
Guide to Preparing an EA Registration Document for Wind Power Projects in Nova Scotia

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About this Guide

The purpose of this guide is to help proponents of wind power projects understand the Environmental Assessment (EA) process and prepare the EA Registration Documents required for EA.

EA is a planning and decision-making tool used to promote sustainable development. By predicting and evaluating the environmental effects of a project before it begins, there is an opportunity to mitigate potential impacts of the project on the environment.

For the public, this process ensures that resources and ecosystem functions are protected. For the proponent of a wind power project, this guide promotes better project planning, which will ultimately save time and money.

More specifically, this guide will help proponents:

- consider all issues associated with wind power projects before submitting the EA Registration Document;
- avoid delays in the EA process; and
- reduce the risk that the Minister will decide that additional information is required or reject a project (note: if the Minister decides additional information is required, the proponent must obtain the missing information and then re-register the updated project for EA).

Project-specific information varies according to the project's scale, location, and the surrounding environment. It is your responsibility, as the proponent, to ensure that the information you submit in your registration materials accurately reflects the circumstances of your particular project. The advice in this guide can help you prepare an accurate and comprehensive submission.

Before registering a project for EA, proponents are encouraged to refer to "*A Proponent's Guide to Environmental Assessment*" for general information about EA and their role during an assessment. Contact the EA Branch or visit the EA Branch website at <http://www.novascotia.ca/nse/ea/> to obtain a copy of this guide. Proponents should also contact the EA Branch for verbal and written guidance on the EA process. Contact information is provided in Appendix II.

Once your EA Registration Document is accepted, it is posted on the EA webpages of the Nova Scotia Environment and Climate Change (NSECC) website. It becomes public information and is available for review by the Mi'kmaq of Nova Scotia and the public. When the Minister makes a decision on the Registration, this is also posted on our website. You can review registrations and decisions at <http://www.novascotia.ca/nse/ea/>.

Does the Wind Project Require Environmental Assessment?

If you are unsure whether the proposed project requires EA, please contact the EA Branch for a determination. Proponents should be prepared to provide the EA Branch with a detailed project description that can be used to evaluate whether the project triggers Part IV (Environmental Assessment) of the *Environment Act*.

Generally speaking, wind projects that can produce at least 2 MW of energy will require a Class I Environment Assessment, as per *Schedule A - Designated Class I and Class II Undertakings* of the *Environmental Assessment Regulations*, noting that these regulations are subject to change from time to time.

Planning for Environmental Assessment

Before starting work on the EA Registration Document, proponents are encouraged to discuss the scope of the assessment with the EA Branch.

The scope of the assessment should include each valued environmental component (VEC) that applies to the project circumstances — consider each one in the EA Registration Document.

When describing the scope of the undertaking, include both temporal and spatial boundaries.

Before undertaking any field work, proponents are advised to contact other government regulatory agencies such as Nova Scotia Department of Natural Resources and Renewables and the Canadian Wildlife Service to help define priorities. The EA Branch can assist proponents in identifying which government agencies should be contacted.

Engagement with the Mi'kmaq of Nova Scotia

The Province is committed to meeting its legal obligations to consult with the Mi'kmaq of Nova Scotia, and within that process, believes there is an important role for proponents in engaging the Mi'kmaq. Under the Environmental Assessment Regulations, proponent must identify all steps taken to identify, list and address concerns of the public and indigenous people about the adverse effects or the environmental effects of the proposed project.

This Guide provides practical assistance to proponents considering development or other activities that may impact Mi'kmaq interests in Nova Scotia. In addition, The Proponents' Guide: The Role of Proponents in Crown Consultation with the Mi'kmaq of Nova Scotia provides advice on how to fulfill this obligation under the EA Regulations, and is available at: [ea-proponents-guide-to-mikmaq-consultation.pdf \(novascotia.ca\)](https://www.novascotia.ca/ea-proponents-guide-to-mikmaq-consultation.pdf)

Meaningful engagement and consultation processes support clearer communication, more efficient and improved decision-making, and lasting outcomes that benefit all Nova Scotians. Appropriate and meaningful consultations with the Mi'kmaq are key to promoting collaboration and strong relationships.

Public Engagement

Conducting public consultation offers citizens the opportunity to inform projects and decisions which may have an impact on their lives. Early and effective public consultation are key components for establishing successful partnerships with local communities and maintaining public support. Benefits of early and effective consultation by proponents include building relationships, increased mutual understanding, added perspective and feedback on potential impacts of decisions and projects.

The Minister considers concerns expressed by the public about the adverse effects or the environmental effects of the proposed undertaking, and the steps taken by the proponent to address those concerns when making a decision.

It is important to note that the Minister also considers the effectiveness of the consultation when making a decision. The method used should suit the type of project and particular community in which it is being conducted. Methods used in the past include organizing open house events, distributing newsletters, conducting door-to-door surveys, advertising in newspapers and establishing 1-800 numbers.

What to include in your EA Registration Document

At a minimum, Registration Documents must include the information listed in Section 9(1A) of the *Environmental Assessment Regulations*.

In addition, EA Registration Documents for wind projects should:

- describe what exists on-site and what is being proposed (during construction and the completed development);
- identify potential impacts — environmental, economic, and social;
- include off-site impacts on the neighbouring environment, such as visual effects, noise, dust, and water run-off;
- explain and document any actions being proposed to minimize impacts on the environment; and
- include maps and digital data showing details, such as property IDs, turbine locations, proposed grid route, transmission corridors, locations of rare species and those potentially at risk, access roads, residences, parks and protected areas, sensitive receptors and structures, wetlands, watercourses and drinking water wells.

The outline of a comprehensive EA Registration Document includes:

- Proponent Description
- Project Information
- Mi'kmaq of Nova Scotia
 - Mi'kmaq Engagement
 - Effects of the Undertaking on the Mi'kmaq of Nova Scotia
- Public Engagement
- Description of the Undertaking
 - Geographical Location
 - Physical Components
 - Site Preparation and Construction
 - Setbacks and Separation Distances
 - Operation and Maintenance
 - Decommissioning
- Valued Environmental Components (VECs) and Effects Management
 - *Biophysical Environment*
 - Weather Conditions
 - Climate Change
 - Geology
 - Surface Water
 - Groundwater
 - Wetlands
 - Flora and Fauna Species and Habitat
 - Project Risk Categories
 - Native Vegetation/Biodiversity
 - Bird Strike/Bird Migration
 - Bats
 - Fish and Fish Habitat
 - Visual Impact Assessment
 - Noise Levels
 - Shadow Flicker
 - Other Issues
 - *Socio-Economic Conditions*
 - Economy
 - Land Use and Value
 - Transportation
 - Recreation and Tourism
 - Human Health
 - Cultural and Heritage Resources
 - Other Undertakings in the Area

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- Effects of the Undertaking on the Environment
- Effects of the Environment on the Undertaking
- Other Approvals Required
- Funding
- Additional Information
- Appendices

The following sections of this guide will provide details on what information should be considered under each of the headings listed above.

Proponent Description

Describe the project proponent in the following detail:

- Name of the proponent
- Signed statement by the company*
- Mailing address
- Street address
- Telephone number
- Fax number (if available)
- Email address (if available)
- Website (if available)

*Include a signed statement by the company president or chief executive officer that shows they accept the contents of the EA Registration Document with the following details:

- Name of company president/CEO
- Address of company president/CEO
- Signature

Project Information

Outline your project in the following detail:

- Name of Undertaking: Give your project a distinct name.
- Location: Briefly describe the location of the project.
- Maps: Show the location of the project on maps at regional and local scales, with the Universal Transverse Mercator (UTM) grid and the UTM coordinates showing the centre of the site. This map should also include the location of each turbine and any other structures on or near the site.
- Credentials: Include the names and credentials of all primary and secondary qualified professionals and their contribution — attach their CVs in an appendix.

Mi'kmaq of Nova Scotia

While strongly encouraged, it is within the proponent's discretion to proactively engage the Mi'kmaq of Nova Scotia and Indigenous organizations to identify and address any concerns, where appropriate, before registering the project.

In the EA Registration Document, the proponent should include the following:

- Documentation on steps taken to engage the Mi'kmaq.
- A description of any potential adverse impacts to the Mi'kmaq of Nova Scotia, as identified by both the proponent and in any correspondence with Mi'kmaq communities.
- The details of any proposed mitigation or avoidance measures of potential adverse impacts and any feedback received on mitigation or avoidance measures from Mi'kmaq communities.
- Predictions of any residual effects of the project on the Mi'kmaq after mitigation and avoidance measures are implemented and rationale for predictions.
- A discussion on future engagement with the Mi'kmaq to understand the efficacy of mitigation and avoidance measures and to support ongoing engagement.

Mi'kmaq Engagement

Early engagement with the Mi'kmaq of Nova Scotia is strongly encouraged as it enables comprehensive, accurate, and relevant information to be provided to the community. When deciding to involve the Mi'kmaq, you should identify and contact Mi'kmaq communities and Indigenous organizations.

For more information on engagement with the Mi'kmaq of Nova Scotia, refer to *Proponents' Guide: The Role of Proponents in Crown Consultation with the Mi'kmaq of Nova Scotia*: <http://0-nsleg-edeposit.gov.ns.ca.legcat.gov.ns.ca/deposit/b10655268.pdf>.

Effects of the Undertaking on the Mi'kmaq of Nova Scotia

The identification of potential adverse impacts should be undertaken in collaboration with Mi'kmaq communities. To understand potential adverse impacts of a proposed project on the rights of the Mi'kmaq of Nova Scotia, early and meaningful engagement is required.

- Prior to submitting an EA Registration Document, the Province may recommend proponents undertake a Mi'kmaq Ecological Knowledge Study (MEKS). A MEKS identifies areas of historical and current use in the project area pertaining to lands, water and natural resources.

- MEKS are generally recommended for large scale projects or those that are proposed on Crown land or sited close to Indigenous land, or in areas of known high archaeological significance or that have particular cultural significance for the Mi'kmaq.
- An MEKS Protocol has been prepared on behalf of the Assembly of Nova Scotia Mi'kmaw Chiefs. Proponents are encouraged to review this protocol carefully to gain a better understanding of MEKS, including seasonal limitations that may impact proposed planning.
- The Protocol can be found at:
<https://novascotia.ca/abor/aborlearn/docs/mek%20protocol%20second%20edition.pdf>

Public Engagement

For Class I undertakings, proponents are not required to involve the public beyond the official notification through two newspaper advertisements (one with circulation in the vicinity of the undertaking and one with province-wide circulation). However, when making a decision on the proposed undertaking the Minister will consider all public input about the proposed undertaking, whether positive or negative, including concerns about the adverse effects or the environmental effects of the proposed undertaking and the steps taken by the proponent to address those concerns.

The Department strongly recommends that proponents work proactively with the public to address any concerns prior to registering the undertaking in the EA process. When deciding to involve the public, the proponent should consider identifying and contacting local community representatives, government representatives (municipal, provincial and federal), First Nations, and other stakeholders who may have an interest in the proposed undertaking.

Within this section of the EA Registration Document, proponents should include the following:

- Identify the methods used to notify the general public and stakeholder groups, the number of people contacted, and the number of people that responded. Also, provide copies of the information and materials distributed to the public.
- Describe the opportunities that have been or will be provided to allow the public and stakeholder groups to express their concerns and receive information on the various phases of project development including planning, design, environmental assessment review, construction, operation, decommissioning and reclamation.
- Include all comments brought to the attention of the proponent, both written and verbal, during the public information program(s).
- Describe how the public and stakeholder groups' comments were addressed during and following the public information program(s), including any commitments made by the proponent. Anticipated public concerns can be addressed as well.

Description of the Undertaking

This section of the EA Registration Document describes the project as it is planned to proceed through the construction, operation, and decommissioning phases of the wind power development.

Geographical Location

- Identify the site location and its relation to each of the following:
 - existing communities, including Mi'kmaq communities;
 - other developments;
 - transportation facilities;
 - the proposed routes of access;
 - parks and protected areas; and
 - water supplies, etc.

- Submit site plans that show the location of the major components of the proposed project and each of the following details:
 - location of the proposed development in the province;
 - scaled site map of the main project components;
 - Project components may include but not limited to:
 - alignment of power lines connecting the wind power project to the electricity grid;
 - turbine to turbine connections;
 - proposed internal road access routes and transmission line corridors.
 - Watercourse crossing and ditching infrastructure property map including the Property Identification Number(s) (PID); boundaries;
 - large-scale original base map(s) (1:10,000 - 1:12,500 scale preferred);
 - recent aerial photos;
 - proximity to existing and pending protected and conservation areas within provincial, federal, and municipal jurisdictions or protected by land trusts (for example, show existing and pending provincial wilderness areas, nature reserves and provincial parks; federal migratory bird sanctuaries and wildlife management areas; land trust lands; conservation easements; and municipal protected water supply areas)¹;

¹ Mapping for existing and pending protected areas can be found at <https://www.novascotia.ca/parksandprotectedareas/plan/interactive-map/>. Pending protected areas are lands that government has committed to designating as a protected area but for which designation has not yet occurred.

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- proximity to administratively conserved sites on Crown lands such as provincial Old Forest Policy set-asides and lands recognized as “protected” through forest certification programs.
- proximity of the development to significant features, such as:
 - housing
 - water bodies and watercourses
- location of the proposed development within secondary and tertiary watersheds, and

The proponent is also encouraged to:

- Contact the municipality to determine if the proposed project will be affected by any land use by-laws, specifically, setback regulations.
- Consult with the utility or grid system operator to ensure connection to the electricity grid is feasible.

Physical Components

- Describe and provide maps and figures for major physical components of the undertaking, such as:
 - site and adjacent areas;
 - the positions of the proposed wind turbine(s) (generator, rotor blades and supporting structure);
 - native vegetation;
 - existing roads to be used for site access;
 - internal access roads to be constructed;
 - watercourse crossings, ditching, diversions;
 - site grading and earth works;
 - proximity to residences; and
 - existing and proposed buildings and structures (including control rooms and electrical substations), etc.
- Describe the proposed wind turbines in detail:
 - how many;
 - rated generation capacity;
 - make and model number;
 - dimensions of the tower;
 - dimensions of the overall design;
 - turbine blade speed in revolutions per minute;
 - lighting requirements, if applicable;
 - materials;

- colour; and
- the alignment of guy wires, if any.

Site Preparation and Construction

- Describe in detail the proposed:
 - construction activities;
 - location;
 - techniques; and
 - schedules.
- Identify the size of the area affected by each respective activity.
- Consider addressing the following aspects and activities:
 - site orientation;
 - stripping of vegetation;
 - clearing and grubbing;
 - erosion and sediment control;
 - proximity distances (including from public or common highways, watercourses, existing and pending parks and protected areas and property boundaries);
 - site access roads (including gradient), location of receiving areas, material storage, and parking areas;
 - drilling and blasting requirements (during turbine installation process);
 - permanent structures (towers, and other structures that will be needed onsite);
 - temporary structures;
 - temporary or permanent watercourse crossings, diversions, or ditching;
 - utilities;
 - risk management, such as contingency plans for malfunctions, accidents, and emergency response plans;
 - the duration of construction work and explanation of the various development phases including the impacts of each phase on the landscape;
 - environmental monitoring and reporting; and
 - other relevant aspects and activities.

Setbacks and Separation Distances

Check if the municipality has setback requirements or separation distances. Many municipalities have development land use by-laws to deal with the setback requirements and separation distances for wind power projects. It is the proponent's responsibility to be aware of and to comply with municipal by-laws.

Locate wind turbines far enough away from domestic dwellings so that the turbines do not unreasonably affect the amenity of such properties through sound, shadow flicker, visual domination, or reflected light.

The advisable distance between residences and a proposed wind development to avoid any disturbance of neighbours depends on a variety of factors including local topography, climate, character and level of background noise, and overall size of the development.

It is best not to locate projects close to parks and protected areas, as nearby wind energy development and disturbance can negatively impact those areas. Proponents with projects occurring within 500m of existing or pending protected areas are encouraged to seek guidance from NSECC's Protected Areas Branch (protected areas) and DNRR (parks) in the early stages of project development to screen for potential impacts and determine whether siting is compatible with ensuring the integrity of nearby parks and protected areas.

Operation and Maintenance

- Include a detailed description of the proposed activities, locations, and schedules during the operational phase of the undertaking. The proponent should consider the following:
 - water management (surface water, groundwater, storm water, withdrawal, drainage, erosion and sediment control, water recycling opportunities, ability of the water source to meet requirements taking into consideration other users in the vicinity);
 - hazardous waste management (for example, fuels, lubricants, hydraulic oil, asphalt, paints, solvents, de-icing agents);
 - waste management;
 - transportation (modes, routes, load size and frequency, maintenance, refueling, load coverings, speed restrictions, tire cleaning);
 - noise management;
 - viewscape protection (such as tree screens and buffer zones);
 - utilities;
 - risk management (for example contingency plans, emergency response plans, and accidents); and
 - environmental monitoring and reporting.

Decommissioning

Include goals and objectives for decommissioning the site, including removal of roads, equipment, and structures, and the long-term objective for future use of the property following decommissioning.

Include comprehensive details with the goal of restoring the site to its natural state with native plants such that impacts of habitat loss (i.e., connectivity) and invasive species are mitigated.

Valued Environmental Components (VECs) and Effects Management

Within the Nova Scotia EA Regulations, VECs are broadly interpreted as environmental (including rare species and those at risk), human health, socio-economic, cultural, historical, archaeological, paleontological and architectural features that may be impacted, whether positive or negative, inside or outside the province, by the proposed undertaking.

To reiterate, the VEC sections of the EA Registration Document should address the following:

- existing environmental conditions and climate change projections — consider both biophysical environment and socio-economic conditions;
- identified VECs;
- predicted environmental effects — both positive and negative effects, both inside and outside the province;
- proposed mitigation to address environmental effects; and
- proposed monitoring programs for the undertaking.

Please note, if proponents predict that there will be no impacts to a certain VEC within the proposed wind power site or within any other area of the wind power project, they must provide an explanation of the prediction in the Registration Document.

The following two broad categories comprise the VECs: Biophysical Environment and Socio-economic conditions. The following section provides a detailed description of the information to be provided in the Registration Document related to these two broad categories of VECs.

Guidance on Information Requirements for Valued Environmental Components

Biophysical Environment

Weather Conditions

- Describe the weather conditions at the site including presentation of methods and/or data used to assess the site suitability for wind generation. This should include some consideration of the climate change projections.
- Demonstrate that conditions are adequate for power generation.
- Demonstrate that the design will accommodate extreme winds and ice loads.

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- Provide rationale for 1) site selection and 2) consideration of alternatives.

Climate Change

- Climate change should be addressed in terms of greenhouse gas emissions (reduction of GHGs) and adaptation (planning and preparation for a changing climate).
- This section will focus on GHGs mitigation while adaptation is integrated into the data analysis and design decisions throughout the document.

GHG Emissions

- Identify and quantify all direct emission sources and sinks by individual GHG (carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, and hydrofluorocarbons and perfluorocarbons by individual species, where applicable) during the construction, operation and decommissioning phases.
- Clearly state all quantification methodologies, emissions factors, and assumptions used.
- Refer to ISO standard 14064-1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals, for general inventory preparation guidance, requirements, and presentation.

Air Quality

Discuss how dust from road construction, etc., and other air emissions will affect the existing atmospheric conditions and what will be done to avoid or mitigate negative impacts. Describe any monitoring programs that may be necessary to identify effects on air quality and the success of any mitigation measures employed.

Geology

- Describe the geological features of the wind power site including:
 - surficial geology — soil types, permeability, porosity, risk of erosion; and
 - bedrock geology — acid producing/consuming rocks, sulfides, carbonates, host rock.
- Conduct geotechnical investigations and include details of the investigations to help assess whether construction of the foundations for the wind turbines, the erection of the machines, and the provision of access roads is practical and economic.

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- Include geological maps in your EA Registration Document.

Surface Water

- Qualified professionals (e.g., hydrologist, water resources engineer, limnologist, etc.) should be retained to complete the assessment of this VEC.
- Describe existing environment:
 - Describe the location of the project within the primary, secondary, and tertiary watersheds.
 - Describe the general hydrological conditions and water quality and quantity for all surface waters in the vicinity of the wind power project.
 - Describe the field investigations undertaken to support this description and bibliography of reference material as appropriate.
- Based on understanding the existing environment and the project description, clearly identify the area which may be impacted by the proposed undertaking.
 - Provide rationale for this delineation including upstream and downstream interaction.
 - Consider each phase of the project, including construction, operation, and decommissioning.
- For the assessment area, discuss and quantify the predicted effects (with rationale) the undertaking may have on existing surface water in the surface water assessment area.
 - Consider each phase of the project, including construction, operation, and decommissioning.
- Describe the proposed methods to avoid or mitigate such effects.
 - Consider each phase of the project, including construction, operation, and decommissioning.
 - This may include siting considerations, work seasons, erosion and sediment control measures, consideration for climate change impacts in the design of project elements, or maintenance etc.
- Describe any monitoring programs that will be designed to provide information on the effects of the project on surface water.
 - This may include monitoring programs cross identified in multiple VECs, or specific quantity or quality monitoring.

Groundwater

- Describe the general hydrogeological conditions in the vicinity of the wind power project. This is to include descriptions of hydrogeological properties (hydraulic conductivity, recharge/discharge conditions, hydrostratigraphic units, groundwater flow directions and so on), interaction between groundwater and surface watercourses (including wetlands), groundwater use for water wells and general groundwater quality conditions.
- Describe the appropriate reference sources used to support this description, including any groundwater field investigations conducted, and include these all in a bibliography.
- Identify and field verify the locations of water wells within 2 km of the project boundaries. Provide a site map showing these locations.
- Provide a description of any water supply sources to be used on the site, including groundwater or surface water.
- Provide detailed information on how potential water quantity or water quality impacts to groundwater due to site activities will be avoided or mitigated both on and off the site during the site construction, operations and decommissioned site phases.

Wetlands

- Identify the location, size, and class of any wetland on-site or downstream that may be impacted by the wind power project.
 - Please refer to “The Nova Scotia Wetland Conservation Policy” which identifies what legislation, regulations, and policies are currently relevant to wetland conservation (<https://www.novascotia.ca/nse/wetland/conservation.policy.asp>).
- If there are any wetlands at the project site, include the following in your EA Registration Document:
 - wetland delineation (location, size, boundaries) and functional assessment information, including a description of the methodologies used;
 - maps and photos clearly indicating the location of the project in relation to the wetland and other natural features;
 - description of the wetland’s ecological character;
 - presence of fish in the wetland;
 - existing hydrological characterization;
 - existing hydrogeological characterization;
 - a bibliography of reference materials used in developing the evaluation; and
 - a listing of the expertise retained in preparing the evaluation.

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- Refer to “The Nova Scotia Wetland Conservation Policy” purpose and provide a detailed description of the proposed alteration including:
 - reason for the alteration;
 - nature of the proposed alteration;
 - alternatives that have been considered;
 - all identifiable impacts to the wetland (e.g., percent of wetland to be altered, species at risk present and/or species of conservation concern, terrestrial & aquatic flora and fauna species to be affected). This includes potential indirect effects;
 - past impacts to the wetland (if applicable);
 - expertise retained and resources referenced in determining the existing conditions and potential impacts; and
 - opportunities for mitigation of impacts and/or compensation.

Flora and Fauna Species and Habitat

- Qualified professionals (biologists, botanists, etc.) should be engaged by the proponent to conduct surveys to identify flora and fauna species that exist or that may exist throughout the wind power site and throughout any other areas which may be impacted by the development.
- Priority species and habitats for field inventory work should be identified through a desktop analysis using the process described in “A Guide to Addressing Wildlife Species and Habitat in an EA Registration Document”. A 100km radius around the project area is to be used as the minimum area for review of known occurrences of species of conservation concern.
- As part of the assessment the proponent should consider all species ranked S1-S3, all species assessed by COSEWIC, and all species listed under the federal *Species at Risk Act* and the *Nova Scotia Endangered Species Act*.
- The proponent must apply standards and protocols for bird monitoring specified for the given “Category” of project as defined by Environment and Climate Change Canada and the Canadian Wildlife Service.
- With respect to species listed as Endangered or Threatened under either the federal SARA or provincial NSESA, proponents should be aware of any identified or designated Core Habitat and federally identified Critical Habitat that may be affected by the project.

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- The Province of Nova Scotia is committed to further enhancing land protection and nature conservation by various means. Prior to developing project proposals, proponents are encouraged to contact the Department of Natural Resources and Renewables (DNRR) and the Protected Areas and Ecosystems Branch of NSECC to review if project proposals may overlap with lands of special concern or are under consideration for conservation or land protection.
- Proponents are encouraged to avoid relatively intact natural area. These are lands that, while not necessarily pristine, have relatively low levels of anthropogenic disturbance at the landscape scale and are therefore critical to biodiversity conservation at the landscape level. These areas have a lower density of roads and other linear corridors such as power lines compared to other lands in the region and are generally comprised of more mature and less fragmented forests.
- Proponents are also encouraged to avoid lands that are important for regional ecological connectivity. These are lands that, due to their location on the landscape and ecological condition, play a critical role in biodiversity conservation by sustaining the long-term flow of ecological processes and native species (terrestrial species, birds, bats, etc.) across the landscape, including between relatively intact natural areas and between protected areas.
- Proponents are encouraged to contact the EA Branch, Nova Scotia Department of Natural Resources and Renewables, and the Canadian Wildlife Service early in the planning stages to ensure that all relevant issues have been identified and all required components of the EA are understood and considered.

Project Risk Categories:

- The project risk category is determined by a combination of site sensitivity, project size and turbine height. The category is used to qualify potential risk to wild species and/or their habitats. With this qualification, the project can be planned and monitored such that impacts resulting from its construction or operation can be minimized and/or mitigated.

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Project Size	Potential Sensitivity			
	Very High	High	Medium	Low
Very Large	Category 4	Category 4	Category 3	Category 2
Large	Category 4	Category 3	Category 2	Category 2
Medium	Category 4	Category 3	Category 2	Category 1
Small	Category 4	Category 2	Category 1	Category 1

- The Project Risk Category can be determined using the tables below.
- Please note all projects using turbines greater than 150 m in height are considered Category 4 projects. For projects with turbines < 150 m use the tables below to determine project category.

Site Sensitivity:

Potential Sensitivity	Determining factor
Very high	<p>Species identified are:</p> <ol style="list-style-type: none"> 1. Listed as “at risk” federally or provincially under the SARA or NSESA 2. Assessed as “at risk” by COSEWIC or S1, S2 and S3 listed species (under the Atlantic Canada Conservation Data Center) occurring within, or being negatively affected by the development <p>Site identified as:</p> <ol style="list-style-type: none"> 3. habitat for a large or important bird colony, such as herons, gulls, terns, common eider and seabirds 4. a known bat hibernacula (25 km radius) 5. a significant migration staging or wintering area for bats, waterfowl or shorebirds 6. an area recognized as internationally, nationally or provincially important for birds (<i>e.g.</i>, by being located in or adjacent to a provincial Wildlife Management Area or Wildlife Sanctuary, National Wildlife Area, Migratory Bird Sanctuary, Important Bird Area, National Park, Western Hemisphere Shorebird Reserve Network (WHSRN) and/or Ramsar sites, or similar area specifically designated to protect birds) 7. providing habitat for large concentrations of raptors (<i>e.g.</i> wintering, migration) 8. a known, or reasonably inferred migration or connectivity corridor 9. having potential to reduce functional quality/quantity of habitat (<i>e.g.</i>, relatively intact natural areas) and/or cause significant land

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	<p>fragmentation with loss of connectivity</p> <p>10. having identified or designated provincial Core Habitat (including areas identified in Section 15(4)(h) of the <i>Endangered Species Act</i> to be considered for core habitat in a recovery plan), or federal Critical Habitat.</p> <p>11. an area recognized as provincially or nationally significant for habitat conservation of a listed “at risk” species (e.g., Significant Mainland Moose Concentration Areas)</p>
High	<p>Site identified as:</p> <p>12. having landform factors that concentrate species (e.g., shoreline, ridge, peninsula or other landform that may funnel bird movement) or significantly increase the relative height of the turbines</p> <p>13. a coastal island, or less than 5 km inland from coastal waters</p> <p>14. an area of large local bird movements (between habitats) or is close to significant migration staging or wintering area for waterfowl or shorebirds</p> <p>15. an area recognized as provincially or nationally significant for habitat conservation and/or protection.</p> <p>16. having increased bird activity from the presence of an area recognized as nationally and/or provincially important habitat for birds (e.g., a National Wildlife Area, Migratory Bird Sanctuary, Important Bird Area, National Park, or similar area protected provincially or territorially because of its importance to birds).</p> <p>17. containing non-listed species of high conservation concern (e.g. S1)</p>
Medium	<p>18. Site is recognized as regionally or locally important to birds, or contains provincially significant habitat types.</p>
Low	<p>19. Site does not contain any of the elements listed above.</p>

Project Size:

Size	Definition
Very large	Total local area projected to contain more than 100 turbines
Large	Total local area projected to contain 41- 100 turbines
Medium	Total local area projected to contain 11-40 turbines
Small	Total local area projected to contain 1-10 turbines

Turbine Height:

Turbines > 150 m	Wind turbines greater than 150m in height are categorized as Very High site sensitivity because they are within a known migratory corridor
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The following describes the level of monitoring typically required with each Project Category. Please note that field surveys including type, timing and duration should be designed in consultation with the appropriate regulatory agencies:

Category 1: Projects in this category represent the lowest level of potential risk to wild species and/or their habitats. Note: reference to required basic/baseline surveys do not include avian and bat radar or acoustic surveys; these survey requirements are addressed separately.

- **Basic field surveys:** Most Category 1 projects need some basic field surveys before an approval is granted to:
 - assess the occurrence of significant habitats and species within the proposed area for the turbines; and
 - confirm that no conservation issues were previously overlooked.
- **Carcass searches for bats and birds:** After the project is in operation, carcass searches are usually required to document unexpected mortality events.

Category 2: Projects in this category represent a moderate level of potential risk to wild species and/or their habitats.

- **Basic surveys:** Most require basic surveys, usually spread over a one-year period, to: obtain quantitative information on wild species and habitats on the site and identify any potential mitigation measures to minimize environmental impacts during construction.
- **Follow-up surveys:** Depending on the species and numbers detected, some follow-up surveys may be required to assess impacts. These follow-up surveys may not need to commence until one year after construction is completed.
- **Carcass searches** for bats and birds will usually be required after the project is in operation to document unexpected mortality events.

Category 3: Projects in this category represent an elevated level of potential risk to wild species and/or their habitat(s).

- **Comprehensive baseline surveys:** These will normally need to be done over the course of one calendar year unless additional concerns are identified in the process (e.g., an unexpected species at risk is found to be present), which could extend the time period. You must apply standards and protocols for bird monitoring specified for “Category 3” projects as defined by Environment and Climate Change Canada and the Canadian Wildlife Service.

- **Pre-construction surveys:** need to quantify what species are using the area and obtain measures of their relative abundance.
- **Detailed studies:** If the site contains concentrations of birds, or species thought to be particularly vulnerable to colliding with turbines, or that have potential to be negatively affected by the presence of turbines, more detailed studies may be required. Such information may help to inform placement of turbines, or to determine the need for other mitigation measures.
- **Post-construction follow-up surveys,** spread over at least two years, are required to determine changes in wildlife use of the area associated with installation of the turbines.
- **Regular carcass searches** will normally be required to monitor the impact to breeding and migrating bats and birds. Given the potential for fragmenting habitat and the resulting loss of landscape connectivity, by large (41-100 turbines) and very large (101 or more turbine) projects, these sites will require consideration and analysis of potential landscape scaled impacts.

Category 4: Projects in this category represent the highest level of potential risk to wildlife, and/or their habitats.

- **Comprehensive baseline surveys:** These will normally need to be done over the course of one calendar year unless additional concerns are identified in the process (e.g., an unexpected species at risk is found to be present), which could extend the time period. Proponents must apply standards and protocols for bird monitoring specified for “Category 4” projects as defined by Environment and Climate Change Canada and the Canadian Wildlife Service. Proponents are strongly encouraged to design and initiate baseline surveys as far in advance as possible.
- All projects using turbines greater than 150 m in height are considered Category 4 projects.

If the project is approved, detailed follow-up will normally be required as a condition of the approval:

- **Post-construction follow-up surveys,** spread over at least two years and sometimes more, are required to determine changes in wildlife use of the area associated with construction of the turbines.
- **More detailed studies,** if warranted: If the site contains concentrations of birds, Species at Risk, Species of Conservation Concern, species thought to be particularly vulnerable to

colliding with turbines, or that have potential to be negatively affected by the presence of turbines, then more detailed studies may be required.

- **Regular carcass searches** around turbines over at least 2 years will likely be required during seasons when there is an elevated collision risk (e.g., when concentrations of birds are present, seasonal patterns for migratory bats, or during the migration season).
- **Data gathering** for more than two years would normally be targeted to answer very specific questions or conservation concerns.
- **Long-term monitoring** extended over five years or more, for example, may in some cases be required to document potential negative effects of functional habitat loss. Given the potential for fragmenting habitat and the resulting loss of connectivity, by large (41-100 turbines) and very large (101 or more turbine) projects, these sites will require consideration and analysis of potential landscape scaled impacts.

Refer to:

- *Guide to Addressing Wildlife Species and Habitat in an EA Registration:*
<https://novascotia.ca/nse/ea/docs/EA.Guide-AddressingWildSpecies.pdf>
- The Wildlife Division of the Nova Scotia Department of Natural Resources and Renewables online database for the population status of flora and fauna taxonomic groups throughout Nova Scotia:
<http://www.gov.ns.ca/natr/wildlife/genstatus/ranks.asp>
<https://novascotia.ca/natr/wildlife/genstatus/>
- Endangered Species Act of Nova Scotia — and regulations — to identify species at risk:
<http://nslegislature.ca/legc/statutes/endspec.htm>
<http://www.novascotia.ca/just/regulations/regs/eslist.htm>
- The Nova Scotia Museum of Natural History and Department of Communities, Culture, Tourism and Heritage for information on significant habitat and species at risk and distribution data.
- Significant habitat data relative to endangered species can also be obtained from the Atlantic Canada Conservation Data Centre:
<http://www.accdc.com/>
- The Canadian Wildlife Service:
 - *Wind Turbines and Birds: A Guidance Document for Environmental Assessment*
 - *Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds*

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- Significant habitat data relative to endangered species can also be obtained from the Atlantic Canada Conservation Data Centre:
<http://www.accdc.com/>

Native Vegetation/Biodiversity

- Conservation and preservation of native vegetation, including rare species and species-at-risk, is a major objective. Generally, the appropriate siting and design of wind power projects ensures that native vegetation is maintained. However, transmission lines may traverse a much greater area than the turbines, making it more difficult to avoid damage to native vegetation.
- Consult early with Nova Scotia Department of Natural Resources and Renewables, Wildlife Division, to develop botanical inventory standards before undertaking any field work.

Bird Migration

- Select a wind power site that avoids negative impacts on bird species. Be aware of the paths for travel, roosting, nesting, and spring and autumn migrations, so that they can be avoided when choosing a wind power site.
- Existing data, supplemented with field surveys, should be used to support site selection.
- Negative impacts on bird species occur through the careless removal or disturbance of the native vegetation that supplies them with a food source and nesting places, and through the placement of wind turbines directly in a flight path.
- Migratory birds, their eggs, their nest, and their young are protected under the *Migratory Birds Convention Act* and the *Nova Scotia Wildlife Act*. Depending on the at-risk status of the species, additional protection may also be provided under the federal *Species at Risk Act* and *Nova Scotia Endangered Species Act*.
 - For more information, see the *Migratory Birds Convention Act*, *Nova Scotia Wildlife Act*, and Environment Canada's *Wind Turbines and Birds: A Guidance Document for Environmental Assessment* (Appendix).
- Before undertaking any field work, contact the Canadian Wildlife Service (Sackville, New Brunswick) and the Nova Scotia Department of Natural Resources and Renewables. Pre-development inventories and post-development monitoring will be required; specific requirements will be developed in consultation with regulators and will depend on project parameters (size of site, number of turbines, turbine type/size, location, etc.).

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- Avian radar study is required for projects that include turbines greater than 150 m in height. Radar baseline studies should be designed in consultation with the Canadian Wildlife Service and the Department of Natural Resources and Renewables. Please refer to the following Canadian Wildlife Service guidance documents for additional information:
 - *Wind Turbines and Birds: A Guidance Document for Environmental Assessment*
 - *Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds*

Bats

- Bats serve an important ecological role. Locating wind turbines in bat migration areas can result in strikes and disruption of migration patterns. Proponents must:
 - Determine if the project within 25 km of any known bat hibernacula.
 - Determine whether significant numbers of bats migrate through the area.
 - Assess the possible impacts of wind turbines on migratory bats.
- Sites will require pre-development inventory for bats and post-development monitoring; specific requirements will be developed in consultation with regulators and will depend on project parameters (size of site, number of turbines, turbine type/size, location, etc.).
- Contact the Nova Scotia Department of Natural Resources and Renewables Wildlife Division early in the planning phases to establish whether inventory for bats will be required, inventory standards and requirements, and to establish post-development monitoring standards.
- If appropriate for the project site, also refer to Canadian Wildlife Service of Environment and Climate Change Canada (responsible for all migratory birds and for all wildlife on federally owned land).

Fish and Fish Habitat

The principles and information sources that apply to flora and fauna species and habitat also apply to fish and fish habitat.

Fisheries and Oceans Canada (DFO) will be reviewing the EA Registration Document. DFO ensures compliance with relevant provisions under the *Fisheries Act*, the *Species at Risk Act*, and the *Aquatic Invasive Species Regulations*, and reviews proposed developments that may impact fish and fish habitat. If the Project is taking place in or near water, the proponent responsible for understanding and describing the impacts the project will likely have on fish and fish habitat (including aquatic species at risk and their habitat); measures that can be implemented to avoid

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and mitigate those impacts; and ensuring the project will not result in the introduction of aquatic species into regions or bodies of water frequented by fish where they are not indigenous.

It is important for the proponent to include information related to the number of watercourse crossings associated with access road upgrades and/or new access road construction. Details on fish presence and habitat quality for each watercourse is required along with the crossing type and construction methods. The proponent must provide sufficient information to allow DFO to assess the environmental effects of the Project on fish and fish habitat.

Hire a qualified professional to determine whether any fish or fish habitat exists in all watercourses located within the wind power site, along access road crossings, or any other receiving watercourse that may be impacted by the development. If the development has the potential to impact fish habitat, have the qualified professional describe the habitat, fish species present, and any measures that will be implemented to avoid and mitigate impacts to fish and fish habitat associated with the development.

The appropriate survey(s) should be conducted in a manner that is acceptable to DFO. If you need more information, contact DFO directly.

Visual Impact Assessment

- Describe the visual effect of the proposed wind turbines on the locality, taking into account each of the following:
 - the various perspectives of the “visual user” groups represented in the local community;
 - the degree to which turbines modify landscapes;
 - the visibility of the proposal from public viewpoints;
 - the proximity of the project to sites of significance such as conservation areas, parks and wilderness areas; and
 - the provincial significance of the landscape in question.
- Include evidence to support the description, such as illustrations, photographs and other graphic representations of the appearance of the wind projects and transmission lines (where applicable) from all significant vantage points including views from both the land, the beach and the sea, where relevant.
- A landscape analysis is likely required for locations of high landscape quality. The existing landscape should be described, and the potential visual impacts of the proposal assessed.

Noise Levels

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- The proponent is expected to determine acceptable setback distances between wind turbines and receptors. Acceptable wind turbine setback distances depend on specific climatic conditions and the number and layout of turbines at the site.
 - In circumstances where municipal by-laws respecting wind turbines exist, the most stringent limits will apply.
- The appropriate setback distance varies depending on:
 - the type and number of turbines used;
 - topography;
 - vegetative cover across the landscape
 - proximity to the ocean; and
 - location of receptors.
- For the purpose of noise level measurements, a receptor is defined as an adjacent dwelling including, but not limited to, a building or structure that contains one or more dwellings, educational facility, daycare/nursery, place of worship, hospital, seniors residence and could also include a vacant lot where appropriate zoning or permits to build such dwellings have been approved.
- In establishing separation distances, a proponent must ensure that the wind farm design and turbine siting does not cause sound levels to exceed 40 dBA (A-weighted decibels) at the exterior of receptors.
- Through the EA process the proponent is expected to demonstrate through computer modelling data how the noise from the operational wind farm travels across the landscape. All noise modelling data, results, and assumptions should be included in the EA Registration Document.
- In the Registration Document, the proponent must:
 - identify all receptors within 2 km, including sensitive receptors (i.e. schools, campgrounds, care homes, etc.);
 - identify existing wind turbines within 3 km;
 - provide information on existing (background) noise levels and the expected levels of all potential noise sources associated with the construction and operation of the wind power project, including wind turbines, traffic movements, and substation;
 - discuss the predicted effects (with rationale), if any, the increased noise levels will have on wildlife and receptors near the wind power project;
 - include the sound power level for the turbine(s) to be used;
 - discuss the predicted effects (with rationale) of infra sound (or low frequency sound) on receptors;

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- describe the extent to which these noise emissions can be reduced and contained to minimize effects upon the wider locality and receptors, including potential future development; and
- discuss the methods to be used to monitor noise levels throughout the life of the development.
- discuss the methods to be used to mitigate noise levels throughout the life of the development should noise modelling be inaccurate or noise levels be greater than 40 dBA

Shadow Flicker

- Shadow flicker is the alternating periods of shadow and light that occur when a wind turbine is between the sun and a receptor. The sun shining through the spinning turbine blades causes this effect.
- Proponents must demonstrate through modelling that no receptor will receive 30 minutes or more per day, and/or 30 hours or more per year of shadow flicker.
 - discuss the methods to be used to monitor shadow flicker throughout the life of the development.
 - discuss the methods to be used to mitigate shadow flicker should modelling be inaccurate or shadow flicker be in excess of 30 minutes per day, and/or 30 hours or more per year.

Other Issues

- Consider whether any of the following other issues need to be addressed:
 - blade glint;
 - ice throw;
 - coastal erosion and/or inundation;
 - sites of cultural significance;
 - electromagnetic interference;
 - site access;
 - ecological impacts;
 - cumulative effects; and
 - geo-technical/ground stability.
- Consider the net benefits of the project, such as reduction of greenhouse gas emissions.

Socio-Economic Conditions

Economy

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- Describe the economic conditions for the region and surrounding communities. Information should be provided on the available labour supply and rates of employment for the region and surrounding communities.
- Detail the number of full and part-time jobs during the construction, operation, and decommissioning phases of the undertaking. Specify whether these will be new jobs or existing jobs that will be maintained.
- Predict the positive and negative effects that the proposed wind power project will have on the local economy. Explain your rationale.
- Discuss how any negative impacts to the economy will be avoided or mitigated.

Land Use and Value

- Identify the past land uses of the site and describe any potential contamination that may have resulted from past land use.
- Describe the planned and existing land uses within the wind power site and any other area that may be impacted by the proposed wind power project.
- Describe the predicted impacts that the proposed wind power project will have on the existing and planned land uses, such as property values, land use conflicts, architecture. Explain the rationale.
- Discuss the methods that will be used to avoid or mitigate impacts to land uses and existing structures.

Transportation

- Describe the existing conditions of the proposed modes and routes of transportation that will be used throughout the wind power project, such as provincial highways, arterial highways, and on-site access roads. Include information on the existing types and volumes of traffic.
- Discuss the predicted impacts to traffic volumes and road conditions. Explain the rationale. Include the proposed methods for avoiding or mitigating impacts to the existing transportation infrastructure.
- Discuss the impact on the air navigation system and specifically on civil and military air traffic control radars, navigation aids, and airports in the vicinity of the wind farm. This information is available from NAV CANADA's Land Use Office and from the Department

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of National Defence. Find contact information for NAV CANADA and Department of National Defence in the Appendix.

- Attach copies of assessment letters from NAV CANADA and Department of National Defence to the EA Registration Document.

Recreation and Tourism

- Discuss the existing and planned recreation and tourism activities for the surrounding area, such as hunting, fishing, hiking, parks.
- Describe the predicted effects the wind power project will have on recreation and tourism and how those effects will be avoided or mitigated. Explain the rationale.
- Include a discussion of the impacts of the wind power project's architecture on the landscape aesthetics and viewplanes.

Human Health

- According to the EA Regulations, an environmental effect in respect of an undertaking includes an effect on environmental health, which is defined as those aspects of human health that are or can be affected by contaminants or changes in the environment.
- Discuss the predicted effects that the undertaking will have on the health of people in the surrounding area and what will be done to avoid or mitigate any negative impacts. Explain the rationale.

Cultural and Heritage Resources

- Notify the Department of Communities, Culture, Tourism and Heritage of the proposed wind power project so that any areas of historical, archaeological, and paleontological importance can be identified.
- Obtain preliminary information and advice regarding the likelihood of archeological, historical, or paleontological (fossil) remains through the Heritage Division.
- Refer to the *Special Places Protection Act* if any of the above areas are identified.
- Conduct site investigations if it is determined that areas of historical, archaeological, and paleontological importance may exist.
 - Site investigations should be conducted in a manner that is acceptable to the Heritage Division, including obtaining the necessary permits.

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- If any artifacts are discovered during a site investigation, you must notify the Heritage Division, Department of Communities, Culture, Tourism and Heritage. If the discovery is of known or suspected Mi'kmaw origin, the Kwilmu'kw Mawklusuaqn Negotiation Office Archaeology Research Division, Sipekne'katik First Nation, and Millbrook First Nation should be notified.

Other Undertakings in the Area

- Indicate the type, size, location and any other relevant information of other undertakings or developments in the area of the site.
- Describe the predicted effects that the proposed wind power project will have on other undertakings in the area, including any effects that are cumulative in nature, such as through water withdrawal, wildlife habitat fragmentation or additional trucking traffic. Explain the rationale.
- Discuss how the predicted negative effects to other undertakings will be avoided or mitigated.

Effects of the Undertaking on the Environment

- Present an evaluation and summary of the benefits and drawbacks to the environment, including the VECs, during the construction, operation, and decommissioning phases of the undertaking.

Effects of the Environment on the Undertaking

- The variability in local conditions and natural hazards can have an immediate effect on a project's operations and may contribute to further environmental impacts.
- This section should describe the predicted effects of the environment (extreme storms, erosion, floods, wildlife, fire, drought, etc.) on the proposed undertaking.
- The analysis should consider a combination of existing conditions, project effects on the immediate area, as well as climate change data for the proposed timeframe.
- In addition, please provide a short summary of how the proposed undertaking will adapt or put in place measures to address these risks.

Other Approvals Required

- The project may also require an approval under Part V of the *Environment Act*. The activities that require authorization by ECC under this section of the act can be found in the *Activities Designation Regulations*. It includes activities such as watercourse alterations (crossings), wetland alterations, water withdrawal and various other industrial activities.
- It is the proponent's responsibility to identify any other approvals (provincial, federal and municipal) required for the proposed project.
- List the other permits, licenses, approvals, and other forms of authorization required for the undertaking to proceed, together with the names of the authorities responsible for issuing them — federal, provincial, and municipal government departments.

Funding

- Identify any public source of funding that will be used to finance any part of the undertaking.
- Include the contact information for any government department or agency from which the funds have been requested.

Additional Information

- Include any other information that you believe is necessary or relevant for the EA.

Reference Documents

Endangered Species Act of Nova Scotia

<http://www.gov.ns.ca/legislature/legc/statutes/endspec.htm>

Migratory Birds Convention Act (MBCA)

<http://laws.justice.gc.ca/eng/>

Nova Scotia Environment and Climate Change - Environmental Assessment Regulations

www.novascotia.ca/just/regulations/regs/envassmt.htm

Nova Scotia Environment and Climate Change - Fee Schedule for Environmental Assessment

<https://novascotia.ca/nse/ea/pubs.asp>

Nova Scotia Environment and Climate Change - Guide to Considering Climate Change in Project Development in Nova Scotia.

<https://www.novascotia.ca/nse/ea/docs/EA.Climate.Change.Guide.pdf>

Nova Scotia Environment and Climate Change - Nova Scotia Wetland Conservation Policy

www.novascotia.ca/nse/wetland/conservation.policy.asp

Nova Scotia Environment and Climate Change - Regulatory Time Frames for Environmental Assessment

<http://www.gov.ns.ca/enla/ea/docs/EATimeFrames.pdf>

Nova Scotia Environment and Climate Change - Requirements for Submitting Electronic Copies of Environmental Assessment Documents

<http://www.gov.ns.ca/nse/pubs/>

Nova Scotia Environment and Climate Change – Activities Designation Regulations - [Activities Designation Regulations - Environment Act \(Nova Scotia\)](#)

Nova Scotia Office of L'nu Affairs – Proponent's Guide: The Role of Proponents in Crown Consultation with the Mi'kmaq of Nova Scotia.

<https://novascotia.ca/nse/ea/docs/ea-proponents-guide-to-mikmaq-consultation.pdf>

Assembly of Nova Scotia Mi'kmaq Chiefs – Mi'kmaq Ecological Knowledge Study Protocol 2nd Edition

<https://novascotia.ca/abor/aborlearn/docs/mek%20protocol%20second%20edition.pdf>

Proponent's Guide to Environmental Assessment

www.gov.ns.ca/enla/ea/docs/EAProponentsGuide.pdf

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Species at Risk Public Registry

<https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>

Special Places Protection Act of Nova Scotia

<http://www.gov.ns.ca/legislature/legc/statutes/specplac.htm>

Wildlife Division of the Nova Scotia Department of Natural Resources and Renewables online database for the population status of flora and fauna taxonomic groups throughout Nova Scotia:

<https://novascotia.ca/natr/wildlife/genstatus/>

"Wind Turbines and Birds - A Guidance Document for Environmental Assessment" and "Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds":

<http://publications.gc.ca/site/eng/458437/publication.html>

DFO Projects Near Water

<https://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>

Fisheries Act

<https://laws-lois.justice.gc.ca/eng/acts/f-14/>

Species at Risk Act

<https://laws.justice.gc.ca/eng/acts/S-15.3/>

Aquatic Invasive Species Regulations

<https://laws-lois.justice.gc.ca/eng/regulations/sor-2015-121/FullText.html>

Appendix I

List of Abbreviations

ACCDC	Atlantic Canada Conservation Data Centre
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
EA	Environmental Assessment
DFO	Fisheries and Oceans Canada
NSESA	Nova Scotia Endangered Species Act
PID	Property Identification Number
SARA	Species at Risk Act
UTM	Universal Transverse Mercator
VEC	Valued Environmental Components

Definitions

Adaptation

Climate adaptation is often described as “In *human systems*, the process of adjustment to actual or expected *climate* and its effects, in order to moderate harm or exploit beneficial opportunities.” – Intergovernmental Panel on Climate Change (IPCC), ([link: Intergovernmental Panel on Climate Change](#))

Bird Strike

A collision between a bird and a wind turbine.

Blade glint

The regular reflection of the sun off rotating blades. When turbines are situated near roads (depending on road alignment and the orientation of turbines), blade glint can potentially distract drivers.

Broadband

This is noise characterized by a continuous distribution of sound pressure with frequencies greater than 100 Hz. It is often caused by the interaction of wind turbine blades with atmospheric turbulence. It is often described as a characteristic "swishing" or "whooshing" sound.

Class 1 Undertaking

Class 1 undertakings include, but are not limited to, mines, certain highways and waste/dangerous goods handling facilities and are listed in Schedule A of *the Environmental Assessment Regulations*, which can be found at: [Environmental Assessment Regulations - Environment Act \(Nova Scotia\)](#)

Cumulative Effects

The combined impacts that may occur when wind power projects or other types of projects are located in the same region.

Decommissioning

Preparing facilities for abandonment at the end of project life.

Electromagnetic impacts

The potential for turbines to cause interference to television and radio reception, etc.

Environment

As defined in the Environment Act:

The components of the earth and includes:

- (i) air, land and water;
- (ii) the layers of the atmosphere;
- (iii) organic and inorganic matter and living organisms;
- (iv) the interacting systems that include components referred to in subclauses (i) to (iii); and
- (v) for the purposes of Part IV, the socio-economic, environmental health, cultural and other items referred to in the definition of environmental effect.

Environmental Assessment

The process by which the environmental effects of an undertaking are predicted and evaluated and a subsequent decision is made on the acceptability of the undertaking.

Environmental Effect

In respect of an undertaking,

- (i) any change, whether positive or negative, that the undertaking may cause in the environment, including any effect on socio-economic conditions, on environmental health, physical and cultural heritage or on any structure, site or thing including those of historical, archaeological, paleontological or architectural significance and (ii) any change to the undertaking that may be caused by the environment, whether the change occurs inside or outside the Province.

Erosion

Detachment of soil particles by agents such as water, wind, and ice.

Fauna

Animals

Fish Habitat

The spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly to carry out their life processes.

Flora

Plants

Groundwater

All water naturally occurring under the surface of the province.

Habitat

The environment in which the life needs of a plant or animal are supplied.

Hazardous Materials

Any prohibited, restricted, or controlled product.

Heritage Resource

Includes archaeological resources, heritage structures, designated historic sites, sacred sites, burial sites, and areas of historical importance.

Hibernacula

The places in which an animal hibernates or overwinters during winter months.

Impact

An observable and measurable response of a population, individual, or abiotic factor to an external source of disturbance.

Impulsive (noise)

A noise that can be described as short acoustic impulses or thumping sounds that vary in amplitude with time. It is caused by the interaction of wind turbine blades with disturbed air flow around the tower of a downwind machine.

Low Frequency

Noise with frequencies in the range of 20 to 100 Hz. This is mostly associated with downwind turbines, which are turbines with the rotor on the downwind side of the tower. It is caused when the turbine blade encounters localized flow deficiencies due to the flow around a tower.

Migration (birds)

Movement of birds, usually in large numbers, with the purpose of reaching areas used for breeding.

Mitigation

With respect to an undertaking, the elimination, reduction or control of the adverse effects or the significant environmental effects of the undertaking and may include restitution for any damage to the environment caused by such effects through replacement, restoration, compensation, or any other means.

Tonal Noise

Tonal noise is defined as noise at discrete frequencies. It is caused by wind turbine components such as meshing gears, non-aerodynamic instabilities interacting with a rotor blade surface or unstable flows over holes or slits or a blunt trailing edge.

Paleontology

The study of the forms of life existing in prehistoric or geologic times, as represented by the fossils of plants, animals, and other organisms.

Proponent

Any person who carries out or proposes to carry out an undertaking, or is the owner or person having care, management, or control of an undertaking.

Property Identification Numbers

A unique number assigned to each piece of real estate.

Protected Areas

Include but are not limited to: National Parks, National Wildlife Areas, Wilderness Areas, Nature Reserves, larger Provincial Parks, land trust lands and lands subject to conservation easements.

Most parks and protected areas are illustrated on this web map:
<https://www.novascotia.ca/parksandprotectedareas/plan/interactive-map/>

Rotor Blades

The aerodynamic surface that catches the wind.

EA Registration Document

A document that identifies the proponent and outlines the general characteristics of the undertaking, including location, nature, purpose, schedules, etc. Proponents have the option to include other information that they feel is necessary.

Setback

The distance a structure must be set back from the property lines in accordance with local zoning ordinances or deed restrictions.

Shadow Flicker

This occurs when the sun is low on the horizon and the blades pass between the sun and an observer, creating a flickering. This issue needs to be considered as it could cause irritation and visual impairment.

Site Plan

A plan, prepared to scale, showing accurately and with complete dimensions the boundaries of a site, and the location of all buildings, structures, uses, and principal development features proposed for a specific parcel or parcels of land.

Significant

With respect to an environmental effect, an adverse impact in the context of its magnitude, geographic extent, duration, frequency, degree of reversibility, possibility of occurrence, or any combination of the foregoing.

Species

A self-perpetuating population of animals or plants that is more or less genetically isolated.

Species of Conservation Interest

Any species with a ranking of S1-S3 as identified by the Atlantic Canada Conservation Data Centre (ACDC).

Species at Risk

A species that is determined to be Endangered, Threatened, or Vulnerable/Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Nova Scotia Endangered Species Act (NESA), or the federal Species at Risk Act (SARA).

Surface water

Water on the ground or in a stream, river, lake, sea, or ocean as opposed to groundwater.

Topography

The configuration of the Earth's surface, including the shape, elevation, and position of its natural and man-made features.

Undertaking

An enterprise, activity, project, structure, work, or proposal. May include, in the opinion of the Minister, a policy, plan, or program that has an adverse effect or an environmental effect. May include, in the opinion of the Minister, a modification, extension, abandonment, demolition, or rehabilitation of an undertaking.

Universal Transverse Mercator

A system of plane coordinates based upon 60 north-south trending zones, each 6 degrees of longitude wide, that circle the globe.

Valued Environmental Component (VEC)

A resource or environmental feature that is important (not only economically) to a local human population, or has a national or international profile, or if altered from its existing status will be important for the evaluation of environmental impacts of industrial developments.

Visual impact assessment

An assessment of potential impacts to visual amenity and landscape character, predictions of their magnitude, and significance to local “viewsheds” and landscape features.

Watercourse

The bed and shore of every river, stream, lake, creek, pond, spring, lagoon, or other natural water body, and the water therein, within the jurisdiction of the province, whether it contains water or not, and all groundwater.

Wetland

Land commonly referred to as marshes, swamps, fens, bogs, and shallow water areas that are saturated with water long enough to promote wetland or aquatic processes. Salt marshes are also wetlands.

Wind Power Project

Wind turbines connected to a common utility system through a system of transformers, distribution lines, and (usually) one substation. Operation, control, and maintenance functions are often centralized through a network of computerized monitoring systems, supplemented by visual inspection.

Appendix II

Contact Information

Nova Scotia Environment and Climate Change

Environmental Assessment Branch

Suite 2085 1903 Barrington Street

Halifax, NS

B3J 2P8

Phone: 902-424-3600

Fax: 902-424-0503

Email: EA@novascotia.ca

Website: www.novascotia.ca/nse/ea/

Nova Scotia Environment and Climate Change

Protected Areas and Ecosystems

Suite 2085 1903 Barrington Street

Halifax, NS

B3J 2P8

Phone: 902-424-3600

Fax: 902-424-0503

Email: protectedareas@novascotia.ca

Website: www.novascotia.ca/nse/protectedareas

Nova Scotia Department of Natural Resources and Renewables

Wildlife Division

136 Exhibition Street

Kentville, NS

B4N 4E5

Phone: 902-679-6091

Fax: 902-679-6176

Email: BIODIVERSITY@novascotia.ca

Website: www.gov.ns.ca/natr/wildlife

Nova Scotia Department of Communities, Culture, Tourism and Heritage

Heritage Stewardship Section

Heritage Division

1747 Summer Street

Halifax, NS

B3H 3A6

Phone: 902-424-7370

Fax: 902-424-0560

Website: <http://museum.gov.ns.ca/mnh/>

Nova Scotia Office of L'nu Affairs (OLA)

Consultation Division

5251 Duke Street, 5th Floor
PO Box 1617, Halifax, NS B3J 2Y3
E-mail: LnuAffairs@novascotia.ca

Atlantic Canada Conservation Data Centre

PO Box 6416
Sackville, NB
E4L 1G6
Fax: 506-364-2656
Website: www.accdc.com

Impact Assessment Agency of Canada

Atlantic Region

Suite 200, 1801 Hollis Street
Halifax, NS
B3J 3N4
Phone: 902-426-0564
Fax: 902-426-6550
Website: <http://www.ceaa-acee.gc.ca/>

Fisheries and Oceans Canada (DFO)

Fisheries Protection Program

1 Challenger Dr., 6th Floor Polaris, BIO
Dartmouth, NS
B2Y 4A2
Phone: 902-426-8015
Fax: 902-426-1489
Email: info@dfo-mpo.gc.ca
Website: <http://www.dfo-mpo.gc.ca>

Environment Canada and Climate Change

Canadian Wildlife Service

PO Box 6227
17 Waterfowl Lane
Sackville, NB
E4L 1G6
Phone: 506-364-5044
Fax: 506-364-5062
Email: FCR_Tracker@ec.gc.ca
Website: <http://www.cws-scf.ec.gc.ca/>

Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO)

75 Treaty Trail
Millbrook, NS
B6L 1W3
Phone: 902-843-3880
Fax: 902-843-3882
Toll Free: 1-888-803-3880
Email : info@mikmaqrights.com
Website: <http://mikmaqrights.com/>

Native Council of Nova Scotia

Mi'kmaq Environments Resource Developments Secretariat (MERDS)

172 Truro Heights Road
Truro Heights, N.S. B6L 1X1
Phone: 902-895-7050
Fax: 902-895-8182
Email: merds@ncnsnetcomm.ns.ca
Website: www.ncns.ca

NAV CANADA

AIS Data Collection Unit and Land Use Office

P.O. Box 9824, Station T, 1601 Tom Roberts Road
Ottawa, ON
K1G 6R2
Phone: 866-577-0247
Fax: 613-248-4094
Email: landuse@navcanada.ca
Website: www.navcanada.ca

Department of National Defence

Wind Turbines

ATESS/CCISF
Box 1000 Stn Forces, 8 Wing Trenton
Astra, ON
K0K 3W0
Email: +windturbines@forces.gc.ca
Website: www.forces.gc.ca