomic environment. The Traditional, Cultural and Recreational Land Use component of this baseline study shall assess traditional, cultural and recreation land use in each of the sites proposed for wind energy generation. Consultation, including surveys and interviews, with the public, municipalities, local

service districts, community groups and organizations and known user groups will inform the baseline study of existing traditional, cultural and recreational land use. Specific land use activities, the frequency of those activities, and geographic areas of use shall be documented in the baseline study, and overlaps with the study area of the wind energy generation sites shall be mapped or otherwise illustrated. This information is needed to understand the importance of traditional, cultural and recreational land use to local residents and other users, and for the development of measures to mitigate the effects of the Project on those affected.

b) The proposed areas for wind energy generation overlap/lie in close proximity to existing industrial land use. This baseline study shall describe, at a minimum, the following industrial land use within or adjacent to the Project study areas, and the interaction of the Project with those industrial uses:

- i. Existing Electrical Grid;
- ii. Mining and Exploration Activity; and
- iii. Aquaculture.

- i. Existing Electrical Grid

The baseline study shall describe components of the province's existing electrical transmission infrastructure in the study area and shall include, but not be limited to, a discussion of the following:

- components of the province's existing electrical infrastructure in the study area;
- the Project design's technical features and specifications of all major equipment. This would serve to inform operational considerations with respect to interconnection to the province's electrical grid and the potential need for further development of existing facilities to integrate the Project;
- the geographical footprint and routing to assess proximity to existing infrastructure and any consequential risk of interference, including but not limited to the province's high voltage direct current (HVdc) infrastructure; and
- demonstration that access to the energy required from the electrical grid has been secured from NL hydro.

- ii. Mining and mineral exploration activity

The baseline study shall describe overlap of the study area with existing and planned mining, mineral exploration and quarrying activity. The baseline study shall describe, at a minimum:

- Current and historic land use for mineral exploration, mining and quarrying, including the presence of known mineral occurrences of potential economic significance; and

- Potential options for underground storage of carbon dioxide, hydrogen or other gases and the interaction of those sites with the current disposition of mineral rights.

This information shall be used to assess the effects of the Project on mining, mineral exploration and quarrying, and measures to mitigate the effects.

### iii. Aquaculture

The baseline study shall describe existing aquaculture activities and infrastructure and the overlap of the Project with the aquaculture industry, including but not limited to:

- Source water to supply the existing aquaculture hatchery, approximate water usage, and the impact of the existing water use on the Project;
- The location of aquaculture infrastructure on land and in the marine environment and any overlap with Project activities, including proximity of wind turbines from land and marine aquaculture sites; and
- The importance of biosecurity protocols in the marine environment to prevent the introduction of aquatic invasive species, and how the presence of such a species could adversely affect the aquaculture industry.

## **5.0 DATA GAPS**

The EIS shall explain any extrapolation, interpolation or other manipulation applied to the baseline data used to describe environmental conditions in the study area. Any information gaps from a lack of previous research or practice shall be described indicating information that is not available or existing data that cannot accurately represent environmental conditions in the study area over four seasons. If data gaps remain, the EIS shall describe its efforts to resolve the data gaps, including any direct consultation with governments, non-government organizations, the public and others

## **6.0 ENVIRONMENTAL EFFECTS**

### **6.1 Predicted Future Condition of the Environment if the Undertaking Does Not Proceed**

The EIS shall describe the predicted future condition of the environment within the expected life span of the Project, if the Project were not to proceed. The predicted future condition of the environment shall help to distinguish Project related effects from environmental change due to natural processes.

## 6.2 Predicted Environmental Effects of the Undertaking

The EIS shall contain a comprehensive analysis of the predicted environmental effects of each Project alternative for the VECs. If the effects are attributable to a particular phase of the Project (construction, operation, maintenance, modification, decommissioning, rehabilitation), or to a particular component, or to accidents or malfunctions, then they should be designated as such. Predicted environmental effects (positive and negative, direct and indirect, and short and long-term) shall be defined quantitatively and qualitatively for each Project alternative and for each VEC. Environmental-effects predictions shall be explicitly stated and the theory or rationale upon which they are based shall be presented in terms of the following parameters:

- nature;
- magnitude (qualitative and quantitative);
- geographic (spatial) extent;
- timing, duration and frequency;
- degree to which effects are reversible or can be mitigated;
- ecological context;
- level of knowledge;
- the capacity of renewable resources that are likely to be significantly affected by the Project, to meet the needs of present and future generations;
- the extent to which biological diversity is affected by the Project; and
- the extent of application of the precautionary principle to Project mitigation measures.

Predicted environmental effects of the Project shall include, but not be limited to a comprehensive analysis of the following:

- a. Effects of all phases of the Project on human health and quality of life, including but not limited to:
  - i. vibrations, noise emissions and noise levels, including sustained low frequency noise;
  - ii. light emissions and shadow flicker and nighttime flicker;
  - iii. dust and air emissions;
  - iv. ice throw from wind turbines;
  - v. weather radar;
  - vi. domestic wood cutting areas;
  - vii. traditional, cultural and recreational activities;
  - viii. developed areas; and
  - ix. viewsapes.
- b. The EIS shall assess the boomtown effects of the project on community health and services, including

but not limited to the following factors:

- i. food security;
  - ii. employment and employment equity and diversity including under-represented groups;
  - iii. business capacity relative to goods and services;
  - iv. housing, accommodations and property values;
  - v. health care and community services, including mental health and addiction services and social programs;
  - vi. fire and emergency services;
  - vii. education and training services and facilities;
  - viii. municipal infrastructure or services to be used by the Project and the capacity of the infrastructure and services to support the Project; and
  - ix. green spaces.
- c. Effects of the Project on surface water bodies, wetlands and groundwater aquifers, including but not limited to the following:
- i. changes in nearby surface and groundwater quality and quantity resulting from water withdrawals from the Project, including potential effects on industrial and other users of nearby surface water and groundwater aquifers;
  - ii. effects of water withdrawal for the hydrogen and ammonia production facility on surface- water flow, groundwater movement and aquifer recharge zones;
  - iii. effects of water withdrawal for the hydrogen and ammonia production facility on known contaminated sites;
  - iv. effects of wind turbines and associated infrastructure on water quality in protected public water supply areas, protected wellhead areas, unprotected public drinking water source areas, and private water sources;
  - v. effects of wastewater discharge from any treatment needed to produce required water quality for hydrogen/ammonia production or other desired use, on receiving environment;
  - vi. capacity of the receiving environment to manage wastewater discharge from the hydrogen/ammonia production facility;
  - vii. effects on existing and potential commercial, recreational, and Indigenous fisheries and aquaculture operations; and
  - viii. effects on marine navigation (e.g. commercial and recreational boat traffic) and biosecurity in the port.
- d. Effects of the Project on fish and fish habitat, including critical and sensitive habitat, shall be assessed for all phases of the Project. The EIS shall describe the potential adverse environmental effects of the



Project on fish habitat and fish populations by species including species of special concern, threatened and endangered species, and rare species associated with, but not limited to, the following:

- i. 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;
  - ii. the construction and operation of Project facilities or infrastructure including, but not limited to: primary and ancillary buildings and structures associated with the hydrogen/ammonia production facility and wind turbines; site preparation, blasting, access roads, transmission lines and substations; surface and groundwater management activities; water use / water withdrawal during operations; and turbidity, siltation and other contamination from surface runoff and slope movement; and
  - iii. in-water works during construction such as: fording; removal of aquatic and/or stream side vegetation; installation of culvert, bridges and water crossings; infilling; dewatering; and changes to natural flow regime.
- e. Effects of the Project on flora and fauna (including bats, migratory birds, birds protected by the MCBA, moose, caribou, muskrat, species at risk and of conservation concern including Limestone barrens), and their habitat (including critical, sensitive and rare habitat), associated with, but not limited to, the following:
  - i. direct and indirect effects of Project construction, operation, decommissioning and rehabilitation;
  - ii. interactions with wind turbines, including estimated mortality rates;
  - iii. emissions, discharges and releases of substances;
  - iv. land disturbance that has the ability to act as temporary habitat for species at risk and species of conservation concern; and
  - v. noise, vibrations and light, and in particular effects on feeding, breeding, movement and migratory patterns.
- f. Effects of the Project on land use and tenure, including but not limited to:
  - i. Mining, mineral exploration, and quarrying activities, and land accessibility for future mining, mineral exploration, and quarrying activities, including the accessibility of land for future exploration of limestone and dolomite resources of the St. George Group;
  - ii. Existing land tenure under the Petroleum and Natural Gas Act, Mineral Act, and Quarry Materials Act, including restrictions for Project development associated with existing land tenure;
  - iii. Effects of potential options for above ground or underground storage of carbon dioxide, hydrogen and/or ammonia and the interaction of those sites with the current disposition of

- mineral rights and exploration efforts;
  - iv. Potential effects of existing mining operations on the Project, specifically but not limited to, the effects of blasting from mining operations.
  - v. Existing land tenure, including Crown land tenure and private land ownership and restrictions for Project development associated with existing land tenure;
  - vi. Municipal zoning, permitted/discretionary use in designated zones, and permissibility of Project features that overlap municipal zones;
  - vii. Tourism establishments and operations; and
  - viii. Potential effects of vibrations from wind turbines on existing land and marine-based aquaculture facilities and operations.
- g. Effects of the Project on existing electrical infrastructure and the potential implications for the overall provincial and regionally interconnected transmission system, including but not limited to the following:
- i. effects on cost and access to electricity and other goods and services for provincial residents;
  - ii. details regarding the geographical footprint and routing to assess proximity to existing infrastructure and any consequential risk of interference, including but not limited to the province's high voltage direct current HVdc infrastructure;
  - iii. system impact studies to determine the reliability and operating effects of the Project on the existing electrical system, particularly the newly constructed HVdc facilities of the Labrador-Island Link and Maritime Link;
  - iv. details on when the Project would require access to transmission resources, including any curtailment considerations and the effect on other customers, both during the period before the wind farm is operational and over the longer term; and
  - v. details on when the intermittent renewable energy resource will be available for supply to the energy grid when not used for production of hydrogen.
- h. The effects of the Project on GHG emissions shall be analyzed in this section of the EIS. The federal and provincial governments have each committed to reductions in GHG emissions by 2030 (i.e., a federal reduction target of 40-45 percent below 2005, and a provincial reduction target of 30 percent below 2005 levels) and to net zero GHG emissions by 2050. A GHG analysis is required because total annual direct Project emissions (i.e., emissions before sequestration activities) will result in an increase in provincial GHG emissions totals. GHG emissions, both within and outside the Project boundary, will be subject to carbon pricing regulations. Further information on emission levels, performance, and reporting requirement can be found in the **Management of Greenhouse Gas Act (MGGA)** and its regulations. If the facility emits at least 15,000 tonnes of GHG emissions per year within the Project boundary, it will be regulated under section 4 of the MGGA and may be regulated under either section 5 or 5.1 of the

MGGA and the Management of Greenhouse Gas Regulations. Further, if the facility has the potential to emit 15,000 tonnes of GHG emissions per year, it will be subject to best available control technology (BACT) requirements for activities inside the Project's boundary as outlined in section

12.1 of the Regulations. With respect to section 12.1, the EIS should include a BACT study/analysis where the EIS demonstrates the Project will employ best available control technology. A range of machinery and equipment options should be proposed that are technically and economically feasible and reduce or minimize GHG emissions within the context of other regulatory requirements such as air pollutant, occupational health and safety, and fire and life safety regulations, and identify the recommended approach. The BACT study should focus on direct GHG emissions (i.e., before sequestration) as well as net GHG emissions (i.e., including sequestered carbon dioxide). Either as part of the BACT analysis or separately, the EIS shall include a plan by which net zero GHG emissions may be realized or maximum GHG reductions will be otherwise realized by 2050.

The EIS shall provide details on projected annual production by type, annual energy consumption by type during construction, operating and decommissioning phases (i.e., on-site stationary combustion, on-site electricity generation and mobile transportation but excluding purchased electricity generated off-site), and associated annual GHG emissions by source during construction, operating and decommissioning phases. The EIS shall further identify any non-combusted and industrial process emissions at the site. Additionally, the EIS shall identify, by year or appropriate multi-year period, the volume of carbon dioxide emissions that may be emitted and sequestered on-site, be emitted and exported to a separate site for sequestration, and may be purchased off-site and sequestered on-site.

The above information will determine whether the facility will be regulated under the MGGA (sections 4 and 5 ) and its regulations, and specifically whether it will be subject to BACT requirements of the Management of Greenhouse Gas Regulations (section 12.1). If GHG emissions within the Project boundary are not regulated under a performance standard pursuant to the MGGA (section 5 ), GHG emissions from fuel combustion will be subject to applicable carbon tax provisions.

The EIS shall include a long-term capital plan through which the Proponent demonstrates how the facility will reduce its emissions over time with the objective of achieving net zero by 2050 or otherwise maximizing annual GHG reductions between start-up and 2050.

The effects of the Project on provincial GHG emissions levels must be assessed for all phases of the Project and mitigation measures proposed to minimize GHG emissions during the operations phase of the Project. This assessment must account for loss of carbon sinks due to land clearing (e.g., deforestation).

Annual estimates of production, energy consumption by type and associated combusted and non-combusted GHG emissions by source, and carbon dioxide sequestered for all phases of the Project should be provided as described in the Management of Greenhouse Gas Reporting Regulations and, as appropriate, the Western Climate Initiative reporting methodology (2010) and A Guidance Document for Reporting Greenhouse Gas Emissions for Large Industry in Newfoundland and Labrador (2017). GHG emissions for activities outside the Project boundary should be reported separately from GHG emissions inside the Project's boundary. GHG emissions should be measured as tonnes of carbon dioxide equivalent per year as per section 4 and Schedule C of the Management of Greenhouse Gas Reporting Regulations.

### **6.3 Accidents and Malfunctions**

The EIS will identify and describe the potential accidents and malfunctions related to the Project, including an explanation of how those events were identified, potential consequences (including the potential environmental effects), the worst case scenarios as well as emergency scenarios that can reasonably be expected to occur, and the effects of these scenarios. The EIS will explain the potential quantity, mechanism, rate, form, and characteristics of the materials likely to be released into the environment during the malfunction and accident events. Potential accidents and malfunctions may include, but not be limited to the following occurrences:

- a) accidental spills and/or releases of hydrogen, ammonia, chemicals, pesticides or any potentially hazardous substance on land or in air or water;
- b) fire and explosions;
- c) traffic accidents;
- d) dislodging of a wind tower or turbine blade;
- e) failure of industrial water supply;
- f) energy generation/transmission failure; and
- g) wildlife emergencies/incidents (e.g. bird mortality events of 10 or more birds in a single event, or an individual species at risk during a single event due to collisions with wind energy infrastructure).

The EIS shall assess the likelihood of occurrence and consequence severity of the accidents and malfunctions.

### **6.4 Cumulative Environmental Effects**

The EIS shall identify and assess the Project's cumulative environmental effects. Cumulative effects are defined as changes to the environment and resident species in the area due to the Project and combined with the effects of past, present, and planned projects and/or activities. The EIS shall consider the cumulative environmental

effects for the life of the Project where those overlap with those of other projects and activities within or near the study area. Boundaries for assessing the cumulative effects of the Project in combination with other projects and activities that have been or will be carried out will generally be different from (larger than) the boundaries for assessing the effects of the Project, and shall:

- a) identify and justify the environmental components that will constitute the focus of the cumulative effects assessment, including but not limited to, mining operations and supporting infrastructure, water resources, marinas, quarries, permanent and temporary dwellings, existing contaminated sites, outfitters and trails, (e.g. International Appalachian Trail NL and Outer Bay of Islands Enhancement Committee trails),. The Proponent's assessment should emphasize the cumulative effects on the main VECs that could potentially be most affected by the Project;
- b) present a justification for the geographic and temporal boundaries of the cumulative effects assessment;
- c) describe and justify the choice of projects and selected activities for the cumulative effects assessment, including blasting activities during construction and maintenance of the Project; and
- d) describe the mitigation measures and determine the significance of the residual cumulative effects.

## **6.5 Effects of the Environment on the Project**

Environmental changes and hazards that may occur and may affect the Project shall be described (e.g. wind, ocean currents, waves, storm surges and destruction, algal blooms, severe precipitation events, flooding, ice, etc.). The EIS shall take into account the potential influence of climate change scenarios (e.g. sea level rise, increased severity and frequency of storms and flooding, changes to precipitation quantity and recharge rates), as well as local knowledge. The influence that these environmental changes and hazards may have on the Project, including the effects of ice build-up and release from turbine blades, shall be predicted and described. The environmental effects that may occur as a result of the environment acting on the Project shall be assessed.

Provincial climate change projections for Stephenville and coastal sea level rise projections for western Newfoundland should be considered in the planning for this Project.

## **7.0 Environmental Protection – Mitigations and Plans**

### **7.1 Mitigations**

The EIS shall identify and discuss proposed measures that will be implemented to mitigate the significant adverse effects and enhance beneficial effects of the Project. The rationale for and effectiveness of the proposed mitigation and enhancement measures should be discussed and evaluated. The EIS, where possible, should refer to similar situations where the proposed mitigation has proven to be successful. Mitigation failure should be discussed with

respect to risk and severity of consequence.

The EIS shall identify who is responsible for implementing the mitigation measures and the system of accountability, including the obligations of contractors and subcontractors.

Mitigation measures shall be described for the effects identified in section 6.2 of the EIS during construction, operation, maintenance, modification, and decommissioning activities.

Other mitigation measures that were considered may be identified, and the rationale for rejecting these measures explained. The implementation of best available technology and best management practices shall be described. Avoidance of environmental effects through implementation of scheduling and siting constraints and pollution prevention opportunities shall be considered. Trade-offs between costs and predicted effectiveness of the mitigation measures shall be justified.

- a) Measures to mitigate adverse effects of the Project on human health and quality of life, including but not limited to the following:
  - i. vibrations, noise emissions and noise levels, including sustained low level noise;
  - ii. light emissions, shadow flicker and nighttime flicker;
  - iii. dust and air emissions;
  - iv. ice throw from wind turbines;
  - v. weather radar;
  - vi. domestic wood cutting areas;
  - vii. traditional, cultural and recreational activities including recreational and Indigenous fisheries;
  - viii. developed areas; and
  - ix. viewscales.
- b) Measures to mitigate adverse effects of the Project on community health and quality of life and services including but not limited to the following:
  - i. food security;
  - ii. employment and employment equity and diversity including under-represented groups;
  - iii. business capacity relative to goods and services;
  - iv. housing, accommodations and property values;
  - v. health care and community services, including mental health and addiction services and social programs;
  - vi. fire and emergency services;
  - vii. education and training services and facilities;

- viii. municipal infrastructure and/or services to be used by the Project and the capacity of the infrastructure and services to support the Project; and
- ix. green spaces.

- c) The EIS shall describe measures that will be undertaken to mitigate the effects of Project operations on water quantity and quality of surface water bodies, groundwater aquifers and wetlands in and adjacent to the Project area, including but not limited to the following:
  - i. changes in nearby surface and groundwater quality and quantity resulting from water withdrawals from the Project, including potential effects on industrial and other users of nearby surface water and groundwater aquifers;
  - ii. effects of water withdrawal for the hydrogen and ammonia production facility on surface- water flow, groundwater movement and aquifer recharge zones;
  - iii. effects of water withdrawal for the hydrogen and ammonia production facility on known contaminated sites;
  - iv. effects of wind turbines and associated infrastructure on water quality in protected public water supply areas, protected wellhead areas, unprotected public drinking water source areas, and private water sources;
  - v. effects of wastewater discharge from any treatment needed to produce required water quality for hydrogen/ammonia production or other desired use, on receiving environment;
  - vi. capacity of receiving environment to manage wastewater discharge from the hydrogen/ammonia production facility;
  - vii. effects on existing and potential commercial, recreational, and Indigenous fisheries and aquaculture operations;
  - viii. effects on marine navigation (e.g. commercial and recreational boat traffic) and biosecurity in the port; and
- d) The EIS shall describe measures to mitigate the adverse environmental effects of all phases of the Project on fish habitat and fish populations by species, including species of special concern, threatened and endangered species, and rare species associated with, but not limited to, the following:
  - i. 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;
  - ii. the construction and operation of Project facilities and infrastructure including, but not limited to: primary and ancillary buildings and structures associated with the hydrogen/ammonia production facility and wind turbines; site preparation, blasting, access roads, transmission lines and substations; surface and groundwater management activities; water use / water withdrawal during operations; and turbidity, siltation and other contamination from surface

- runoff and slope movement,;
  - iii. in-water works during construction such as: fording; removal of aquatic and/or stream side vegetation; installation of culvert, bridges and water crossings; infilling; dewatering; and changes to natural flow regime;
  - iv. measures to mitigate flow changes resulting from dewatering activities, ground water management, waste management, and upstream and downstream diversions;
  - v. measures to mitigate flow changes resulting from dewatering activities, ground water management, waste management, and upstream and downstream diversions;
  - vi. surrounding aquatic environment including aquaculture sites, and the coastal environment in general in which loading and transportation from hydrogen/ammonia products take place;
  - vii. measures to avoid possible death of fish and/or harmful alteration, disruption or destruction of fish habitat; and
  - viii. measures to manage marine vessels associated with the Project to prevent the introduction and transfer of pathogens or aquatic invasive species to marine aquaculture operations and the surrounding aquatic environment.
- e) The EIS shall describe measures that will be undertaken to mitigate the effects of all phases of the Project on flora and fauna (including bats, migratory birds, birds protected by the MCBA, moose, caribou, muskrat, species at risk and of conservation concern), and their habitat (including critical and sensitive habitat), associated with, but not limited to, the following:
- i. direct and indirect effects of Project construction, operation, decommissioning and rehabilitation;
  - ii. interactions with wind turbines, including estimated mortality rates;
  - iii. emissions, discharges and releases of substances;
  - iv. land disturbance that has the ability to act as temporary habitat for species at risk and species of conservation concern;
  - v. direct and indirect effects on individuals and habitat quality due to accidents and malfunctions during all project phases; and
  - vi. noise, vibrations and light, and in particular effects on feeding, breeding, movement and migratory patterns.
- f) Measures that will be undertaken to mitigate potential land use and tenure conflicts, including but not limited to:
- i. Mining, mineral exploration, and quarrying activities, and land accessibility for future mining, mineral exploration, and quarrying activities, including the accessibility of land for future exploration of limestone and dolomite resources of the St. George Group;



- ii. Existing land tenure under the Petroleum and Natural Gas Act, Mineral Act, and Quarry Materials Act, including restrictions for Project development associated with existing land tenure;
  - iii. Effects of potential options for above ground and/or underground storage of carbon dioxide, hydrogen and/or ammonia and the interaction of those sites with the current disposition of mineral rights and exploration efforts;
  - iv. Potential effects of existing mining operations on the Project, specifically but not limited to, the effects of blasting from mining operations;
  - v. Existing land tenure, including Crown land tenure and private land ownership and restrictions for Project development associated with existing land tenure;
  - vi. Municipal zoning, permitted/discretionary use in designated zones, and permissibility of Project features that overlap municipal zones; and
  - vii. Tourism establishments and operations.
- g) Measures that will be undertaken to mitigate the effects of the Project on existing electrical infrastructure and the potential implications for the overall provincial and regionally interconnected transmission system, including but not limited to the following:
- i. effects on cost and access to electricity and other goods and services for provincial residents;
  - ii. details regarding the geographical footprint and routing to assess proximity to existing infrastructure and any consequential risk of interference, including but not limited to the province's high voltage direct current HVdc infrastructure;
  - iii. system impact studies to determine the reliability and operating effects of the Project on the existing electrical system, particularly the newly constructed HVdc facilities of the Labrador-Island Link and Maritime Link;
  - iv. details on when the Project would require access to transmission resources, including any curtailment considerations and the effect on other customers, both during the period before the wind farm is operational and over the longer term; and
  - v. details on when the intermittent renewable energy resource will be available for supply to the energy grid when not used for production of hydrogen.
- h) The EIS shall include an analysis of best available control technologies (BACT) as it relates to GHG emissions. A range of machinery and equipment options should be proposed that are technically and economically feasible and reduce or minimize GHG emissions within the context of other regulatory requirements such as air pollutant, occupational health and safety, and fire and life safety regulations, and identify the recommended approach. Either as part of the BACT analysis or separately, the EIS shall include a plan by which net zero GHG emissions may be realized or maximum GHG reductions will be

otherwise realized by 2050.

## 7.2 Plans

The EIS shall include plans, either in section 7.2 or as appendices to the EIS that describe procedures, equipment and responsibilities that are in place to ensure an efficient and effective response to aspects of the Project that could adversely affect the receiving environment, including but not limited to the following plans:

- Emergency Response/Contingency Plan,
- Waste Management Plan,
- Hazardous Materials Response and Training Plan,
- Transportation Impact Study and Traffic Management Plan,
- Public Participation Plan,
- Workforce and Employment Plan,
- Domestic Wood Cutting Consultation Plan, and
- Environmental Effects Monitoring Programs (EEMPs):
  - Species at Risk Impacts Mitigation and Monitoring Program,
  - Groundwater and Surface Water Monitoring Program,
  - Avifauna Impacts Mitigation and Monitoring Program, and
  - Outfitter Effects Monitoring Program.

### 7.2.1 Emergency Response/Contingency Plan

The EIS shall include an Emergency Response/Contingency Plan outlining procedures to respond to accidents, malfunctions and emergencies, including but not limited to the following:

- a) accidental spills and/or releases of hydrogen, ammonia, chemicals, pesticides or any potentially hazardous substance on land or in air or water;
- b) fire and explosion (e.g. hydrogen);
- c) traffic accidents;
- d) dislodging of a wind tower or turbine blade;
- e) hurricanes and other natural disasters;
- f) occupational hazards and human injuries;
- g) failure of industrial water supply;
- h) energy generation/transmission failure including the buried portion of the transmission line;
- i) flaring and/or venting of hydrogen, ammonia or other gases in the event of a malfunction; and
- j) wildlife emergencies/incidents (e.g. bird mortality events of 10 or more birds in a single event, or an individual species at risk during a single event due to collisions with wind energy infrastructure).

The Emergency Response/ Contingency Plan shall establish an emergency communication strategy with those potentially affected, and must describe the capacity of the proponent/nearby communities to respond each type of accident, malfunction or emergency, including the availability required response equipment and training. The plan may be included as an appendix to the Registration document.

#### 7.2.2 Waste Management Plan

The EIS shall include a Waste Management that shall describe all liquid and solid waste expected to be generated during construction, operation and maintenance, decommissioning, and rehabilitation for all components of the Project, and methods to reduce, reuse, recycle, recover, and/ or manage residual wastes through disposal.

#### 7.2.3 Hazardous Materials Response and Training Plan

The EIS shall include a Hazardous Materials Response and Training Plan that describes how fire fighters and first responders in local areas and along transportation routes will be trained to the appropriate National Fire Protection Association (NFPA) Codes and Standards (e.g. NFPA 1072 Hazardous Materials Technician) and any other related codes necessary to execute a Hazardous Materials Response. Vehicles and hazardous materials equipment needed to execute an effective Hazardous Materials Response shall be identified in the plan. In accordance with the requirements of the **Fire Protection Services Act**, training shall meet the approval of the Fire Commissioner. Review by the Fire Services Division of curriculum being offered and developed would be applicable.

#### 7.2.4 Transportation Impact Study and Traffic Management Plan

The EIS shall include a Transportation Impact Study and Traffic Management Plan that shall assess and report on the potential effects of transporting oversized and overweight Project materials and equipment over existing roadways, during construction, operation, maintenance, modification, decommissioning and rehabilitation phases of the Project, that includes but is not limited to the following information:

- a) a study of the existing road infrastructure and capacity of the existing roads, bridges, culverts, sign structures, traffic and utility poles to accommodate transportation of oversized and overweight loads during the lifetime of the Project;
- b) frequency of travel over proposed routes;
- c) the estimated increased deterioration to the existing road infrastructure (e.g. road surface, roadbed, bridges, culverts, etc.) as a result of transportation of oversized and overweight loads associated with the Project, and the estimated increased maintenance requirements for roads, culverts and bridges due to the

proposed work;

- d) acknowledgement that measures that will be implemented to mitigate any deficiencies in the roads, bridges or infrastructure, including providing alternative access, acknowledging that any engineering design or investigation costs will be at the Proponent's expense;
- e) traffic management plans for vehicular traffic during transportation of oversized and overweight loads, including municipal requirements and traffic management plans for the transport of oversized and overweight loads through municipal roadways;
- f) identification of provincial access and right of way permit requirements as expected over the life of the Project; and
- g) municipal requirements regarding traffic management plans for the municipal road infrastructure.

#### 7.2.5 Public Participation Plan

The EIS shall include a Public Participation Plan that describes how the public can meaningfully participate in the planning of all phases of Project (construction, operation, maintenance, modification, decommissioning and rehabilitation) and how they will continue to be consulted throughout the life of the Project, including in the monitoring of environmental effects.

#### 7.2.6 Workforce and Employment Plan

The EIS shall include a Workforce and Employment Plan for the construction, operation and maintenance, decommissioning and rehabilitation phases of the Project, which shall be developed in consultation with the Department of Immigration, Population Growth and Skills, and with the Office of Women and Gender Equality. The employment plan shall include, but shall not be limited to the following information for each phase of the Project:

- a) National Occupation Classification codes (NOC 2016 or most recent available) at the 4-digit level associated with each position (including the number of positions associated with each NOC code).
- b) The approximate time lines for each of the positions. This would include the number of positions for each 4-digit NOC 2016 code (or most recent available) throughout the Project at specified time intervals (monthly or at least quarterly) which would show levels of employment throughout the Project timeline;
- c) An indication of whether the positions are full-time equivalent or if they are the actual number of positions; if they are indeed the actual number of positions, how many are full time vs. part-time;
- d) An estimate of the number of apprentices (by level and trade/4-digit NOC 2016 code, or most recent available) and journeypersons required;
- e) Qualifications, certifications and other requirements, including the need for, location and availability of related training opportunities (e.g., post-journeyperson training) associated with key positions;

- f) The anticipated source of the workforce, including an estimate of local employment (local area, provincial), an estimate of immigrant employment, and any strategies for recruitment. This should also include clarification on which positions would be direct hires, and which would be from companies contracted to carry out Project work;
- g) A commitment to provide quarterly summary reports. These reports would include information on the number employed by 4-digit NOC 2016 (or most recent available), the number of full-time/part-time employees, the number of apprentices (by level) and journeypersons for each applicable 4-digit NOC code, gender and source of the workforce; and
- h) A commitment to develop a Benefits Agreement that meets the approval of the Minister of Industry, Energy and Technology, and includes a Gender Equity, Diversity and Inclusion Plan that meets the requirements of the Minister responsible for Women and Gender Equality.

#### 7.2.7 Domestic Wood Cutting Consultation Plan

The EIS shall include a Domestic Wood Cutting Consultation Plan with domestic users on the Port au Port Peninsula to identify and address any concerns with the Project and develop appropriate mitigations, in consultation with the Department of Fisheries, Forestry and Agriculture.

#### 7.2.8 Environmental Effects Monitoring Programs (EEMPs)

The EIS shall describe the environmental and socio-economic monitoring and follow-up programs to be incorporated into construction, operation and maintenance, decommissioning and rehabilitation activities. The purpose of the follow-up and monitoring program is to verify the accuracy of the predictions made in the assessment of the effects as well as the effectiveness of the mitigation measures. The duration of the follow-up and monitoring shall be as long as is needed to evaluate the effectiveness of the mitigation measures. If the EEMP identifies unforeseen adverse environmental effects, the EIS shall commit to adjusting existing mitigation measures, or, if necessary, develop new mitigation measures. The proposed approach for follow up and monitoring shall be described and shall include:

- a) the objectives of the follow up and monitoring program and a schedule for collection of the data required to meet these objectives;
- b) the sampling design, methodology, selection of the subjects and indicators to be monitored, (e.g., climate, water quality, water quantity) and their selection criteria;
- c) the frequency, duration and geographic extent of monitoring, and justification for the extent;
- d) reporting and response mechanisms, including criteria for initiating a response and procedures;
- e) the approaches and methods for monitoring the cumulative effects of the Project with existing and future developments in the Project area;

- f) procedures to assess the effectiveness of follow-up and monitoring programs, mitigation measures and recovery programs for areas disturbed by the Project; and
- g) a communications plan to describe the results of follow up and monitoring to interested parties.

The EEMPs must include the following:

#### 7.2.8.1 Species at Risk Impacts Mitigation and Monitoring Plan

A Species at Risk Impacts Mitigation and Monitoring Plan (SAR IMMP) must be developed in consultation with the Department of Fisheries, Forestry and Agriculture (FFA) for all potentially impacted species listed under the provincial Endangered Species Act or the federal Species at Risk Act and included in the EIS. The SAR IMMP must include mitigation, monitoring, and adaptive management frameworks for all possible impacts of species at risk including, but not limited to, plants, bats and provincially managed at risk avian species such as raptors. Provincially managed avian species may be addressed under the Avifauna Impacts Mitigation and Monitoring Plan (see section 7.8), but should be referenced in the SAR IMMP. Plant species identified as rare, but not listed under the Endangered Species Act should also be considered for inclusion.

#### 7.2.8.2 Groundwater and Surface Water Monitoring Program

A groundwater and surface water monitoring plan must be described that ensures the long- term security of the groundwater resources, and must include a groundwater monitoring program that will require the drilling of an appropriate number of monitoring and production wells.

#### 7.2.8.3 Avifauna Impacts Mitigation and Monitoring Plan

An Avifauna Impacts Mitigation and Monitoring Plan (including Migratory Birds and Species at Risk) should be developed in consultation with Department of Fisheries, Forestry and Agriculture (FFA) and Environment and Climate Change Canada's Canadian Wildlife Service (ECCC-CWS) and included in the EIS. The plan should include mitigation measures, monitoring, and adaptive management frameworks for minimizing impacts of the Project on Avifauna. ECCC-CWS' "Wind Turbines and Birds: A Guidance Document for Environmental Assessment" (Environment Canada 2007a), "Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds"(Environment Canada 2007b) and "Environment and Climate Change Canada's Canadian Wildlife Service (Atlantic Region) - Wind Energy & Birds Environmental Assessment Guidance Update" (Environment Canada, April 2022), should be referenced in the development of environmental effects monitoring and post-construction monitoring plan(s).

#### 7.2.8.4 Outfitter Environmental Effects Monitoring Plan: (OEEMP)

The EIS shall describe engagement by the Proponent with the Newfoundland and Labrador Outfitters Association (NLOA), concerns expressed by the NLOA and how those concerns are being addressed. The OEEMP shall include a description of the potential environmental effects of the Project on outfitters, measures to mitigate those effects and monitoring plans for the life of the Project.

The EIS shall prepare and submit the EEMPs subsequent to the completion of the EIS, but before the initiation of Project construction.

### **8.0 RESIDUAL EFFECTS AND DETERMINATION OF SIGNIFICANCE**

Residual effects are those adverse environmental effects which cannot be avoided or mitigated through, or that remain after, the application of environmental control technologies and best management practices. The EIS shall list and contain a detailed discussion and evaluation of residual effects, which shall be defined in terms of the parameters outlined in section 6.2.

The EIS shall contain a concise statement and rationale for the overall conclusion relating to the significance of the residual adverse environmental effects. The EIS will, for ease of review, include a matrix of the environmental effects, proposed mitigation, and residual adverse effects.

### **9.0 ASSESSMENT SUMMARY AND CONCLUSIONS**

The EIS shall summarize the overall findings of the environmental assessment, with emphasis on the key environmental issues identified.

### **10.0 PUBLIC CONSULTATION**

Under Section 58 of the **Environmental Protection Act**, during the preparation of an environmental impact statement, the proponent shall provide an opportunity for interested members of the public to meet with the proponent at a place adjacent to or in the geographical area of the undertaking, or as the minister may determine, in order to

- (a) provide information concerning the undertaking to the people whose environment may be affected by the undertaking; and
- (b) record and respond to the concerns of the local community regarding the environmental effects of the undertaking.

Under Section 10 of the Environmental Assessment Regulations, the Proponent shall notify the minister and the public of a meeting scheduled with the public under section 58 of the **Act** not fewer than 7 days before that scheduled meeting.

These concerns shall be presented and addressed in a separate chapter of the EIS document. Protocol for the public meeting shall comply with the legislation and with divisional policy included in Appendix B.

## **11.0 ENVIRONMENTAL PROTECTION PLAN (EPP)**

The Proponent shall prepare an EPP for each construction site for approval by the Minister of Environment and Climate Change before starting construction. The EPP shall be a stand-alone document that assigns responsibility to the site foreperson, the Proponent's occupational health and safety staff, the Proponent's environmental staff and any government environmental surveillance staff. The EPP shall address construction, operation and maintenance activities throughout the lifetime of the Project. A proposed Table of Contents and an annotated outline for the EPPs is to be presented in the EIS, which shall address the major construction, operational and maintenance activities, permit requirements, mitigation measures and contingency planning as follows:

- a) Proponent's environmental policies and provincial and federal environmental legislation and policies;
- b) environmental compliance monitoring;
- c) environmental protection measures;
- d) mitigation measures;
- e) permit application and approval planning;
- f) contingency planning for accidental and unplanned events;
- g) statutory requirements; and
- h) revision procedures and contact lists.

The Proponent shall prepare and submit the EPP subsequent to the completion of the EIS, and prior to the initiation of Project construction.

## **12.0 REFERENCES**

The Proponent shall prepare a complete and detailed bibliography of studies used to prepare the EIS. Supporting documentation shall be referenced in the EIS and submitted in separate volumes or attached as an Appendix to the EIS.



### **13.0 PERSONNEL**

The names and qualifications of key professionals responsible for preparing the EIS and supporting documentation shall be included. A description of the qualifications of scientists conducting surveys and scientific studies associated with the undertaking shall be provided.

### **14.0 COMMITMENTS MADE IN THE EIS**

The EIS is a statement of the Proponent's environmental conclusions and commitments related to the Project, and must be explicitly endorsed by the Proponent. The EIS shall provide a list of all commitments made regarding environmental effects mitigation, monitoring and follow-up. Each commitment must be cross-referenced to the section of the EIS where it has been made.

### **15.0 COPIES OF REPORTS**

The EIS should be prepared according with these guidelines and, once completed, the Proponent shall submit printed and electronic copies of the EIS to the Department of Environment and Climate Change as specified below:

- 3 electronic copies (USB drives)
- 1 paper copies

The Minister reserves the right to request additional digital and paper copies, if required.

Stand-alone studies associated with the EIS, including baseline studies and all plans required in section 7 of the EIs guidelines (above) shall be included in the body of the EIS or as appendices.

The Proponent shall make printed copies of the EIS available at public libraries or viewing centers in the Project vicinity, to be designated by the Department of Environment and Climate Change.

## **APPENDIX A**

### **Environmental Protection Act, 2002**

#### **Section 57 - Environmental Impact Statement**

- 57.** An environmental impact statement shall be prepared in accordance with the guidelines, and shall include,
- a) a description of the undertaking;
  - b) the rationale for the undertaking;
  - c) the alternative methods of carrying out the undertaking and alternatives to the undertaking;
  - d) a description of the
    - i. present environment that will be affected or that might reasonably be expected to be affected, directly or indirectly, by the undertaking, and
    - ii. predicted future condition of the environment that might reasonably be expected to occur within the expected life span of the undertaking, if the undertaking was not approved;
  - e) a description of the
    - i. effects that would be caused, or that might reasonably be expected to be caused, to the environment by the undertaking with respect to the descriptions provided under paragraph (d), and
    - ii. actions necessary, or that may reasonably be expected to be necessary, to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment by the undertaking;
  - f) an evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking;
  - g) a proposed set of control or remedial measures designed to minimize any or all significant harmful effects identified under paragraph (e);
  - h) a proposed program of study designed to monitor all substances and harmful effects that would be produced by the undertaking; and
  - i) a proposed program of public information.

## APPENDIX B

### Department of Environment and Climate Change

#### REQUIREMENTS FOR PUBLIC MEETINGS/INFORMATION SESSIONS

---

**Purpose:** To clarify for proponents and the public, the format, scheduling, number, notification requirements, etc. for public consultations in relation to undertakings required under the *Environmental Protection Act, SNL 2002 cE-14.2*, (Section 58) to prepare an Environmental Impact Statement (EIS).

1. The proponent is required to conduct public meeting(s) (information sessions) under an EIS process as specified in the legislation. This requirement shall be specified in the Project EIS guidelines.
2. A public meeting shall normally be held in the largest local population centre within the Project area. This shall be the minimum requirement. In addition, when demonstrated public interest or concern warrants, additional meetings may be required. This may take the form of additional meetings to be held in major regional or provincial population centres, or possibly additional meetings within the original community. Such requirements are at the discretion of the Minister based on consensus advice from the environmental assessment committee (EAC) chairperson, and based upon public interest as evidenced by public submissions received.
3. The format of the public meeting may be flexible, and the proponent is free to propose a suitable format for approval by the EAC. The format may range from formal public meetings chaired by the proponent or representative with presentations followed by questions and answers, to a less formal open house forum where the public may discuss the proposal with the proponent or representatives. Other formats may be considered by the EAC. The purpose of the public information session is to
  - 1) provide information concerning the proposed undertaking to those who may be affected, and 2) to record the concerns of the local community regarding the undertaking. Any format must meet these objectives.
4. The proponent must ensure that each public meeting is advertised in accordance with the following specified public notification requirements, which shall form part of the Project guidelines when appropriate (proponent to substitute appropriate information for italicized items):

## **PUBLIC NOTICE**

### **Public Information Session on the Proposed**

*Name of undertaking*  
*Location of undertaking*

shall be held at  
*Date and Time Location*

This session shall be conducted by the Proponent,  
*Proponent name and contact phone number*, as part of  
the environmental assessment for this Project.

The purpose of this session is to describe all aspects of the proposed Project, to describe the activities associated with it, and to provide an opportunity for all interested persons to request information or state their concerns.

**ALL ARE WELCOME**

- Minimum newspaper ad size: 2 columns wide and minimum posted ad size: 10 cm x 12 cm.
- Minimum newspaper ad frequency (to be run in newspaper(s) locally distributed within each meeting area or newspaper(s) with the closest local distribution area):
  - for dailies, the weekend between 2 and 3 weeks prior to each session and the two consecutive days prior to each session, or
  - for weeklies, in each of the two weeks prior to the week in which the session is to be held.
- Minimum posted ad coverage: In the local Town or City Hall or office, and the local post office, within the Town or City where the meeting is to be held, to be posted continually for not less than 15 days prior to each session. The proponent is advised to request that the ad and/or notice of the meeting be placed on the community web site, for each community within/adjacent to the Project study area, to be posted continually for not less than 15 days prior to each session.
- Any deviation from these requirements for any reason must receive the prior written approval of the Minister. The proponent must provide the chairperson of the EAC with copies of advertisements and public notices.
- The Proponent is advised to propose other effective means of public notice, including social media announcements, for the Minister's consideration and approval.