

## Comment Index

### Higgins Mountain Wind Farm Project

Publication Date: May 4, 2023

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Number	Source	Date Received
1	Kwilmu’kw Maw-Klusuaqn Negotiation Office (KMKNO)	April 18, 2023

**Public**

Number	Source	Date Received
1	Anonymous	March 15, 2023
2	Anonymous	March 15, 2023
3	Anonymous	March 16, 2023

4	Anonymous	March 17, 2023
5	Anonymous	March 17, 2023
6	Anonymous	March 17, 2023
7	Anonymous	March 17, 2023
8	Anonymous	March 18, 2023
9	Anonymous	March 19, 2023
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15	Anonymous	March 22, 2023
16	Anonymous	March 23, 2023
17	Anonymous	March 23, 2023
18	Anonymous	March 23, 2023
19	Anonymous	March 23, 2023
20	Protect Wentworth Valley	March 27, 2023
21	Anonymous	March 28, 2023
22	Anonymous	March 28, 2023
23	Anonymous	March 29, 2023
24	Anonymous	March 29, 2023
25	Anonymous	March 29, 2023
26	Anonymous	March 30, 2023
27	Anonymous	March 31, 2023
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165	Pure Meditation Centre Nova Scotia	April 14, 2023
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182	Anonymous	April 14, 2023
183	Anonymous	April 14, 2023
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185	Anonymous	April 14, 2023
186	Anonymous	April 14, 2023
187	Tourism Industry of NS	April 17, 2023

**DATE:** April 11, 2023  
**To:** NS Department of Environment and Climate Change  
**FROM:** Department of Municipal Affairs and Housing  
**SUBJECT:** **HIGGINS MOUNTAIN WIND FARM**

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As requested, the Department of Municipal Affairs and Housing (DMAH) has reviewed the Registration Documents provided by Higgins Mountain Wind Farm Partnership for the environmental assessment of the Higgins Mountain Wind Farm project. All of the components considered under DMAH's areas of mandate have been adequately addressed.

Thank you for the opportunity to review the Registration Documents for the above-noted project.

**DATE:** April 11, 2023

**To:** NS Department of Environment and Climate Change

**FROM:** Department of Municipal Affairs and Housing

**SUBJECT:** Higgins Mountain Wind Farm, Municipalities of Cumberland and Colchester

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**Scope of Review:**

This review focuses on the following mandates: the Statements of Provincial Interest and engagement with municipalities.

**Technical Comments:**

The proponents have spoken to the Mayor, Council, senior administrative and planning staff for both Cumberland and Colchester counties. They are aware that a Development Agreement is required in Cumberland and that a license is required from the Development Officer in Colchester, as per the recent Wind Turbine Development By-law. The study area is zoned Rural Resource in Cumberland; Colchester does not have zoning in this area.

**IMPACT TO SPIs:**

- **Drinking Water:** No anticipated impact. Wellfield zones are used to protect municipal drinking water in Cumberland. There are no wellfields in the study area or surrounding area. Colchester has two (2) protected watersheds, and the French River watershed is the only watershed near the study area; however, no portion of the study area is within the protected watershed area.
- **Agricultural Land:** No anticipated impact. There is land zoned Agriculture to the north of the study area, but it is not directly abutting the study area.
- **Flood Risk:** No anticipated impact. A setback applies for watercourses and wetlands (30m) based on Nova Scotia Department of Environment and Climate Change requirements.
- **Infrastructure:** No anticipated impact. There is no municipal servicing in this area.
- **Housing:** No anticipated impact. Municipal setbacks for wind turbines from habitable dwellings are met ensuring no housing is within 1000m of a turbine.

**Summary of Recommendations (provide in non-technical language):**

There is no outstanding information and/or conditions. All components considered under DMAH's areas of mandate have been adequately addressed.



Suite 200  
1801 Hollis Street  
Halifax NS B3J 3N4

Bureau 200  
1801 rue Hollis  
Halifax, NE B3J 3N4

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Date: April 11, 2023

To: Jeremy Higgins, Environmental Assessment Officer, Nova Scotia Department of Environment and Climate Change

From: Trevor Ford, A/Project Manager, Impact Assessment Agency of Canada

Subject: Higgins Mountain Wind Farm Project

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The federal environmental assessment process is set out in the [Impact Assessment Act](#) (IAA). The [Physical Activities Regulations](#) (the Regulations) under IAA set out a list of physical activities considered to be “designated projects.” For designated projects listed in the Regulations, the proponent must provide the Agency with an Initial Description of a Designated Project that includes information prescribed by applicable regulations ([Information and Management of Time Limits Regulations](#)).

Based on the information submitted to the Province of Nova Scotia on the proposed Higgins Mountain Wind Farm Project, it does not appear to be described in the Regulations. Under such circumstances the proponent would not be required to submit an Initial Description of a Designated Project to the Agency. However, the proponent is advised to review the Regulations and contact the Agency if, in its view, the Regulations may apply to the proposed project.

The proponent is advised that under section 9(1) of the IAA, the Minister may, on request or on his or her own initiative, by order, designate a physical activity that is not prescribed by regulations made under paragraph 109(b) if, in his or her opinion, either the carrying out of that physical activity may cause adverse effects within federal jurisdiction or adverse direct or incidental effects, or public concerns related to those effects warrant the designation. Should the Agency receive a request for a project to be designated, the Agency would contact the proponent with further information.

The proposed project may be subject to sections 82-91 of IAA. Section 82 requires that, for any project occurring on federal lands, the federal authority responsible for administering those lands or for exercising any power to enable the project to proceed must make a determination regarding the significance of environmental effects of the project. The Agency is not involved in this process; it is the responsibility of the federal authority to make and document this determination.

The proponent is encouraged to contact the Agency at (902) 426-0564 if it has additional information that may be relevant to the Agency or if it has any questions or concerns related to the above matters.

Thank you,

Trevor Ford

A/Project Manager, Atlantic Regional Office  
Impact Assessment Agency of Canada / Government of Canada  
Trevor.Ford@iaac-aeic.gc.ca / Tel: 902-476-7635

I/Gestionnaire de projets, Bureau régional de l'Atlantique  
Agence d'évaluation d'impact du Canada / Gouvernement du Canada  
Trevor.Ford@iaac-aeic.gc.ca / Tél. : 902-476-7635

Date: April 12, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Environmental Health

Subject: **Higgins Mountain Wind Farm, Cumberland/Colchester Counties, Nova Scotia**

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**Scope of review:**

This review focuses on the mandate to protect public health from possible impacts associated with the project. This review specifically focuses on impacts from shadow flicker, ice throw and sound.

**Shadow Flicker**

Section 10.3 of the report assesses the impacts of shadow flicker on 322 potential receptors located within 2 km of the project.

Worst-case scenario modelling was undertaken to predict the level of impact on receptors. Table 10.5 shows that 3 receptors exceeded the standard of 30 hours of shadow flicker per year and/or 30 minutes per day on the worst day.

Real-case scenario modelling was then undertaken, and after a comparison of the modelled results to the standard presented in Table 10.6, zero receptor exceeded the 30 hour per year standard.

A notation located at the bottom of Table 10.6 states in small lettering that WindPro software is unable to calculate minutes/day of shadow flicker for real-case scenarios. Nowhere else is this information presented within the EA or Appendices.

Conclusion: Benefits and limitations of shadow flicker modelling should be clearly presented in the EA.

**Ice Throw**

Section 10.1.2 of the EA assesses impacts of ice throw and ice fall. Residential receptors are not expected to be impacted from ice throw, due to distance between receptors and the project area.

There is the potential for ice throw to impact recreational land users such as hunter, snowmobilers and ATV users. The proponent has described technologies available within the wind turbine that limit the amount of ice build-up and the release of ice from turbines. The proponent has committed to educating recreational land users on the risk of ice

throw, and the project will include signage at the site to warn land users of ice throw/fall risks.

Conclusions: Impacts of ice throw on public health are deemed to be negligible.

## **Sound**

Section 10.5 assesses the impacts of sound related to the project. Modelling was undertaken to estimate sound impacts at 322 receptor sites located within 2 km of the project area.

### Operational Sound

Predicted sound levels at receptor sites were compared to the NSECC guideline value of 40 dBA. Predicted sound impacts at all receptor sites were below 40dBA.

### Construction Sound

Based on a desktop review the EA concludes that;

- 44 potential receptors located within 0.5 km of construction activities may result in median sound levels above 65 dBA during daytime hours.
- 322 potential receptors located within 2.0 km of construction activities which may result in median sound levels above 55 dBA during daytime hours.

It is unclear to the reviewer how the proponent incorporated background noise levels into the assessment of noise related impacts during construction.

The EA describes sources of background noise, however no background noise monitoring was undertaken as part of the assessment.

Conclusion:

1. Sound modelling undertaken to assess impacts of noise on human receptors has demonstrated that noise associated with the operational phase of this project is deemed to be negligible.
2. The EA acknowledges that during construction elevated noise levels are anticipated to occur intermittently. Development of a complaints handling procedure for receiving and investigating noise related complaints from the public is recommended.
3. Prior to construction the proponent has committed to undertake background noise monitoring at key receptors to verify current background noise levels. Establishing background levels will prove useful to any future noise monitoring activities that may be undertaken as part of this project.



**Fisheries and Aquaculture**

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Date: April 14, 2023

To: Jeremy Higgins, Environmental Assessment Officer, Nova Scotia  
Environment and Climate Change

From: Lesley O'Brien-Latham, Executive Director, Policy and Corporate Services  
Nova Scotia Department of Fisheries and Aquaculture

Subject: Higgins Mountain Wind Farm Project, Cumberland/Colchester Counties, NS  
– Environmental Assessment

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Thank you for the opportunity to review the Higgins Mountain Wind Farm Project documents.

Based on the information you provided, the Department of Fisheries and Aquaculture has the following comments:

- The Department does not anticipate risks to the commercial harvesting and marine activities within the Department's mandate.
- The Department does not anticipate any negative impact on sportfishing, given the mitigation measures outlined in the EA.
- Within 25km of the proposed project, there are 8 issued marine sites, 4 marine sites in abeyance, and 1 issued land-based site.

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Date: April 14, 2023

To: Jeremy Higgins, Environmental Assessment Supervisor

From: Nova Scotia Office of L'nu Affairs – Consultation Division

Subject: Higgins Mountain Wind Farm Project, Cumberland County, Nova Scotia

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**Scope of review:**

The following review considers whether the information provided will assist the Province in assessing the potential of the proposed Project to adversely impact established and/or asserted Mi'kmaw Aboriginal and Treaty rights.

**Technical Comments:**

**Appendix C: Indigenous Peoples Declaration and Plan**

Appendix C includes information regarding Aboriginal and Treaty rights, the Duty to Consult, and the proponent's engagement efforts. The plan was initially published in 2017 and includes some outdated project, proponent, and Mi'kmaq community information. OLA advises that the proponent revise the document to include up-to-date information on the following pages:

Page 2 and page 6 include out-of-date proponent and project information. OLA suggests updating this information to reflect the EARD.

Page 6 states that "In Nova Scotia, there are 13 Mi'kmaq communities – 11 of them work as a collective to protect their rights, negotiate a modern treaty with the Governments of Canada and Nova Scotia, and manage the consultation process through elected representatives to the Assembly of Nova Scotia Mi'kmaq Chiefs (ANSMC) and their administrative office, the Kwil'muk Maw-klusuaqn Negotiation Office (KMKNO)." OLA advises replacing with this text: "In Nova Scotia, there are 13 Mi'kmaq communities. 12 of the 13 communities work as a collective to negotiate a modern treaty with the Governments of Canada and Nova Scotia through the Assembly of Nova Scotia Mi'kmaw Chiefs (ANSMC). 10 of the 13 communities manage the consultation process through elected representatives to the Assembly of Nova Scotia Mi'kmaw Chiefs (ANSMC) and their administrative office, the Kwil'muk Maw-klusuaqn Negotiation Office (KMKNO)."

OLA advises that Membertou First Nation, Millbrook First Nation, and Sipekne'katik First Nation have withdrawn from the Mi'kmaq-Nova Scotia-Canada Consultation Terms of Reference (TOR) and are therefore not represented by KMKNO for consultation purposes. Appendix C states that a separate engagement process will be developed for Millbrook First Nation and Sipekne'katik First Nation. Membertou First Nation should also receive a separate engagement process.

Page 7 includes Millbrook First Nation and Sipekne'katik First Nation as Mi'kmaq communities that are not represented by KMKNO for consultation purposes. OLA advises adding Membertou First Nation.

Page 9 states "the Environmental Assessment Regulations specifies that proponents must share how they engage with Aboriginal groups." OLA advises replacing 'Aboriginal groups' with 'Mi'kmaq communities'. Section 5.2 is named "MEKS" OLA advises that this sub-heading be renamed to "Mi'kmaq Ecological Knowledge Study"

### **Summary of Recommendations:**

Crown consultation with the Mi'kmaq of Nova Scotia is ongoing for this project. The Mi'kmaq of Nova Scotia may provide additional information that informs the regulator in assessing the proposed project's potential impacts to established and/or asserted Mi'kmaw Aboriginal and Treaty rights and appropriate accommodation and mitigation measures. At this time, OLA is able to provide the following comments and recommendations:

#### **Appendix B MEKS**

26 Interviews were undertaken by the Membertou Geomatics Solutions team with Mi'kmaq knowledge holders from Pictou Landing First Nation, Millbrook First Nation, and Sipekne'katik First Nation to document traditional use activities within the Project Area. According to the MEKS, trout, salmon, and bass fishing as well as deer, moose, and rabbit hunting were reported as having occurred in the historical past within the Project Site. According to the MEKS, sweetgrass, berry, and wood gathering were reported as having occurred in the historical past and current use categories.

OLA encourages the regulator to carefully consider the information contained in the MEKS and factor relevant information into the decision-making process. For example, information regarding current rights-practicing activities within the project area and potential impacts to those activities that may occur from this project. OLA recommends that the proponent engages in discussions with the Mi'kmaq of Nova Scotia to address mitigation measures for potential impacts on rights-practicing activities within the project area. OLA advises the proponent to share the MEKS with the Mi'kmaq of Nova Scotia.

#### **5.3 Mi'kmaq Engagement**

Table 5.1 provides a good summary of engagement efforts to date with the Mi'kmaq of Nova Scotia. The Province encourages continued engagement with the Mi'kmaq of Nova Scotia, including KMKNO, to share project information throughout the duration of the project.

#### **7.3.2 Fish and Fish Habitat: Desktop Review**

According to the EARD and based on Atlantic Canada Conservation Data Centre (ACCDC) records Atlantic salmon, American eel, and Brook trout have been identified within 100 km of the Study Area. The electrofishing surveys demonstrated high availability of brook trout habitat throughout the Study Area. According to ACCDC, Atlantic Salmon was identified within 10 km of the Study Area. According to the EARD, there is potential for fish habitat loss. OLA is aware that Atlantic salmon, American eel,

and Brook trout are species of interest to the Mi'kmaq of Nova Scotia. Potential impacts to fish and their habitat may potentially adversely impact Aboriginal and/or Treaty rights. OLA recommends that engagement with the Mi'kmaq on mitigation measures for potential impacts on possible fishing activities within the project area and adjacent to the project area, through a Mi'kmaq Communications Plan, be required if the EA is approved. OLA further recommends that the proponent engage the Mi'kmaq of Nova Scotia by sharing draft mitigation and monitoring plans for input from the Mi'kmaq.

#### 7.4.3.3 Terrestrial Fauna Desktop Review

According to the ACCDC Data Report (2022), Mainland moose was recorded within a 100km radius of the Study Area. According to the EARD, mainland moose habitat suitability modelling was conducted and determined the study area to be of high quality for mainland Moose habitat. OLA is aware that moose is a significant species for the Mi'kmaq of Nova Scotia. Potential impacts to moose and their habitat may potentially adversely impact Aboriginal and/or Treaty rights. OLA recommends that engagement with the Mi'kmaq on mitigation measures for potential impacts on possible traditional and current use activities within the project area and adjacent to the project area, through a Mi'kmaq Communications Plan, be required if the EA is approved. OLA further recommends that the proponent engage the Mi'kmaq of Nova Scotia by sharing draft moose mitigation and monitoring plans for input from the Mi'kmaq of Nova Scotia.

#### 7.4.3.3 Terrestrial Fauna Desktop Review

According to the NSNRR Significant Species and Habitat Database (2018), white-tailed deer was recorded within a 100km radius of the Study Area. OLA is aware that hunting deer is a traditional activity for the Mi'kmaq of Nova Scotia. The EARD also located one deer wintering area within the study area. Potential impacts to deer and their habitat may potentially adversely impact Aboriginal and/or Treaty rights. OLA recommends that engagement with the Mi'kmaq on mitigation measures for potential impacts on possible traditional and current use activities within the project area and adjacent to the project area, through a Mi'kmaq Communications Plan, be required if the EA is approved. OLA further recommends that the proponent engage the Mi'kmaq of Nova Scotia by sharing draft mitigation and monitoring plans for input from the Mi'kmaq of Nova Scotia.

#### 9.0 Archaeological Resource Impact Assessment

As determined by the Archaeological Resource Impact Assessment (ARIA), four areas of high archaeological potential were found to be located within the proposed project area. One of these areas was subjected to subsurface testing to determine whether archaeological resources were present. It is recommended that engagement with KMKNO-ARD on archaeology continue throughout project development.

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Date: 11 April, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Environmental Services, Nova Scotia Public Works

Subject: **Higgins Mountain Wind Farm Project, Cumberland County, Nova Scotia**

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**Scope of review:**

This review focuses on the following mandate: Traffic Engineering and Road Safety Impacts for the Higgins Mountain Wind Farm Project.

**Technical Comments:**

1. Table 2.2 for Provincial Permits, (Page 6 ) references NSDPW Special Moves Permits, Working Within Highway Right Of Way and the Nova Scotia Temporary Workplace Traffic Manual. Blasting is also identified, (NSECC, NS Health and Safety), but there may also be NSDPW implications if blasting is near a provincially owned road.
2. Table 3.3 Minimum Setback Distance: Public Roads (Page 9), has Health Canada identified as a stakeholder only. NSDPW should be identified as well. For powerlines, NS Power is identified, however; there may be impacts on NSDPW if there are powerline crossings over provincially owned roads (Drawing 3.2).
3. The main accesses to the project area are off Trunk 4 and Valley Road (at Higgins Mountain Road) and are all provincially owned. There are other roads beyond these which are provincially owned as well. In the report under Road Layout, (Page 11), there are references to possible modifications and upgrading. If any modifications are required to these road intersections, they must be identified on the Working Within Highway Right of Way Permit, available from the local Area Manager.
4. With respect to the subject of road modifications, all work areas created as a result of this on provincially owned roads are to be in compliance with the appropriate section of the Nova Scotia Temporary Workplace Traffic Control Manual. Any traffic control plans provincially owned roads must be prepared by the proponent, and reviewed by the Local Traffic Authority. The local Area Manager would be the point of contact for these activities.

5. With respect to the Special Moves Permits, (identified in Point 1), the turbine component transportation will most likely require this. The proponent will need to contact our Departmental contact for Special Moves to confirm requirements Turbine Specs identified in Section 3.2.1, finalization of transportation route discussions in the report (Pg 212) are some of the issues that would need to be included in this discussion.
6. Traffic and Transportation (Pg. 210). Different roads are mentioned, all are provincially owned, so any impacts on them will need to be advised of and approved via the Working Within Highway Right of Way. That and the other provincial permit and road impacts are correctly defined in Section 8.3.3 Regulatory Context on Page 211.
7. As indicated above in Point 5, Section 8.3.4 Effects Assessment indicates that a route study is currently underway. It should be done as soon as possible so any necessary route analysis can be completed. It also mentions possible removal of guardrail and signage and road modifications on the transportation route. All of these, as indicated above, will require the need for the Working Within Highway Right of Way, and compliance with the Nova Scotia Temporary Workplace Traffic Control Manual if work areas are created on provincially owned roads.
8. The mitigation measures, as well as the traffic monitoring on page 212 and 213 (and repeated on page 256) appear to be appropriate and sufficient for what the anticipated impacts appear to be.
9. The Site Overview Plan and Drawing 2.2 does not completely show both accesses. It shows the Trunk 4 access, but another appears to be cut off from the north side (from Valley Road). This is more clearly shown on Drawing 2.1.

**Summary of Recommendations: (provide in non-technical language)**

1. Contact Local Area Manager for any Working Within Highway Right of Way Permit that may be required. This would also be the first contact for any issues to do with road closures, traffic related concerns or spring weight restrictions.
2. Any traffic control plans (as required) must be prepared by the proponent, follow the appropriate guidelines of the Nova Scotia Temporary Workplace Traffic Control Manual, and be approved by the Local Traffic Authority.

3. Once a Special Moves Permits is required, please contact our Departmental Contact for Special Moves, Manuel Abreu, for any required information. His email address is [Manuel.Abreu@novascotia.ca](mailto:Manuel.Abreu@novascotia.ca)

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Date: April 13, 2023

To: Jeremy Higgins, Nova Scotia Environment & Climate Change

From: Coordinator Special Places, Culture and Heritage Development

Subject: Higgins Mountain Wind Farm Project - EA Registration

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Staff of the Department of Communities, Culture, Tourism, and Heritage has reviewed the Higgins Mountain Wind Farm Project - EA Registration documents and have provided the following comments:

### ***Archaeology***

Staff reviewed the sections of the EA document pertaining to archaeology. An ARIA has been conducted (A2022NS134) and the results are presented in the report.

Due to layout modification, a second ARIA is awaiting completion. CCTH needs to review that report when submitted and complete an acceptance letter. This new ARIA needs to be incorporated into the EA document.

Page 222 of the EA document notes under Monitoring, "No monitoring programs are recommended." For clarity, I suggest modifying the statement to No monitoring programs are recommended accept as noted above.

### ***Botany***

Staff reviewed the sections of the EA document pertaining to botany. Eastern waterfan lichen was detected in watercourses 15, 5 and 6, which are crossed by existing roads and may experience some down-stream disturbances. Any lichen observations downstream from road-work in the study area should be monitored before and after the work takes place, even when that work is outside of buffer distances recommended by the NSNRR's lichen SMP, because it is not currently known whether Eastern Waterfan can tolerate disturbances beyond this range when they occur upstream.

Several invasive plants were identified in the study area. The proposed mitigations are helpful, but in addition the ground crews should avoid using soils that hold invasive plants for any

reclamation work, opting instead to bury such soil deeply, or avoid disturbing it entirely.

### ***Palaeontology***

Staff have reviewed the sections of the EA document pertaining to palaeontology. There are no expectations of fossils being encountered in any of the mapped surficial geology and bedrock geology (Devonian-Carboniferous Gabbro) related to the proposal.

### ***Zoology***

Staff have reviewed the sections of the EA document pertaining to palaeontology to zoology. The document highlights several cases where there are SOCI/SAR species among several taxonomic groups that are within and/or immediately outside the study area. It appears to be a reasonable assessment of the zoological setting for the site and immediate-adjacent area.

Date: April 13<sup>th</sup>, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Water Resources Management Unit, Sign-off by Elizabeth Kennedy, Director Water Branch, Sustainability and Applied Science Division

Subject: Higgins Mountain Wind Farm Project, Cumberland/Colchester Counties, NS

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**Scope of review:**

This review focuses on the following mandate:

- Surface water quantity and quality
- Groundwater quantity and quality
- Wetlands

**Technical Comments:***Surface water quality and quantity*

The Environmental Assessment Registration Document (EARD) did not meet all submission requirements for Surface Water as outlined in the *Guide to Preparing an EA Registration Document for Wind Power Projects*.

The EARD did not identify all watercourse crossings necessary for the project.

- There are several mapped watercourse crossings which the EARD does not show as being field identified. All watercourse alterations should be identified using the framework set out under the *Activities Designation Regulations*, using the definitions provided by the *Environment Act* to ensure the proponent has appropriately identified watercourses.
- If field identification of watercourses demonstrates a discrepancy from the base mapping this information should be provided for review by ECC. Field methodology should also reference the *Guide to Altering Watercourses* for further information on how ECC makes determinations of making the distinction between watercourses and 'drainage features'.
- The EARD stated that drainage features were field identified, however, the field methodology does not reference the definition of a watercourse provided in the *Environment Act* and the *Guide to Altering Watercourses* and as such, there is a potential for alterations of watercourses without the required approvals by the department.

The EARD describes integrated water management systems including diversion and collection ditches, roadsides drainage channels, vegetated swales, and stormwater retention ponds as mitigations. However, the success or impacts of these activities on the local hydrology have not yet been assessed. Description of local hydrological conditions with predicted effects quantified is important to support planning and appropriate mitigations. It is recommended that a surface water management plan be developed by a qualified professional engineer. This plan should include, but not be limited to discussion of local hydrology, sufficient detail identifying potential effects from road or other project element construction on local surface water drainage patterns, identification for avoidance or mitigation measures for the protection of the environment (e.g., wetlands and watercourses), and justifications for final proposed designs and operations.

The EARD does commit to using ESC measures and developing a site-specific plan in the detailed design phase to mitigate risks. To ensure the plan meets our requirements, it should be developed by a qualified professional be submitted to ECC for review and approval prior to construction activities including clearing, grubbing, and stripping.

### *Groundwater quantity and quality*

The proponent has proposed mitigations to reduce the potential for impacts on groundwater quantity, including an environmental protection plan for outlining prevention and response for spills. Pre-blast surveys were proposed as a part of the mitigations for the project.

The EARD identified groundwater wells within and close to the study area and within the assessment area. Mapping also showed potential receptors but no corresponding water well for the dwellings. Minimum separation distances were also proposed within the EARD to nearby receptors.

### *Wetlands*

The Environmental Assessment Registration Document (EARD) did not meet all submission requirements for Wetlands as outlined in the *Guide to Preparing an EA Registration Document for Wind Power Projects*.

The following information was not provided:

- Identify the location, size, boundary and class of any wetland
  - Based on aerial imagery and GIS modelling it appears that several delineated wetlands appear to be larger and extend outside of the assessment area (e.g., WL1, WL3) and/or are connected to each other (e.g., WL 4 and 5). Wetlands extending out of the assessment area should be mapped approximately to determine their full extents.
- Maps clearly indicate the locations of the project in relation to the wetland and other natural features.
  - Other natural features (i.e., watercourses, fish habitat, SAR/SOCC) were not included in the wetland figures. The proponent states there are no Wetlands of Special Significance (WSS) within the Assessment Area, however, it appears that blue felt lichen was identified in/adjacent to Wetland 1. It is unclear if additional wetlands support at-risk species as designated under the federal *Species at Risk Act* or the *Nova Scotia Endangered Species Act* because their locations were not identified within the EARD.

## Summary of Technical Considerations:

Prior to commencement of the project, the proponent should confirm watercourses using the framework set out under the Activities Designation Regulations, and the Guide to Altering Watercourses where all determinations of watercourses should be made using the definitions provided by the Environment Act. If field identification demonstrates a discrepancy from the base mapping this information should be provided for review by ECC.

The *NS Wetland Conservation Policy* (2011) objective is to “manage human activity in or near wetlands, with the goal of no loss in Wetlands of Special Significance (WSS) and the goal of preventing net loss in area and function for other wetlands”. The information provided in the EARD is insufficient in identifying the potential environmental impacts on wetlands. Information is lacking detail and does not correlate with other important features (i.e., project infrastructure, SAR/SOCC, watercourses, fish habitat). It is unclear how many wetlands are WSS based on the information provided. Prior to commencement of the project the proponent should clearly demonstrate on maps and tables which wetlands are WSS and that there will be no impacts to them. Based on the information provided there is the potential for loss of WSS which is not consistent with the *NS Wetland Conservation Policy*. The final construction design should confirm how these wetlands are being avoided from direct or indirect alteration. ECC will not support or approve alterations proposed for a WSS or any alterations that pose a substantial risk to a WSS except alterations that are required to maintain, restore, or enhance a WSS, or alterations deemed to provide necessary public function.

If the project is approved, ECC should consider the following EA Terms and Conditions:

- A surface water management plan should be prepared by a qualified professional engineer and provided for review and acceptance prior to commencement of the project. The plan shall include, not be limited to, a discussion of local hydrology, sufficient detail identifying potential effects from road or other project element construction on local surface water drainage patterns, identification for avoidance or mitigation measures for the protection of the environment (e.g., wetlands and watercourses), and justifications for final proposed designs and operations prior to construction activities at the Site.
- Submit a detailed erosion and sediment control plan, prepared by a qualified professional, for review and acceptance prior to construction activities including clearing, grubbing, and stripping, take place. The plan shall give special considerations to areas with steeply sloping topography and those in the immediate vicinity to water resources.
- Submit a Wetland Alteration Approval Application for review and approval for any wetlands proposed to be directly or indirectly altered and complete any necessary compensation and monitoring. The proponent should utilize Nova Scotia’s Wetland Alteration Application’s Guided Template for the permit applications.
- Establish a minimum buffer distance of 30m from any surface watercourse or wetland for the following activities: fuel storage, refueling, and/or lubrication of equipment; washing of machinery or equipment; and storage of equipment, excavated/stockpiled materials, and potential contaminants.
- If blasting is required the proponent should submit a blasting plan, prior to blasting, for review and acceptance. The plan should include completed pre-blast surveys for structures within 800m of the point of blast, including water quality analysis for water wells within the same area. A detailed blast monitoring plan and a blast damage response policy should also be provided.

- In order to ensure that any unexpected impacts on groundwater users are mitigated, a condition requiring the replacement of any impacted water supply should be included within the EA Approval.

## Agriculture

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Date: April 4, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Heather Hughes, Executive Director, Policy and Corporate Services,  
Nova Scotia Department of Agriculture

Subject: Higgins Mountain Wind Farm Project  
Wentworth, Cumberland County, Nova Scotia

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Thank you for the opportunity to review the documents for the above-noted project.

No agricultural impacts are anticipated given that:

- The Higgins Mountain Wind Farm Project is located on class 7 soil, Canada Land Inventory, which is unsuitable for agriculture.
- There are 14 farms with a total land area of 1,690ha within 5km of the study area.
- The closest active agricultural land, 50ha of blueberry land, is 1.5km from the nearest proposed wind turbine.

Date: April 11, 2023  
To: Jeremy Higgins, Environmental Assessment Officer  
From: Climate Change Division Staff  
Subject: Higgins Mountain Wind Farm Project, Cumberland/Colchester Counties, NS

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**Scope of review:**

This review focuses on the following mandate: Climate Change Adaptation and Mitigation

**Technical Comments:**

**Adaptation**

- The EA registration document includes a description of the local climate (Debert meteorological station) based on climate data from 2012-2022 (Section 7.1.1). The 'Guide to Considering Climate Change in Project Development in Nova Scotia' recommends 30 years of climate data to adequately assess climate variability. Climate normals for the Debert station are available through Environment and Climate Change Canada.
- 12.1.1 Temperature: The overview of the risks of high temperatures to people is appropriate, but it would also be valuable to identify whether extreme temperatures projected for this location pose any risks to safe turbine operation or electricity transmission.
- 12.1.3 Flooding: The flooding mitigation measures proposed seem appropriate. One additional consideration would be that if any stormwater infrastructure is present (e.g., culverts under roadways), it should also be designed with climate change in mind to minimize the risk of road washouts. If needed, climate change adjusted IDF curves are available from Environment and Climate Change Canada through the national climate data portal, ClimateData.ca.
- 12.2.3 Wildfire: *"Should the risk of fires increase throughout the lifetime of the Project, mitigation strategies to protect Project infrastructure and relevant VCs will be adapted accordingly."* An increase in fire risk due to climate change should be anticipated. The province's latest risk assessment, *Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*, noted that wildfire may be the top hazard of concern in Nova Scotia by mid-century, given the large projected increase in weather conditions that could lead to wildfire and the province's relatively low capacity to cope. It may be beneficial for the Project to consider adapting strategies to protect Project infrastructure with this in mind.
- The EA registration document does not reference specific climate change projections for the site, and effects are not assessed within a risk management framework, as recommended in the 'Guide to Considering Climate Change in Project Development in Nova Scotia'.

## **Mitigation**

- The proponent has quantified potential greenhouse gas emissions from the construction and maintenance of the project using acceptable emissions factors and assumptions.
- The total potential emissions associated with the construction including production of the turbines is 43,470.74 Tonnes CO<sub>2</sub>e. Excluding the emissions associated with the turbine manufacture offsite, these emissions can be considered to be low. Emissions associated with maintenance of the project are also negligible.
- The proponent has proposed sufficient mitigation measures for the reduction of potential emissions during the construction phase of the project.

## **Summary of Recommendations: (provide in non-technical language)**

### **Adaptation**

- The proponent should consider using 30 years of climate data to adequately assess climate variability and characterize the local climate as per the province's 'Guide to Considering Climate Change in Project Development in Nova Scotia'.
- The proponent should consider adopting a risk management framework as recommended in the 'Guide to Considering Climate Change in Project Development in Nova Scotia' to determine which impacts present the highest risks to the project and to assist in the determination of priorities for implementing adaptation measures where required.
- The proponent should consider discussing whether high temperatures could potentially impact the mechanical or electrical components of Project operations, as these conditions are becoming more prevalent with climate change.
- The proponent should consider discussing if increased wildfires will have potential impacts on operations and transmission and if potential adaptation responses are possible.
- The proponent should consider designing stormwater infrastructure that follows guidance from Environment and Climate Change Canada and the latest available climate change projection data.

### **Mitigation**

- No further requirements are recommended.



**Environment and Climate Change**

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Date: April 14, 2023  
To: Jeremy Higgins, Environmental Assessment Officer  
From: Cumberland Environment Officer  
Subject: Higgins Mountain Wind Farm Project, Cumberland/Colchester Counties, NS

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**Scope of review:**

This review focuses on the following mandate: Compliance requirements

**Technical Comments:**

*No additional comments*

**Summary of Technical Considerations: (provide in non-technical language)**

*No additional comments*



**Environment and Climate Change**

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Date: April 13, 2023  
To: Jeremy Higgins, Environmental Assessment Officer  
From: Neil Morehouse, Manager, Protected Areas and Ecosystems  
Subject: Higgins Mountain Wind Farm Project

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**Scope of review:**

This review focuses on the following mandate: Protected Areas

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**Technical Comments:**

*Adjacent to Wentworth WA, and Pending Staples Brook NR*

**Summary of Recommendations: (provide in non-technical language)**

*We have no comments on this project.*

Date: April 14, 2023  
To: Jeremy Higgins, Environmental Assessment Officer  
From: Melissa Ginn, Regional Environmental Advisor, Transport Canada  
Subject: Higgins Mountain Wind Farm Project, Cumberland/Colchester Counties, NS

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**Scope of review:**

This review focuses on the following mandate: navigation, aviation

**Technical Comments:**

Transport Canada, Environmental Programs and Indigenous Relations, Atlantic Region has reviewed the registration document. We have determined the since the proposed project is not located on federal lands, a review pursuant to s.82 of the *Impact Assessment Act* (IAA) is not required.

The proponent will need to complete an Aeronautical Assessment Form (AAF) regarding the wind turbines, to assess for marking and lighting requirements as per:

**Standard 621 - Obstruction Marking and Lighting - Canadian Aviation Regulations (CARs)** (<https://tc.canada.ca/en/corporate-services/acts-regulations/list-regulations/canadian-aviation-regulations-sor-96-433/standards/standard-621-obstruction-marking-lighting-canadian-aviation-regulations-cars>).

The AAF is located in *Appendix C - Aeronautical Assessment Form for Obstruction Marking and Lighting* ([Form 26-0427E](#)).

Once the AAF information has been completed, please forward to: [aviation.atl@tc.gc.ca](mailto:aviation.atl@tc.gc.ca).

Navigation Protection Program of Transport Canada can provide the following comments:

It is noted that the proposed project will involve project components including upgrades to existing roads with culverts/bridges for water crossings during road construction.

The watercourse crossing upgrades, other infrastructure, and activities appear

to have potential impact on non-scheduled waterways subject to the Canadian Navigable Waters Act, and the proponent will need to consider the following:

Under the Canadian Navigable Waters Act (CNWA), owners of works – (other than a minor work or a major work) - that are located on navigable waterways not listed in the schedule, which may interfere with navigation, have the option to:

1. either apply to the Minister of Transport; ( approval review process and advertising and 30 day registry public review)

or

2. seek authorization through the public resolution process, and deposit specific information regarding their proposed crossing works on the new Common Project Search (online registry) inviting any interested party to comment.

(advertising and 30 day registry public review)

**\*\*Note however, that any bridges with piers placed below the high water mark of a watercourse, as well as water control structures always require an approval as outlined in the Major works Order. (an application for approval is required)**

Both the approval application process and the public resolution process on the Registry can be accessed at the following link:

[External Submission Site for the Navigation Protection Program](#)

( create an account first if needed)

Additional guidance information and links for the NPP regulatory process can be found here:

Canadian Navigable Waters Act

<https://www.tc.gc.ca/eng/programs-632.html>

<https://www.tc.gc.ca/eng/canadian-navigable-waters-act.html>

Navigation Protection Program, Transport Canada

<http://www.tc.gc.ca/eng/programs-621.html>

NPP Contact coordinates:

Navigation Protection Program | Programme de protection de la navigation

Transport Canada - Atlantic Region / Heritage Court, P.O. Box 42, 95 Foundry Street, Moncton, N.B.

E1C 8K6 |

Transports Canada - Région de l'Atlantique / Place Héritage, C.P. 42, 95 rue Foundry, Moncton, N.-B.

E1C 8K6

Tel | Tél. : 506-851-3113 / Fax | Téléc. : 506-851-7542

Email / Courriel : [NPPATL-PPNATL@tc.gc.ca](mailto:NPPATL-PPNATL@tc.gc.ca)

**Summary of Technical Considerations: (provide in non-technical language)**

**The proponent will need to complete an Aeronautical Assessment Form (AAF) regarding the wind turbines, to assess for marking and lighting requirements.**

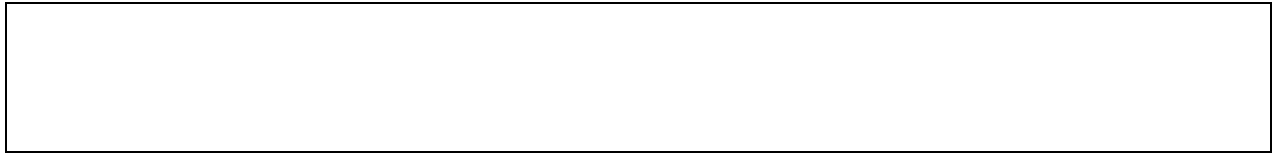
**Under the Canadian Navigable Waters Act (CNWA), owners of works – (other than a minor work or a major work) - that are located on navigable waterways not listed in the schedule, which may interfere with navigation, have the option to:**

- 1. either apply to the Minister of Transport; ( approval review process and advertising and 30 day registry public review)**

**or**

- 2. seek authorization through the public resolution process, and deposit specific information regarding their proposed crossing works on the new Common Project Search (online registry) inviting any interested party to comment.**

**(advertising and 30 day registry public review)**





Date: April 14, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Laura Watkinson, Linear Development, Regulatory Review Biologist, Fish and Fish Habitat Protection Program; Sign-off by Alex Levy, Team Lead

Subject: Higgins Mountain Wind Farm Project, Cumberland County, Nova Scotia

**Scope of review:**

The Fish and Fish Habitat Protection Program of Fisheries and Oceans Canada (DFO-FFHPP) is responsible for administering the fish and fish habitat protection provisions of the *Fisheries Act* (FA), the *Species at Risk Act* (SARA) for aquatic species at risk, and the *Aquatic Invasive Species Regulations*.

DFO-FFHPP review focused on the impacts of the works outlined in the Higgins Mountain Wind Farm Project Environmental Assessment Registration Document, to potentially result in:

- the death of fish by means other than fishing and the harmful alteration, disruption or destruction of fish habitat, which are prohibited under subsections 34.4(1) and 35(1) of the *Fisheries Act*;
- effects to listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act*; and
- The introduction of aquatic species into regions or bodies of water frequented by fish where they are not indigenous, which is prohibited under section 10 of the *Aquatic Invasive Species Regulations*.

**Technical Comments:**

Risk Assessment: Impacts to Fish and Fish Habitat	
Identify Gap/Risk	Watercourse labelling is inconsistent within the document.  Detailed fish and fish habitat assessments, and electrofishing were conducted for several watercourses in the assessment area, as outlined in section 7.3.2 and Appendix H of the Environmental Assessment Registration Document (EARD); however, this information was provided for named watercourses, and is inconsistent with the table outlining potentially impacted watercourses identified as WC1-18 (table 7.22 and table 7.28 in section 7.3.2 of the EARD and Appendix F of the EARD). The connection between the named watercourses and WC1-18 is unclear, and the potential presence of – and impacts to – fish and fish habitat cannot currently be assessed.

	<p>Potential barriers to fish passage were briefly identified in a table for several watercourses in determining the potential for watercourses to be fish bearing (Appendix F and Appendix H of the EARD). The barriers noted include existing culvert structures. Limited information is provided for determining the ability of fish to access upstream reaches beyond listed barriers, and whether alterations for those watercourses will be further assessed and submitted for DFO review.</p>
<p>Can it be addressed in another permit/approval or with a T&amp;C?</p>	<p>The identified gap can be addressed during the Nova Scotia Environment and Climate Change (NSECC) watercourse and/or wetland alteration approval process(es) and DFO-FFHPP regulatory review process.</p>
<p>Define/provide detail</p>	<p>All watercourse alterations, which have the potential to impact fish and fish habitat, will require review through the Nova Scotia Environment and Climate Change (NSECC) watercourse alteration approval process(es) and DFO-FFHPP regulatory review process.</p> <p>Additional rationale should be provided regarding barriers along potentially impacted watercourses to determine fish passage. Existing culverts and other barriers may present current passage issues to upstream reaches, however, additional factors should be considered in determining whether a watercourse is fish bearing. Resident fish species may be present upstream and have the potential to be impacted by project works, undertakings, and/or activities. Additionally, if culverts that currently present barriers are remediated, then passage could be restored. If the watercourse is fish bearing, any works, undertakings, and/or activities will still require DFO review.</p>
<p>Risk Assessment: Wetland Assessment</p>	
<p>Identify Gap/Risk</p>	<p>There is contradictory information regarding the presence and degree of fish habitat within the reported wetlands in the study area.</p> <p>In Table 7.28, “Summary of Alterations to Features that May Support Fish and Fish Habitat”, four wetlands are listed: WL1, WL3, WL14 and WL15 (page 99-100, section 7.3.2.6 of the EARD).</p> <p>In Table 7.34, “Habitat Alteration for Wetlands within the Assessment Area”, proposed impacts are outlined for eleven wetlands (page 113-114, section 7.3.3.6 of the EARD).</p> <p>Not all of the moderate-high potential fish bearing wetlands listed within the table in Appendix I of the EARD lists are included in table 7.28, such as WL12 (page 2, Appendix I of the EARD). Limited information is provided for determining which wetlands are fish</p>

	bearing, or contiguous with fish bearing watercourses.
Can it be addressed in another permit/approval or with a T&C?	The identified gap can be addressed during the NSECC watercourse and/or wetland alteration approval process(es) and DFO-FFHPP regulatory review process. All works, undertakings, and/or activities, impacting fish bearing wetlands, or wetlands contiguous with fish bearing watercourses, will require DFO review, to address local and cumulative impacts to fish and fish habitat.
Define/provide detail	<p>Additional information will be required to delineate the proposed impacts to fish bearing wetlands and/or wetlands contiguous with fish bearing watercourses. Applications should ensure all impacts to fish bearing wetlands, or wetlands contiguous with fish bearing watercourses are captured in project impacts and submitted to DFO for review.</p> <p>Additional information will be required as part of the DFO-FFHPP regulatory review process, including, but not limited to: final number of impacted fish bearing wetlands and/or wetlands contiguous with fish bearing watercourses, location and design drawings for specific wetland alterations, site specific hydrological and fish habitat assessments, site specific impacts to fish and fish habitat including delineated footprint below the ordinary high water mark, cumulative impacts, site specific impacts to fish and fish habitat including aquatic species at risk, and site specific impacts to riparian habitat.</p>
Risk Assessment: Watercourse Crossing Designs	
Identify Gap/Risk	<p>Specific information related to proposed watercourse crossing alterations are not yet determined.</p> <p>The risk of individual watercourse crossings and cumulative impacts from works related to multiple crossings within the same watershed will require additional consideration once details are finalized.</p>
Can it be addressed in another permit/approval or with a T&C?	The identified gap can be addressed during the NSECC watercourse and/or wetland alteration approval process(es) and DFO-FFHPP regulatory review process. All new watercourse crossings will require DFO review to address local and cumulative impacts to fish and fish habitat, including potential impacts to aquatic species at risk.
Define/provide detail	Additional information will be required as part of the DFO-FFHPP regulatory review process, including, but not limited to: final number of proposed watercourse crossings (new and upgraded), location and designs drawings for specific watercourse crossings, rationale for crossing types, site specific hydrological and fish passage assessments, site specific impacts to fish and fish habitat including delineated footprint below the ordinary high water mark, cumulative impacts, site specific impacts to aquatic species at risk, and site

	specific impacts to riparian and contiguous wetland habitat.
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**Summary of Recommendations: (provide in non-technical language)**

DFO-FFHPP recommends the proponent consider:

- Submitting detailed information on watercourse crossing and wetland alteration designs, and identifying potential impacts on fish and fish habitat (local and cumulative) in each watershed from each watercourse and wetland alteration, including potential impacts to aquatic species at risk; and
- Open bottom structures, such as clear span bridges and open bottom arch culverts for fish bearing watercourse crossings be used instead of closed bottom structures, where possible.

This information can be provided through the NSECC watercourse and/or wetland alteration approval process(es), and/or through submission of a DFO Request for Review application to DFO to allow DFO staff to conduct a regulatory review of the project, to identify potential impacts to fish and fish habitat, and to determine if an authorization under the *Fisheries Act* and/or a *Species at Risk* permit is required.

## Environment and Climate Change

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Date: April 14, 2023  
To: Jeremy Higgins, Environmental Assessment Officer  
From: Air Quality Unit  
Subject: Higgins Mountain Wind Farm Project, Cumberland/Colchester Counties, NS

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### Scope of review:

This review focuses on the following mandate: Air Quality

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### Technical Comments:

The Higgins Mountain Wind Farm Project is a wind development spread across the border of Colchester County and Cumberland County, consisting of up to seventeen wind turbines. The specific turbine manufacturer and model has not yet been determined, but for the purposes of the assessment, a potential model that covers multiple options has been used. The final design could use turbines with an output of 5.9 to 7MW, with a height of 200m from ground level to blade tip.

The project also consists of new unpaved haul roads, electrical connections, a substation, and temporary laydown areas. If approved, construction is due to commence in Fall 2023, with the turbines becoming operational in 2025. The project has a potential life of 35 years.

The proponent has used the Air Quality Regulations as the basis for the assessment.

Data from the Pictou air monitoring station was used to determine baseline air quality in the vicinity of the proposed project. This monitoring station is 73km to the north-east of the site. The data show that pollutant concentrations are low with the exception of ozone. Ozone is a secondary pollutant that is formed from combustion products in the presence of sunlight.

The primary air quality impacts from the proposed project are likely to be from vehicle emissions and dust generation on unpaved haul roads. Therefore, total suspended particles is the pollutant of most concern, particularly during the construction phase.

The proponent has provided a qualitative assessment of the impacts of construction activity on nearby receptors and has concluded that impacts are likely to be low to negligible. An Air Quality and Dust Management Plan will be prepared to ensure that vehicular and dust emissions are minimized. The proposed mitigations and best operating practices are reasonable and effective.

### Summary of Technical Considerations: (provide in non-technical language)

The proponent should ensure that the generation of dust, particularly during the construction phase, is kept to a minimum through the use of the proposed mitigation methods and any other methods that are considered to be appropriate once construction

starts. The dust mitigation methods should be outlined in the Air Quality and Dust Management Plan and finalized prior to the commencement of construction.

**From:** [Wade, Suzanne \(ECCC\)](#)  
**To:** [Higgins, Jeremy W](#)  
**Cc:** [Wade, Suzanne \(EC\)](#); [Hingston, Michael \(il, lui | he, him\) \(ECCC\)](#); [Breau, Monique \(elle, la | she, her\) \(ECCC\)](#); [Keeping, Brent \(ECCC\)](#)  
**Subject:** FW: Higgins Mountain Wind Farm Project, NS - EA Registration (EAS# 23-NS-006)  
**Date:** April 20, 2023 2:19:50 PM  
**Attachments:** [image003.png](#)  
[Wind\\_CWS Atlantic Guidance Update for Wind Energy and Migratory Birds - April 2022.pdf](#)  
[Wind\\_CWS Atlantic Guidance Update for Wind Energy and Migratory Birds - April 2022\\_FR.pdf](#)

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Hi Jeremy,

Environment and Climate Change Canada (ECCC) has reviewed the proposed Higgins Mountain Wind Farm Project, submitted by Higgins Mountain Wind Farm General Partner Inc., Elemental Energy Renewables Inc., Stevens Wind Ltd., and Sipekne'katik First Nation, to install 17 turbines with individual generating capacity of 5.9 to 7.0 MW (total height ~195.5 m) and associated infrastructure, including a substation, transmission lines and new access roads (7.5km), Wentworth, Cumberland County, Nova Scotia, and we offer the following preliminary comments:

## Wildlife Comments

Please note that given the limited time available for the review under the Nova Scotia's Department of Environment and Climate Change (NSECC)'s environmental assessment process, the multiple reviews for other provincial wind power projects and the resources available, ECCC- Canadian Wildlife Service (CWS) review and comments are not exhaustive.

ECCC-CWS notes that preliminary advice regarding baseline avian survey methods were sent to the proponent of the proposed Higgins Mountain Wind Farm Project during the early planning phase of this project (ECCC, September 17, 2020) and ECCC attended a planning meeting on May 20, 2021 to discuss recommended avian surveys, including recommendations for radar and acoustic studies.

### Attachment:

- Environment and Climate Change Canada's Canadian Wildlife Service (Atlantic Region) "Wind Energy & Birds Environmental Assessment Guidance Update" (ECCC-CWS-ATL, 2022) (also available in French) (not available online – regionally specific advice)

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### Specific Comments

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### Avifauna

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1. ECCC-CWS notes that the proponent followed recommended ECCC, 2007 guidance in conducting

field surveys and has conducted one year of radar and acoustic monitoring (Fall 2020 and Spring 2021).

ECCC-CWS recommends a minimum of two years consecutive baseline radar and acoustic data be collected in order to understand variance in flight height (i.e., bird movements) in relation to weather and environmental conditions (ECCC-CWS-ATL Update, 2022).

ECCC-CWS notes that the radar and acoustic monitoring windows may have missed early spring migrants (e.g. waterfowl) and fall migration in August.

The spring migration recommended monitoring window is March 15 - June 7, and fall migration is July 15 – November 30. These extended monitoring windows allow the proponent to assess landbirds, waterfowl/sea duck and shorebird migration movements, especially important in coastal areas or along known migration routes (e.g., Bay of Fundy, Tantramar Marsh, Strait of Canso, and Cape Sable Region).

2. ECCC-CWS notes that the bird vocalizations recorded with acoustic detectors were extracted using the Kaleidoscope Pro software (version 4.3.2) basic “cluster analysis” approach using the default settings, which seeks out noises from the ARU files between 0.1 seconds (=100ms) and 7.5 seconds in length. Night flight calls of landbirds tend to be extremely brief as short as 40ms, and rarely, if ever, exceed half a second. The software settings used may have missed many (or even most) of the night flight calls. A second analysis of the acoustic data using a software setting with a lower call duration standard at the bottom end is recommended for capturing bird night flight calls. The assessment should also include a volume of vocalizations recorded as an indicator of flight activity through the area at night.
3. ECCC-CWS notes that there were targets (1783) observed within the rotor swept area (50-100m bin) during the spring radar monitoring study during a migration event that occurred on May 11-12, 2021.

The volume of birds found within the rotor swept area (RSA) warrants the need for a plan to mitigate potential impacts during optimal migration conditions.

4. ECCC-CWS notes that the mitigation measures to minimize potential impacts on migratory birds from the operation of turbines, post-construction monitoring, and environmental protection plan, are not described.

Based on the level of concern (Category 4)(ECCC(a), 2007, and 2022, ECCC recommends that the proponent identify mitigation measures to avoid impacts on migratory birds and bats before they occur, as well as, post-construction monitoring and adaptive management plan (ECCC, 2022) as part of the environmental assessment for this project.

5. Several types of migratory bird habitat are in decline in Nova Scotia, including mature coniferous forest, mature deciduous forest and mature mixed forest. This is notable because certain bird species prefer mature forest habitat. Furthermore, some bird species, generally known as interior

species, only prosper when the tracts of mature forest are relatively large and un-fragmented (i.e. interior forest). It is desirable for projects to avoid causing further loss and fragmentation of these habitat types, and to avoid further fragmentation of the landscape. We recommend that the proponent sites project infrastructure, including the transmission line and access roads, in a manner that would avoid/minimize loss of mature and interior forest habitat.

6. Per the Canada Gazette Part II, published on June 8, 2022 ([Canada Gazette, Part 2, Volume 156, Number 12: Migratory Birds Regulations, 2022](#)) the modernized Migratory Birds Regulations came into effect on July 30, 2022, which allows for flexibility with respect to the removal of nests. Per the new provisions under the modernized MBRs, the nests of all migratory bird species are protected when they contain a live bird or a viable egg (i.e. during the nesting period), excluding the nests of 18 species whose nests are reused (listed in Schedule 1 of the regulations), which will remain protected year-round.

For more information on the amended nest protections, frequently asked questions on how these protections apply to migratory birds and your responsibilities for reporting abandoned nests, please visit [Fact Sheet Nest Protection Under the Migratory Birds Regulations, 2022](#) and [Frequently Asked Question, Migratory Birds Regulations, 2022](#).

7. Pileated Woodpecker were detected during 2020 Breeding Bird Point Count surveys and are likely breeding in the area. Pileated Woodpecker is listed on Schedule 1 of the amended Migratory Bird Regulations (2022) and continue to have year-round nest protection, unless they have been shown to be abandoned.

For more information on the amended nest protections, frequently asked questions on how these protections apply to migratory birds, including Pileated Woodpecker, and responsibilities for reporting abandoned nests, please visit [Fact Sheet Nest Protection Under the Migratory Birds Regulations, 2022](#) and [Frequently Asked Question, Migratory Birds Regulations, 2022](#). Information on Pileated Woodpecker nest cavities can be found on ECCC's website: [Pileated Woodpecker Cavity identification Guide](#), [Damage or Danger Permits for Nest Destruction: Pileated Woodpecker nesting cavities - Canada.ca](#) and [Damage to the Use of the Land: Pileated Woodpecker nesting cavities - Canada.ca](#)

8. The Common Nighthawk (CONI), a species at risk listed as Special Concern on Schedule 1 of the Species at Risk Act (SARA), were observed during Breeding Bird Survey (2020) have a high collision risk with turbines during the breeding period since they are known to occupy open habitat areas in search of flying insects. CONI would likely be at a higher risk because they are crepuscular, and potentially nocturnal, flying at various heights in search of food.
9. ECCC-CWS notes that the Project has applied for federal funding under Natural Resource Canada's Smart Renewables and Electrification Pathways Program (SREP) under the Established Renewables stream.

If federal funding is received, the Federal Policy on Wetland Conservation in Canada would apply to this project.

Where effects to wetland habitat are deemed unavoidable, ECCC-CWS recommends including a discussion of why avoidance is not possible, proposed mitigation measures, as well as, a wetland compensation plan which considers the use of conservation allowances (i.e. biodiversity offsets).

ECCC-CWS notes that 2.35 ha of delineated wetland habitat may be directly altered by the project.

ECCC-CWS recommends avoidance of wetland habitats used by bird species at risk and bird species of conservation concern as part of their lifecycle (e.g. Canada Warbler, Common Nighthawk, Rusty Blackbird, Greater Yellowlegs, etc.).

As the federal department responsible for promoting the FPWC, ECCC-CWS is available to work with the province and the proponent in the development and review of a wetland compensation plan that meets the goals of both the provincial and federal wetland policy (if applicable).

10. ECCC-CWS recommends that the provincial department responsible for species at risk be contacted for technical expertise on species under their responsibility and jurisdiction (e.g. bats, reptiles, amphibians, land-mammals, insects, plants, lichen, and birds not protected by the Migratory Birds Convention Act (MBCA), such as raptors).
11. ECCC-CWS notes that in the NS “Draft Generic EA Mitigations Wind” attachment provided for review, the Wildlife Section includes directions to “Contact NRR to discuss required actions should nesting birds or their young, or any species-at-risk, be encountered on site during construction”.

ECCC-CWS is responsible for the management and conservation of migratory birds, and have a shared responsibility with the Province of Nova Scotia for the protection of species at risk and their habitats.

ECCC-CWS recommends updating the “Draft Generic EA Mitigations Wind – Wildlife” to clarify that ECCC-CWS should be contacted for advice related to migratory birds and migratory bird species at risk, and compliance with the Migratory Birds Convention Act (MBCA) and the Species at Risk Act (SARA).

12. When considering potential approval conditions related to migratory birds and/or migratory bird species at risk, ECCC recommends clarifying what elements are expected to be included, and that the consultation process is clear for all parties. The preference for ECCC is that any documents and requests for advice from the proponent be submitted and coordinated through Nova Scotia Department of Environment and Climate Change (NSECC) as part of the environmental assessment (EA) process.

Any advice that is provided by ECCC is intended to support the NSECC’s EA process to determine if potential effects are likely, and identify measures to minimize/lessen and monitor those effects to help ensure compliance with the MBCA and SARA.

13. If additional surveys are planned as part of a EPP or monitoring plan, and there is an expectation that additional mitigation measures or adaptive management will be required as a result, ECCC-CWS recommends that this should be indicated in the condition(s).
14. If the project is permitted to proceed, the proponent should be advised that provincial conditions of approval do not supersede their responsibility to ensure that activities comply with the MBCA and associated regulations. For all activities and during all Project phases, the Proponent must take measures to avoid the disturbance or harm of migratory birds, nests, and eggs.

#### Wetlands

15. ECCC-CWS notes that there is mention on page 58 of the Registration document that disturbance of wetlands creates methane emissions. However, ECCC-CWS advises that wetlands do release carbon dioxide when altered and drained. Decomposing cleared vegetation would increase carbon dioxide emissions.

ECCC-CWS recommends that the Proponent consider disturbances to soils as part of the assessment of potential impacts, especially in cases where wetlands and their carbon-rich soils may potential be drained and exposed to the atmosphere and increase carbon dioxide emissions.

ECCC-CWS recommends measuring peat depths in wetland assessments to identify areas with deep carbon stores and avoiding these wetlands.

ECCC-CWS recommends clarifying potential for indirect alterations to wetlands, including mitigation measures to minimize impacts (e.g. implementation of buffers around wetlands).

#### Bats

16. ECCC-CWS recommends that the proponent consult provincial species at risk biologists at the Nova Scotia Department of Natural Resources and Renewables for technical expertise and advice on bat SAR under their responsibility and jurisdiction (contact: Donna Hurlburt at: [Donna.Hurlburt@novascotia.ca](mailto:Donna.Hurlburt@novascotia.ca) and Pam Mills at: [pamela.mills@novascotia.ca](mailto:pamela.mills@novascotia.ca)).
17. Turbines should be sited in a manner that avoids impacts to bat species at risk and habitats considered important to their recovery. Site selection is generally the most important component of a successful mitigation strategy for wind power development.
18. ECCC is of the view that any additive mortality of the SARA listed bat species in White-nose Syndrome (WNS) affected areas, including mortality at wind turbines, has the potential to be biologically-important. The mortality of even a small number of remaining individuals, particularly breeding adults, or disturbance to maternity roosts, has the potential to negatively impact the survival of local populations, their recovery, and potentially, the development of resistance to the fungus that causes WNS.
19. The proponent identified Little Brown Myotis and Northern Myotis as “non-migratory”, however,

ECCC-CWS notes that these species exhibit radiative migration (vs. latitudinal) and can move long distances (100 kms) between overwintering and summering areas which can have implications of optimal siting of turbines.

20. ECCC-CWS notes that there is a known hibernaculum (i.e. critical habitat) ~ 1km from the Study Area boundary and <6 km from the nearest proposed turbine. Note: ECCC-CWS recommends removing bat hibernacula location information from environmental assessment documentation since this information is considered sensitive.
21. ECCC-CWS recommends that the proponent complete a bat-specific habitat assessment (Ontario Ministry of Natural Resources and Forestry (OMNRF, [2017](#)) to investigate potential / unknown hibernacula and bat maternity roosts in natural and human-made structures (please consider Appendix 1 below for an Excerpt from the ECCC-CWS Draft Residence Description).

ECCC-CWS recommends that habitat surveys consider potential bat maternity roost habitat in any coniferous, deciduous and mixedwood ecosites (with trees at least 10 cm diameter at breast height (dbh)) for potential bat maternity roosting habitat within 100 m of the proposed / existing roads and turbines.

#### Lichen

22. ECCC-CWS recommends that the proponent consult provincial species at risk biologists at the Nova Scotia Department of Natural Resources and Renewables for technical expertise and advice on lichen species at risk their responsibility and jurisdiction (contact: Donna Hurlburt at: [Donna.Hurlburt@novascotia.ca](mailto:Donna.Hurlburt@novascotia.ca)).
23. Critical habitat for Eastern waterfan (*Peltigera hydrothyria*) - an aquatic lichen listed on Schedule 1 of SARA as Threatened - is identified within the project area. Eastern Waterfan which are very sensitive to siltation/sedimentation, changes in temperature and pH.

ECCC-CWS recommends considering the [Eastern Waterfan \(\*Peltigera hydrothyria\*\): recovery strategy and action plan 2021 - Canada.ca](#).

#### Additional Comments

1. The proponent should retain raw data (e.g., information on individual tracks) until appropriate data standards have been developed.

Proponents are encouraged to share and store data with:

- The Atlantic Canada Conservation Data Center (<http://accdc.com/en/contribute.html>); and,
- The Wind Energy Bird and Bat Monitoring Database ([NatureCounts - Wind Energy Bird & Bat Monitoring Database](#)) (Birds Canada 2022).

General "Standard" ECCC Advice:

### Migratory Birds

Migratory birds, their eggs, nests, and young are protected under the Migratory Birds Convention Act (MBCA). Migratory birds protected by the MBCA generally include all seabirds (except for cormorants and pelicans), all waterfowl, all shorebirds, and most landbirds (birds with principally terrestrial life cycles). The list of species protected by the MBCA can be found at <https://www.canada.ca/en/environment-climate-change/services/migratory-birds-legal-protection/convention-act.html>. Bird species not listed may be protected under other legislation.

Under Section 5(1) of the Migratory Bird Regulations, 2022 (MBR), it is forbidden to capture, kill, take, injure or harass a migratory bird; or damage, destroy or take a nest or egg of a migratory bird, excluding under the exceptions listed in 5(2) of the MBRs, or under the authority of a permit. It is important to note that under the MBR, no permits can be issued for the harm of migratory birds caused by development projects or other economic activities.

Furthermore, Section 5.1 of the MBCA describes prohibitions related to depositing substances harmful to migratory birds:

“5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.

(2) No person or vessel shall deposit a substance to be deposited in any place if the substance, in combination with one or more substances, result in a substance – in waters or an area frequented by migratory birds or in a place from which it may enter such waters or such an area – that is harmful to migratory birds.”

It is the responsibility of the proponent to ensure that activities are managed so as to ensure compliance with the MBCA and associated regulations.

### Vegetation Clearing

Clearing vegetation may cause disturbance to migratory birds, and may inadvertently cause the destruction of their nests and eggs. Most migratory bird species construct nests in trees (sometimes in tree cavities) and shrubs, but several species nest at ground level (e.g., Common Nighthawk, Killdeer, sandpipers), in hay fields, pastures or in burrows. Some bird species may nest on cliffs or in stockpiles of overburden material from mines or the banks of quarries. Some migratory birds (including certain waterfowl species) may nest in head ponds created by beaver dams. Some migratory birds (e.g., Barn Swallow, Cliff Swallow, Eastern Phoebe) may build their nests on structures such as bridges, ledges or gutters. In developing mitigation measures, it is incumbent on the proponent to identify the best approach, based on the circumstances, to complying with the MBCA. The following should be considered during project planning:

- Avoid scheduling high disturbance activities, such as vegetation clearing, during the regional nesting period for migratory birds. Information regarding regional nesting periods can be found at: <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods.html>. Some species protected under the MBCA may nest outside these timeframes.

- The risk of impacting active nests or birds caring for pre-fledged chicks discovered during project activities outside of the regional nesting period can be minimized by measures such as the establishment of vegetated buffer zones around nests and minimization of activities in the immediate area until nesting is complete and chicks have naturally migrated from the area.
- In developing and implementing a wildlife management plan, preventative measures to minimize the risk of impacts on migratory birds should be considered (see “Avoiding harm to migratory birds: guidelines to reduce the risk to migratory birds” at <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html>).

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### Nest Searches

ECCC-CWS generally does not recommend nest searches or sweeps in vegetation prior to clearing during the breeding season. Nests in complex habitat are difficult to locate, and adult birds avoid approaching their nests in a manner that would attract predators to their eggs or young. In many circumstances, harm to migratory birds is still likely to occur even when active nest searches are conducted prior to development activities, except when the nests searched are known to be easy to locate without disturbance (e.g. previously cleared area, simple habitats, low vegetation).

Some ground nesting species of migratory birds, including the threatened Common Nighthawk, may be attracted to previously cleared areas for nesting in the spring and summer if there is a delay between clearing activities (e.g. clearing conducted in the fall/winter and construction scheduled in the spring and summer).

Nest surveys may be carried out successfully by experienced observers using scientific methodology in the event that activities would take place in simple habitats (often in human-made settings) with only a few likely nesting areas or a small community of migratory birds. Examples of simple habitats include:

- An urban park consisting mostly of lawns with a few isolated trees;
- A vacant lot with few possible nest sites;
- A previously cleared area where there is a lag between clearing and construction activities and where ground nesters may have been attracted to nest in cleared areas or in stockpiles of soil; or,
- A structure such as a bridge, a beacon, a tower or a building (often chosen as a nesting spot by robins, swallows, phoebes, Common Nighthawk, gulls and others).

Nest searches can also be considered when looking for:

- Conspicuous nest structures (such as nests of Great Blue Herons, Bank Swallows, Chimney Swifts);
- Cavity nesters in snags (such as woodpeckers, goldeneyes, nuthatches); or,
- Colonial-breeding species that can be located from a distance (such as a colony of terns or gulls).

Should any nests or unfledged chicks be discovered, protection with an appropriate-sized buffer is expected. Note: Nests should not be marked using flagging tape or other similar material as this increases the risk of nest predation. ECCC CWS can be contacted for further advice on bird

monitoring and/or mitigation if a nest is found.

#### Fuel Leaks

The proponent must ensure that all precautions are taken by the contractors to prevent fuel leaks from equipment, and that a contingency plan in case of oil spills is prepared. Furthermore, the proponent should ensure that contractors are aware that under the MBR, “no person shall deposit or permit to be deposited oil, oil wastes or any substance harmful to migratory birds in any waters or any area frequented by migratory birds.” Biodegradable alternatives to petroleum-based chainsaw bar oil and hydraulic for heavy machinery are commonly available from major manufacturers. Such biodegradable fluids should be considered for use in place of petroleum products whenever possible, as a standard for best practices. Fueling and servicing of equipment should not take place within 30 meters of environmentally sensitive areas, including shorelines and wetlands.

ECCC has prepared Guidelines for Effective Wildlife Response Plans (ECCC [2022](https://www.canada.ca/en/services/environment/wildlife-plants-species/national-wildlife-emergency-framework.html)) (<https://www.canada.ca/en/services/environment/wildlife-plants-species/national-wildlife-emergency-framework.html>) for consideration in emergency response and contingency planning related to accidents and malfunctions.

The following information should be included in any Oil Spill Prevention and Response Plan:

- Mitigation measures to deter migratory birds from coming into contact with the oil.
- Mitigation measures to be undertaken if migratory birds and/or sensitive habitat becomes contaminated with the oil.
- The type and extent of monitoring that would be conducted in relation to various spill events.

#### Revegetation

A variety of species of plants native to the general project area should be used in revegetation efforts. Should seed mixes for herbaceous native species for the area not be available, it should be ensured that plants used in revegetation efforts are not known to be invasive.

#### Invasive Species

Measures to diminish the risk of introducing invasive species should be developed and implemented during all project phases. These measures could include:

- Cleaning and inspecting construction equipment prior to transport from elsewhere to ensure that no vegetative matter is attached to the machinery (e.g., use of pressure water hose to clean vehicles prior to transport).
- Regularly inspecting equipment prior to, during and immediately following construction in areas found to support Purple Loosestrife to ensure that vegetative matter is not transported from one construction area to another.

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#### Noise Disturbance

Anthropogenic noise produced by construction and human activity can have multiple impacts on birds, including causing stress responses, avoidance of certain important habitats, changes in foraging behavior and reproductive success, and interference with songs, calls, and communication. Activities that introduce loud and/or random noise into habitats with previously no to little levels of anthropogenic noise are particularly disruptive.

ECCC-CWS recommends the following best management practices:

- The proponent should develop mitigations for programs that introduce very loud and random noise disturbance (e.g. blasting programs) during the migratory bird breeding season for their region.
- The proponent should, where possible, prioritize construction works in areas away from natural vegetation while working during the migratory bird breeding season. Conducting loud construction works adjacent to natural vegetation should be completed outside the migratory bird breeding season.
- The proponent should keep all construction equipment and vehicles in good working order and loud machinery should be muffled if possible.

#### Lighting Attraction and Migratory Birds

Attraction to lights at night or in poor visibility conditions during the day may result in collision with lit structures, or with other migratory birds. Disoriented migratory birds are prone to circling light sources and may deplete their energy reserve and either die of exhaustion or be forced to land where they are at risk of depredation.

To reduce the risk of disturbance or harm to migratory birds related to human-induced light, ECCC-CWS recommends implementation of the following beneficial management practices:

- Use the minimum amount of pilot, warning and obstruction lighting needed on tall structures. Warning lights should flash and completely turn off between flashes.
- Use the fewest number of site-illuminating lights possible in the project area. Only use strobe lights at night, at the lowest intensity and the smallest number of flashes per minute allowable by Transport Canada.
- Reduce lighting levels during severe weather events that may force migratory birds to land to prevent birds from landing in areas that would cause injury, harm, or death.
- Avoid or restrict the time of operation of exterior decorative lights such as spotlights and floodlights whose function is to highlight features of buildings or to illuminate an entire building. These lights, especially on humid, foggy or rainy nights, can draw birds from far away. Turn off these lights during the migratory season when the risk to birds is highest and during periods when birds are dispersing from their nests or colonies.
- Shield safety lighting so that the illumination shines down. Only install safety lighting where it is needed, without compromising safety.
- Shield street and parking lot lighting so that little escapes into the sky, and it falls where it is required. Consider using LED lighting fixtures as they are generally less prone to light trespass.
- The proponent should make all reasonable attempts to limit construction activities to the day and avoid illuminating the habitat adjacent to the worksite.

#### Transmission lines

Transmission lines have the potential to harm, injure, or kill migratory birds through increasing risks of collision and electrocution. The proposed placement of above-ground transmission lines should consider areas used as flight paths by migratory birds (e.g., during migration; travelling from nesting to foraging areas, along streams used by waterfowl). ECCC-CWS recommends the following beneficial management practices to avoid potential harm to migratory birds associated with transmission lines:

- Avoid building transmission or distribution lines over, adjacent, or near areas where birds are

known to congregate or move, including:

- Important breeding, staging, moulting areas;
- Breeding colonies; and
- Between breeding and foraging areas.
- Design “avian-safe” configurations to reduce the risk of electrocutions, including:
  - Providing sufficient separation between energized phase conductors and between phases and grounded hardware;
  - Insulating exposed surfaces in high-risk areas;
  - Installing perch-management (e.g. perch guard) devices on poles; and
  - Removing or minimizing vegetation around poles and lines.
- Install measures on lines that reduce the risk of collisions:
  - Provide minimal vertical separation between lines;
  - Use self-supporting structures to reduce the number of guy wires; and
  - Use line-marking devices to increase the visibility of the lines.

#### Infrastructure, Buildings and Bridges

Certain species of migratory birds may nest on the sides of buildings, bridges or other pieces of infrastructure. Additionally, some species may nest on equipment, if they are left unattended/idle for long periods of time.

ECCC-CWS recommends the following beneficial management practices:

- The proponent should ensure that project staff are aware of the potential of migratory bird nests on infrastructure, buildings, and bridges, if applicable.
- If a nest is discovered, the proponent should conduct no activities around the nest that cause the nest to be abandoned or destroyed. Activities should be suspended until the chicks have fledged and left the area.
- If the proponent anticipates that birds may nest on infrastructure, the proponent should install anti-perching and nesting exclusion devices (e.g. mesh netting, chicken wire fencing, etc.) before any nest attempts are made.

#### Species at Risk

The Species at Risk Act (SARA) “General prohibitions” SARA s.32 and 33 apply to this project. In applying the general prohibitions, the proponent, staff and contractors, should be aware that no person shall:

- kill, harm, harass, capture or take an individual species at risk (SAR);
- possess, collect, buy, sell or trade an individual, or any part or derivative;
- damage or destroy the residence of one or more individuals.

General prohibitions only apply automatically:

- on all federal lands in a province,
- to aquatic species anywhere they occur,
- to migratory birds protected under the Migratory Birds Convention Act (MBCA) 1994 anywhere they occur.

For migratory bird species at risk, this prohibition immediately applies on all lands or waters (federal,

provincial, territorial and private) in which the species occurs.

Under a federal Project Review (SARA ss. 79(1)), "Every person who is required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted, and every authority who makes a determination under paragraph 82(a) or (b) of the Impact Assessment Act in relation to a project must, without delay notify the competent minister or ministers in writing of the project if it is likely to affect a listed wildlife species or its critical habitat", and, SARA ss.79(2) "The person must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and actions plans". For provincial/territorial environmental assessment, ECCC-CWS recommends a similar approach be undertaken.

For species which are not listed under SARA, but are listed under provincial legislation only, or that have been assessed and designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), it is best practice to consider these species in EA as though they were listed under SARA.

As part of an environmental assessment, ECCC-CWS recommends that the proponent present mitigation measures consistent with best available information including any Recovery Strategy, Action Plan or Management Plan (final or proposed version). In instances where habitat for species at risk cannot be avoided, the proponent should provide an explanation why avoidance is not possible, as well as, a discussion of conservation allowances (biodiversity offsets) (if appropriate) (see ECCC's Operational Framework for Use of Conservation Allowances (2012) available at: <https://www.canada.ca/en/environment-climate-change/services/sustainable-development/publications/operational-framework-use-conservation-allowances.html>).

Note: Where the impacted species at risk habitat is wetland, compensation recommended in the Federal Policy on Wetland Conservation in Canada and/or as required under provincial wetland policy may be appropriate.

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Federal Policy on Wetland Conservation

The FPWC was introduced "to promote the conservation of Canada's wetlands to sustain their ecological and socio-economic functions, now and in the future". The policy recognizes the importance of wetlands to the environment, the economy and human health, and promotes a goal of No Net Loss of Wetland Function as a result of the Government of Canada exercising a duty, function, or power in areas of Canada where wetland loss has reached critical levels (e.g. NB, NS, PEI) and regionally important wetlands.

In support of this goal, the FPWC identifies the importance of planning, siting and designing a project in a manner that accommodates a consideration of mitigation options in a hierarchical sequence – avoidance, minimization, and as a last resort, conservation allowances (i.e. biodiversity offsets, compensation). A copy of the FPWC can be found at: <http://publications.gc.ca/pub?id=9.686114&sl=0>.

The FPWC applies to all wetlands, irrespective of size, ownership, or identification in an inventory or

on a map. As such, all wetlands potentially impacted by project activities for which a federal authorization is issued, regardless of their size, and whether they appear on any mapping, are covered by the FPWC.

ECCC recommends the development of a Wetland Compensation Plan that fully describes the mitigation hierarchy, including:

- Identification of wetlands potentially affected by the project,
- A detailed description of potential effects, and the reasons why avoidance and minimization of impacts were determined to be not possible, and,
- Identification and justification of proposed offset ratios.

### Appendix 1

Excerpt from the Draft ECCC-CWS Residence Description (January 2022)

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#### Little Brown Myotis and Northern Myotis

Any place used as a maternity roost by Little Brown Myotis is considered a residence. A maternity roost site may be a natural site, such as a cavity in a tree, a rock crevice, a cave or the underside of loose bark, or an anthropogenic site such as the underside of a bridge, an attic in a building or other structures (Fenton and Barclay 1980; Coleman and Barclay 2011). Little Brown Myotis is one of the few bat species that uses buildings and other anthropogenic structures to roost. Females are thought to select a quality maternity roost at the expense of travelling longer distances to forage possibly indicative of a limited number of suitable maternity roosting sites in foraging areas (Broders et al. 2006, Randall et al. 2014).

Maternity roosts in trees are often associated with natural holes, holes made by cavity excavators (e.g., woodpeckers) or holes resulting from broken limbs or under loose bark. Typically, maternity roost sites are located in tall, large-diameter trees (DBH >30 cm), within forests (Kalcounis-Ruepell et al. 2005; Olson 2011; Olson and Barclay 2013) and older forest stands are preferred over younger forest stands (Barclay and Brigham 1996; Crampton and Barclay 1996; Jung et al. 1999). A larger tree size will usually house a larger number of bats (Olson 2011). Broders and Forbes (2004) found a preference for deciduous trees (Sugar Maple, Yellow Birch, and American Beech) and attributed this preference to deciduous trees' susceptibility to limb breakage and decay (creating available habitat for roosting), long-lived characteristics (permitting repeated use by bats), and their upland habitats with increased solar radiation (reducing energy costs to maintain the bat's body temperature).

Maternity roosts located in buildings tend to be located in warm but uninhabited areas of the building or in abandoned ones. Attics in older buildings are commonly used.

#### Tri-colored Bat

Little is known about maternity roosts of Tri-colored Bat. However, the species is known to roost in clumps of dead tree foliage and lichens and broken branches in coniferous and deciduous tree species (Veilleux et al. 2003, Perry and Thill 2007, Poissant et al. 2010). Tri-colored Bats also use barns and other anthropogenic structures for maternity roosts, and they may also use tree cavities,

broken branches on trees, caves and rock crevices (Fujita and Kunz 1984). In Nova Scotia, a local population of Tri-colored Bat roosted solely in clumps of Usnea lichen and mostly within spruce trees (Poissant et al. 2010).

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### **Water Quality**

Pollution prevention and control provisions of the Fisheries Act are administered and enforced by ECCC. Subsection 36(3) of the Fisheries Act prohibits “anyone from depositing or permitting the deposit of a deleterious substance of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter such water”.

It is the responsibility of the proponent to ensure that activities are managed so as to prevent the

release of substances deleterious to fish. In general, compliance is determined at the last point of control of the substance before it enters waters frequented by fish, or, in any place under any conditions where a substance may enter such waters. Additional information on what constitutes a deposit under the Fisheries Act can be found here: <https://www.canada.ca/en/environment-climate-change/services/managing-pollution/effluent-regulations-fisheries-act/frequently-asked-questions.html>

## **Accidents and Malfunctions**

Hazardous materials (e.g. fuels, lubricants, hydraulic oil) and wastes (e.g. waste oil) should be managed so as to minimize the risk of chronic and/or accidental releases. For example, the proponent should encourage contractors and staff to undertake refueling and maintenance activities on level terrain, at a suitable distance from environmentally sensitive areas including watercourses, and on a prepared impermeable surface with a collection system.

The proponent is encouraged to prepare contingency plans that reflect a consideration of potential accidents and malfunctions and that take into account site-specific conditions and sensitivities. The Canadian Standards Association publication, Emergency Preparedness and Response, CAN/CSA-731-03, reaffirmed 2014), is a useful reference.

All spills or leaks, such as those from machinery or storage tanks, should be promptly contained and cleaned up (sorbents and booms should be available for quick containment and recovery), and reported to the 24-hour environmental emergencies reporting system (Maritime Provinces 1-800-565-1633)

If you have any questions, please direct any further correspondence to ECCC's environmental assessment window for coordination at: [FCR\\_Tracker@ec.gc.ca](mailto:FCR_Tracker@ec.gc.ca).

Suzanne Wade

Environmental Assessment Analyst, Environmental Stewardship Branch  
Environment and Climate Change Canada/Government of Canada  
[Suzanne.Wade@ec.gc.ca](mailto:Suzanne.Wade@ec.gc.ca) / Tel: 902 426-5035

Analyste d'évaluation environnementale, Direction générale de l'intendance  
Environnementale  
Environnement et Changement climatique Canada / Gouvernement du Canada  
[Suzanne.Wade@ec.gc.ca](mailto:Suzanne.Wade@ec.gc.ca) / Tél: 902 426-5035

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# Environment and Climate Change Canada's Canadian Wildlife Service (Atlantic Region) - Wind Energy & Birds Environmental Assessment Guidance Update

## Background

Environment and Climate Change Canada's Canadian Wildlife Service (ECCC-CWS) is charged with the administration of the *Migratory Birds Convention Act* (MBCA) and *Species at Risk Act* (SARA), responsible for the management and conservation of migratory birds and protection of SARA listed species at risk and their habitats; ECCC-CWS Atlantic (ATL) provides expert advice for these species for wind energy impact assessments, upon request. ECCC-CWS published two guidance documents in 2007 for assessing the risk of wind energy developments on migratory birds:

- *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)

Recent advancements in technology for wind energy production include taller turbines with increased energy generating capacity. As a result, in 2018, ECCC-CWS-ATL provided an advice update related to radar and acoustic monitoring recommended for monitoring particular factors of concern (e.g. migration corridors, passage rate and flight altitudes of nocturnal migrants in relation to the height of proposed turbines – larger scale) (s.8.2 CWS 2007a and CWS2007b protocols).

ECCC-CWS-ATL has prepared this guidance update to replace the 2018 advice; this guidance update provides minimum standards and best approaches for pre- and post-construction monitoring related to wind energy developments in Atlantic Canada. It is incumbent on the proponent to identify the best approach, based on the circumstances, to comply with the *Migratory Birds Convention Act* and *Species at Risk Act*.

## Determining Site Sensitivity

ECCC-CWS-ATL recommends that wind energy sites proposing building turbines > 150m (thus placing turbine height places the rotor sweep within songbird nocturnal flight corridors (i.e., 150 – 600 m, Horton *et al.* 2016)) in total height be considered 'Very High' site sensitivity (i.e., Category 4, Environment Canada 2007a).

## Minimum Standard

### Pre-Construction Monitoring

There is little available data and associated studies on the latest larger scale turbine technologies and risk to migratory birds. Therefore, proponents should assess the potential risk of Category 4 level sites to understand and characterize nocturnal avian flight paths around proposed sites. ECCC-CWS-ATL recommends using radar and acoustic monitoring during the spring and fall migrations, in addition to standard avian surveys (Environment Canada 2007a).

Although much of the bird migration is above turbine heights and rotor sweep areas, there are accounts of both songbird migration, and localized migratory bird population seasonal movements, occurring within the turbine altitudinal zone (Richardson 1972, Horton et al. 2016). Therefore, monitoring should also characterize potential

localized lower-level movements of birds. For example, Bank Swallows move between coastal bank colonies and inland roost sites; shorebirds move overland from foraging to roosting sites during pre-migration recruitment flights; sea ducks are low altitude nocturnal migrants.

The use of acoustic autonomous recording units (ARUs) complements radar data and can support conclusions in the final analysis. ARUs have a maximum detection distance of approximately 200-250m above ground level, similar to the height of proposed wind turbines and can assist in evaluating species composition of nocturnal migrants, especially important in understanding the potential risk to species at risk.

### Study Design

ECCC-CWS-ATL recommends, at minimum, monitoring early in the project-planning phase (pre-construction) to ensure that the proponent completes a minimum of 2 years (consecutive) of monitoring. The 2-year minimum standard supports analyses of bird flight height by capturing the variance in weather conditions present. In addition, ECCC-CWS-ATL recommends pre-construction monitoring to quantify the risk at a proposed site **before** approval. This also provides baseline information to assess post-construction impacts and mortality on migratory bird populations. Data should be collected under various types of weather conditions.

Spring migration recommended monitoring window is **March 15 - June 7**, and fall migration is **July 15 – November 30**. These extended monitoring windows allow the proponent to assess landbirds, waterfowl/sea duck and shorebird migration movements, especially important in coastal areas or along known migration routes (e.g., Bay of Fundy, Tantramar Marsh, Strait of Canso, and Cape Sable Region).

The breeding season window in Atlantic Canada varies from region to region (i.e. nesting zones) which have corresponding nesting calendars showing variation in nesting intensity by habitat type. Information regarding regional nesting periods can be found at [ECCC's General Nesting Periods – Avoiding Harm To Migratory Birds](#). Each site should be visited at least twice during this time to establish which species are breeding in the area and to determine if there are any migratory bird species at risk and/or species that have aerial mating displays.

If provincial regulatory processes do not require pre-construction monitoring, the proponent should initiate monitoring as soon as possible (for a minimum 2-year period). Although not ideal, monitoring could start during the construction year to assess impacts on migratory bird populations and determine the need for additional mitigation and/or inform future guidance.

### Data Analysis

Data analysis guidance is available in the 2007 national guidance (Environment Canada 2007a, Environment Canada 2007b). ECCC-CWS-ATL recommends consolidating site-specific avian baseline and habitat assessment with radar and acoustic monitoring data into one report. In addition, this report should include and detail an overall assessment of the risk to migratory birds.

The report should include, at minimum, the following:

- List of potential breeding birds (following breeding bird atlas protocols)
- Volume estimates of birds (i.e. targets) at a fine scale of altitudinal resolution on a nightly basis;
- Altitudinal information;
- Time period monitored (note: monitoring should take place at the same time every day);
- Weather data;
- Tidal and lunar cycles (note: shorebird movements increase during bright nights);
- Summary of overall bird activity, including how bird activity:
  - changed through the night and the season.
  - changed across the study area.

## Post-Construction Monitoring

ECCC-CWS-ATL recommends that post-construction mortality surveys (Environment Canada 2007b) and radar and acoustic monitoring be consistent with baseline pre-construction methods. The proponent (for any approved project) should complete a minimum of 2 years (consecutive) of monitoring. ECCC-CWS-ATL may recommend additional monitoring based on reported findings.

The mortality survey data should be paired with radar and acoustic monitoring to provide context for the localized impacts on birds. Additionally, the proponent should compare the pre-construction and post-construction results to assess and quantify any changes in migratory bird species assemblage, density, and behaviours.

Permits are required to handle or collect any dead birds or bats found during post-construction monitoring activities (e.g. carcass searches or used as part of observer efficiency or scavenging trials) (ECCC, s.10.4 2007). Under the Migratory Bird Regulations, a scientific permit is required for the collection of a migratory bird (dead or alive), feathers, or part of a migratory bird, as defined in the MBCA (contact: [Permi.Atl@ec.gc.ca](mailto:Permi.Atl@ec.gc.ca)). Proponents should also contact the appropriate provincial territorial wildlife department for information related to requirement to collect species under provincial jurisdiction (bats and bird species such as raptors not covered by the MBCA). Proponents should review and carefully note the conditions in permits, including annual reporting and mortality incident reporting. Proponents will need to ensure they remain in compliance with all permitting conditions and requirements.

## Data and Report Submission

Please provide ECC-CWS-ATL with the monitoring reports. Reports must be provided to CWS by December 31 of the same calendar year in which monitoring took place. Submit reports ECCC's environmental assessment window for coordination at: [FCR\\_Tracker@ec.gc.ca](mailto:FCR_Tracker@ec.gc.ca).

ECCC-CWS-ATL recommends that the proponent submit all wind energy monitoring (migratory birds and bats) data to the [Wind Energy Bird & Bat Monitoring Database](#) (Birds Canada 2022). The proponent should retain raw data (e.g., information on individual tracks) until appropriate data standards have been developed.

## Best Approach

ECCC-CWS-ATL considers the best approach to be a regional BACI (Before-After/Control Impact) study design (i.e., paired-site design) or an impact-gradient design for smaller developments. The BACI design is designed to help isolate the potential effect of development from natural variability. Proposed turbine sites should be paired with similar reference sites to provide comparative assessments. This comparative site assessment should compare bird density, flight height variance/altitude levels, activity patterns, timing, consistency of movements, habitat variables between control (reference) and treatment (turbines) sites during the breeding period and during migration. Data should be collected under various types of weather conditions.

Reference sites should be located at minimum 500m from proposed turbine sites. These reference sites should be placed in habitats similar to the paired turbine site. ECCC-CWS-ATL recommends that this approach be factored into the pre-construction and post-construction monitoring designs. All study design recommendations presented above should be used for this approach (e.g., pre-construction monitoring should be completed before site approval, be done for two years, etc.). Additionally, all sampling considerations (e.g., migration timing windows, data collection, reporting) should be consistent with the minimum standard.

## Bats

Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) are small, insectivorous bats that are listed as Endangered (Species at Risk Act, Schedule 1). ECCC-CWS-ATL recommends that the proponents consider bats in their pre-construction and post-construction monitoring and their data and report submissions. However, the proponent should contact Provincial representatives for additional information on bats and wind energy developments, as they are the jurisdiction responsible for the conservation and protection of bat species.

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- Horton K.G., B.M. Van Doren, P.M. Stepanian, A. Farnsworth A., and J.F. Kelly. 2016. Where in the air? Aerial habitat use of nocturnally migrating birds. Biol. Lett. 12: 20160591. (<http://dx.doi.org/10.1098/rsbl.2016.0591>)
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- Richardson, W.J. 1972. Autumn migration and weather in Eastern Canada: A radar study. American Birds 26(1): 10-17

# Service canadien de la faune d'Environnement et Changement climatique Canada (région de l'Atlantique) : Mise à jour du document d'orientation pour les évaluations environnementales relatives à l'énergie éolienne et aux oiseaux

## Contexte

Le Service canadien de la faune d'Environnement et Changement climatique Canada (SCF/ECCC) est chargé de l'administration de la *Loi sur la Convention concernant les oiseaux migrateurs* (LCOM) et de la *Loi sur les espèces en péril* (LEP). Il est responsable de la gestion et de la conservation des oiseaux migrateurs et de la protection des espèces en péril inscrites sur la liste de la LEP et de leurs habitats. Le SCF/ECCC Atlantique (ATL) fournit, sur demande, des avis d'experts sur ces espèces pour les évaluations des répercussions relatives à la production d'énergie éolienne. En 2007, le SCF/ECCC a publié deux documents d'orientation pour l'évaluation du risque associé aux projets de production d'énergie éolienne sur les oiseaux migrateurs :

- *Les éoliennes et les oiseaux : Document d'orientation sur les évaluations environnementales* (Environnement Canada, 2007a);
- *Protocoles recommandés pour la surveillance des impacts des éoliennes sur les oiseaux* (Environnement Canada, 2007b).

Les récents progrès technologiques en matière de production d'énergie éolienne comprennent la hausse des turbines et le renforcement de la capacité de production d'énergie. Par conséquent, en 2018, le SCF/ECCC-ATL a fourni une mise à jour des avis sur la surveillance radar et acoustique recommandée pour surveiller certains facteurs préoccupants (p. ex., les couloirs de migration, le taux de passage et les altitudes de vol des oiseaux migrateurs nocturnes par rapport à la hauteur des turbines proposées — à plus grande échelle) (s.8.2, SCF2007a, et protocoles, SCF2007b).

Le SCF/ECCC-ATL a préparé cette mise à jour de l'orientation pour remplacer l'avis de 2018. Cette mise à jour de l'orientation fournit des normes minimales et les meilleures approches pour la surveillance avant et après la construction liée aux projets de production d'énergie éolienne au Canada atlantique. Il incombe au promoteur de choisir la meilleure approche, en fonction de la situation, pour se conformer à la *Loi sur la Convention concernant les oiseaux migrateurs* et à la *Loi sur les espèces en péril*.

## Détermination de la sensibilité du lieu

Le SCF/ECCC-ATL recommande que les lieux de production d'énergie éolienne où il est proposé de construire des turbines à une hauteur supérieure à 150 m (donc la rotation des pales à cette hauteur de turbine coïncide avec les corridors de vol nocturne des oiseaux chanteurs, c. à d. à 150 à 600 m [Horton et coll., 2016]), comme hauteur totale, soient considérés comme des lieux « très sensibles » (c.-à-d. de catégorie 4, Environnement Canada, 2007a).

## Norme minimale

### Surveillance avant la construction

Il existe peu de données et d'études connexes disponibles sur les plus récentes technologies en matière de grandes turbines et les risques pour les oiseaux migrateurs. Par conséquent, les promoteurs doivent évaluer le risque associé aux lieux de catégorie 4 pour comprendre et caractériser les trajectoires de vol nocturne des oiseaux autour des lieux proposés. Le SCF/ECCC-ATL recommande de recourir à la surveillance radar et acoustique pendant les migrations du printemps et de l'automne, en plus des enquêtes aviaires standard (Environnement Canada, 2007a).

Bien qu'une grande partie de la route migratoire des oiseaux passe au-dessus des turbines et de l'espace de rotation des pales, on aurait rapporté à la fois une migration des oiseaux chanteurs et des déplacements saisonniers localisés des populations d'oiseaux migrateurs, lesquels se produisent à la hauteur des turbines (Richardson, 1972; Horton et coll., 2016). Par conséquent, la surveillance devrait également comprendre la caractérisation des déplacements localisés possibles d'oiseaux à une faible hauteur. Par exemple, les Hirondelles de rivage se déplacent entre les colonies d'oiseaux de rivage du littoral et les dortoirs situés à l'intérieur des terres; les oiseaux de rivage se déplacent au-dessus des terres entre les sites de recherche de nourriture et les dortoirs pendant les vols de recrutement prémigratoires; les canards de mer sont des oiseaux migrateurs nocturnes de basse altitude.

Le recours à des unités d'enregistrement acoustique autonomes (UEAA) permet de compléter les données radar et d'étayer les conclusions de l'analyse finale. La distance de détection maximale des UEAA est d'environ 200 à 250 m au-dessus du sol, soit une hauteur semblable à celle des turbines d'éoliennes proposées. Ces UEAA peuvent aider à déterminer la composition des espèces d'oiseaux migrateurs nocturnes, ce qui est particulièrement important pour comprendre le risque pour les espèces en danger.

### Plan expérimental

Le SCF/ECCC-ATL recommande, au minimum, une surveillance au début de l'étape de planification du projet (avant la construction) afin de s'assurer que le promoteur effectue une surveillance pendant au moins deux années (consécutives). La norme minimale de deux ans étaye les analyses de la hauteur de vol des oiseaux en saisissant la variabilité des conditions météorologiques présentes. En outre, le SCF/ECCC-ATL recommande une surveillance avant la construction pour quantifier le risque à un lieu proposé **avant** l'approbation. Cela fournit également des données de référence pour évaluer les incidences et la mortalité après la construction dans les populations d'oiseaux migrateurs. Les données devraient être recueillies dans différentes conditions météorologiques.

La période de surveillance recommandée pour la migration printanière est du **15 mars au 7 juin**, et celle de la migration automnale, du **15 juillet au 30 novembre**. Ces fenêtres de surveillance étendues permettent au promoteur d'évaluer les déplacements migratoires des oiseaux terrestres, de la sauvagine/des canards de mer et des oiseaux de rivage, ce qui est particulièrement important dans les zones côtières ou le long des voies de migration connues (p. ex., la baie de Fundy, le marais de Tantramar, le détroit de Canso et la région du cap de Sable).

La période de reproduction au Canada atlantique varie d'une région à l'autre (c.-à-d. les zones de nidification), et les périodes de nidification correspondantes présentent une variation de l'intensité de la nidification par type d'habitat. Pour des renseignements sur les périodes de nidification régionales, veuillez consulter le site Web d'ECCC intitulé [Périodes générales de nidification — Prévention des effets néfastes pour les oiseaux migrateurs](#). Chaque site devrait être visité au moins deux fois pendant cette période afin d'établir quelles espèces se reproduisent dans la région et de déterminer s'il y a des espèces d'oiseaux migrateurs en péril et/ou des espèces qui font des parades nuptiales aériennes.

Si les processus réglementaires provinciaux n'exigent pas de surveillance avant la construction, le promoteur doit commencer la surveillance dès que possible (pour une période minimale de deux ans). Bien que ce ne soit pas idéal,

la surveillance pourrait commencer pendant l'année de construction afin d'évaluer les impacts sur les populations d'oiseaux migrateurs et de déterminer les besoins en matière de mesures d'atténuation supplémentaires et/ou d'éclairer les orientations futures.

#### Analyse des données

Une orientation sur l'analyse des données est offerte dans le document d'orientation nationale de 2007 (Environnement Canada, 2007a; Environnement Canada, 2007b). Le SCF/ECCC-ATL recommande de regrouper dans un seul rapport les données de référence aviaires et l'évaluation de l'habitat, de chaque lieu, ainsi que les données de surveillance radar et acoustique. En outre, ce rapport doit comprendre une évaluation globale détaillée du risque pour les oiseaux migrateurs.

Le rapport doit comprendre, au minimum, les éléments suivants :

- o liste des oiseaux nicheurs pouvant être présents (suivant les protocoles de l'atlas des oiseaux nicheurs);
- o estimation du volume des oiseaux (c.-à-d. cibles) par nuits à une échelle de résolution altitudinale fine;
- o données altitudinales;
- o période visée par la surveillance (remarque : la surveillance doit se dérouler à la même heure chaque jour);
- o données météorologiques;
- o cycles des marées et de la lune (remarque : les déplacements des oiseaux de rivages augmentent lors des nuits claires);
- o Résumé de l'activité globale des oiseaux, y compris comment l'activité des oiseaux :
  - o a changé au cours de la nuit et de la saison;
  - o a changé dans la zone d'étude.

#### Surveillance post-construction

Le SCF/ECCC-ATL recommande que les relevés de mortalité après la construction (Environnement Canada, 2007b) ainsi que la surveillance radar et acoustique soient conformes aux méthodes de référence d'avant la construction. Le promoteur (pour tout projet approuvé) doit effectuer une surveillance pendant au moins deux années (consécutives). Le SCF/ECCC-ATL peut recommander une prolongation de la surveillance selon les résultats rapportés.

Il faut apparier les données des relevés de mortalité à celles de la surveillance radar et acoustique afin de fournir un contexte pour les impacts localisés sur les oiseaux. De plus, le promoteur doit comparer les résultats avant et après la construction afin d'évaluer et de quantifier tout changement dans l'assemblage, la densité et les comportements des espèces d'oiseaux migrateurs.

Il faut des permis pour manipuler ou prélever tout oiseau ou chauve-souris mort(e) trouvé(e) au cours des activités de surveillance après construction (p. ex., recherche de carcasses ou utilisation de carcasses dans le cadre d'essais d'efficacité des observateurs ou d'essais de récupération) (ECCC, s. 10.4, 2007). En vertu du *Règlement sur les oiseaux migrateurs*, un permis scientifique est requis pour le prélèvement d'un oiseau migrateur (mort ou vivant), de plumes ou d'une partie, tel que défini dans la LCOM (personne-ressource : [Permi.Atl@ec.gc.ca](mailto:Permi.Atl@ec.gc.ca)). Les promoteurs doivent également communiquer avec le service de la faune de la province ou du territoire concerné pour obtenir des renseignements sur les exigences relatives au prélèvement d'espèces qui est de compétence provinciale (des espèces de chauves-souris et d'oiseaux comme les rapaces ne sont pas visés par la LCOM). Les promoteurs doivent examiner et noter soigneusement les conditions des permis, y compris les rapports annuels et les rapports sur les incidents de mortalité. Les promoteurs devront s'assurer qu'ils demeurent en conformité avec toutes les conditions et exigences des permis.

## Présentation des données et des rapports

Veillez fournir à SCF/ECCC-ATL les rapports de surveillance. Les rapports doivent être transmis au SCF avant le 31 décembre de l'année civile au cours de laquelle la surveillance a eu lieu. Présentez les rapports au guichet d'évaluation environnementale d'ECCC pour la coordination à l'adresse suivante : [FCR\\_Tracker@ec.gc.ca](mailto:FCR_Tracker@ec.gc.ca).

Le SCF/ECCC-ATL recommande que le promoteur soumette toutes les données de surveillance relative à l'énergie éolienne (oiseaux migrateurs et chauves-souris) au [Suivi des populations d'oiseaux et de chauves-souris relié à l'énergie éolienne](#) (Oiseaux Canada, 2022). Le promoteur doit conserver les données brutes (p. ex., les données sur chaque trajectoire) jusqu'à ce que des normes de données appropriées aient été élaborées.

## Meilleure approche

Le SCF/ECCC-ATL considère que la meilleure approche consiste en un plan d'étude régionale par comparaison (c.-à-d. une étude par paires de sites) avant-après/témoins-impact (BACI, pour Before-After-Control Impact) ou une étude à gradient d'impact pour les petits projets. Le plan expérimental BACI est conçu pour aider à isoler l'effet potentiel du projet de la variabilité naturelle. Il faut apparier les projets de construction d'éoliennes avec des lieux de référence similaires afin de fournir des évaluations comparatives. Une évaluation comparative des sites doit comparer la densité des oiseaux, la variabilité de la hauteur de vol/les altitudes, les profils d'activité, le moment de l'activité, la cohérence des déplacements, les variables de l'habitat entre les sites témoin (référence) et de traitement (éoliennes) pendant la période de reproduction et la migration. Les données doivent être recueillies dans différents types de conditions météorologiques.

Les sites de référence doivent être situés à au moins 500 m des sites de construction d'éoliennes proposés. Ces sites de référence doivent être placés dans des habitats semblables à ceux du site de l'éolienne auquel ils ont été jumelés. Le SCF/ECCC-ATL recommande que cette approche soit prise en compte dans les plans de surveillance avant et après la construction. Toutes les recommandations relatives au plan de l'étude, présentées ci-dessus, doivent être utilisées pour cette approche (p. ex., la surveillance avant la construction devrait être réalisée avant l'approbation du projet et s'étendre sur deux ans). En outre, toutes les considérations relatives à l'échantillonnage (p. ex., périodes de migration, collecte de données, rapports) doivent être conformes à la norme minimale.

## Chauves-souris

La petite chauve-souris brune (*Myotis lucifugus*), la chauve-souris nordique (*Myotis septentrionalis*) et la pipistrelle de l'Est (*Perimyotis subflavus*) sont de petites chauves-souris insectivores inscrites sur la liste des espèces en voie de disparition (*Loi sur les espèces en péril*, annexe 1). Le SCF/ECCC-ATL recommande aux promoteurs de tenir compte des chauves-souris dans leur surveillance avant et après la construction et dans la présentation de leurs données et rapports. Toutefois, le promoteur doit communiquer avec les représentants provinciaux pour obtenir des renseignements supplémentaires sur les chauves-souris et les projets d'énergie éolienne, puisqu'ils sont l'administration responsable de la conservation et de la protection des espèces de chauves-souris.

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Date: April 14, 2023  
To: Jeremy Higgins, Environmental Assessment Officer  
From: Department of Natural Resources and Renewables  
Subject: Higgins Mountain Wind Farm Project, Cumberland/Colchester Counties, NS

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**Scope of review:**

This review focuses on the following mandate: Parks, MRA and regulations, biodiversity, species at risk status and recovery, wildlife species and habitat management and conservation.

**Technical Comments:**

**Parks Branch:**

No provincial park or designated protected beaches program concerns.

**Geoscience and Mines Branch:**

GMB has determined that there are active mineral exploration licences partially or entirely within the study area of interest.

**Biodiversity Branch:**

This environmental assessment registration document has been reviewed by Natural Resources and Renewables biologists. The review focused on the following mandates: biodiversity, species at risk status and recovery, wildlife species and habitat management and conservation.

## Summary of Technical Considerations: (provide in non-technical language)

### **Geoscience and Mines Branch:**

A review is to be completed through NovaRoc to determine which exploration licenses could be affected by this proposed project. Please contact the Registry of Mineral and Petroleum Titles if assistance is required in performing this task.

Engagement to notify the owners of the affected mineral rights is required, and to discuss potential impacts of activities.

### **Biodiversity Branch:**

It is the responsibility of the proponent to ensure compliance with federal and provincial legislation and regulations regarding resident, migratory and at-risk bird species and their habitats (e.g., *Species at Risk Act*, *Migratory Birds Convention Act*, *Fisheries Act*, *NS Endangered Species Act*, *NS Wildlife Act*, and their regulations). As such, the following is a list of recommendations:

1. Obtain all necessary permits as required under legislation related to wildlife and species at risk to undertake the project.
2. Provide digital way points and/or shapefiles for all Species at Risk and Species of Conservation Concern to NRR (those species listed and/or assessed as at risk under the *Species at Risk Act*, *Endangered Species Act*, COSEWIC, as well as all S1, S2 and S3 species). Data should adhere to the format prescribed in the NRR Template for Species Submissions for EAs and is to be provided within two (2) months of collection.
3. Prior to the development of a Wildlife Management Plan (WMP), field surveys should occur to address information gaps that prevent a full risk assessment to SAR and SOCC. NRR is available to review methodology and timing.
  - Preference is for 2 years of surveys prior to construction for each SAR to fully understand the impacts on Species at Risk and associated habitats.
  - Bat surveys should be completed during both key breeding and migratory periods: spring (May 1<sup>st</sup> – June 30<sup>th</sup>) and fall (August 15<sup>th</sup> – October 31<sup>st</sup>).
  - Avifauna point count surveys should be expanded to encompass some off-road locations.
  - Radar surveys should also be more widespread to be completely representative of the Study Area and be expanded outside the study area to determine airspace use by migratory birds.
  - Different avifauna survey types (e.g., breeding bird survey, spring migration, fall migration) should be differentiated on maps.
  - Terrestrial fauna: Winter and pellet transect surveys and camera trap surveys should increase in number and occur throughout representative habitats.

- Terrestrial flora: Vegetation transect surveys should increase in number and occur throughout representative habitats.
  - At-risk lichen surveys, as per the At-Risk Lichen – SMP should occur prior to any clearing, grubbing, brush removal, and/or ground disturbance. Surveys should be completed by an accepted lichen surveyor and transect shapefiles provided to NRR.
  - Old growth forest presence/absence as defined in the Old Growth Forest Policy, including on private land.
4. Develop and implement a Wildlife Management Plan (WMP) which can include:
    - Communication protocol with regulatory agencies.
    - General wildlife concerns (e.g., human-wildlife conflict avoidance).
    - Mitigation measures to promote safety and prevent spread of Avian Influenza.
    - Education sessions and materials for project personnel on Species at Risk, non-Species at Risk-wildlife, and other important biodiversity features they may encounter on-site and how to appropriately respond to those encounters.
    - Noise, dust, lighting, blasting, and herbicide use mitigations.
    - Measures to protect and mitigate against adverse effects to migratory birds during construction and operation. This may include avoidance of certain activities (such as vegetation clearing) during the regional nesting period for most birds, buffer zones around discovered nests, limiting activities during the breeding season around active nests, and other best management practices.
    - Mitigations to proactively protect bats and avifauna against mortality from turbine strikes and barotrauma. This may include implementing turbine deterrents, seasonal or detection-based shutdown systems for turbines, and prevention of turbine blade feathering.
    - Mitigation measures consistent with recovery documents (federal and/or provincial recovery and management plans, COSEWIC status reports) to avoid and/or protect Species at Risk/Species of Conservation Concern and associated habitats discovered through survey work or have the potential to be found on site.
    - Details on monitoring and inspections to assess compliance with the WMP.
  5. The components of the WMP that address impacts expected during each phase of the project should be finalized *before* that phase begins (this includes the construction phase).
  6. Prior to construction, proponent should: provide final locations of turbines to NRR and ECC detailing changes and mitigation measures for potential environmental effects.
  7. Conduct surveys for Mainland Moose for a minimum of two (2) years during the operation phase of the project, in a buffered zone of influence extending up to two (2) kms from the project footprint, to assess potential effects of disturbance.

8. Provide at least two (2) years of pre-construction radar and acoustic monitoring for bird and bat species. The following approach is recommended:
  - A minimum of two (2) years of consecutive baseline surveys, provided that at least one of these survey years is conducted prior to the construction phase of the project.
9. Develop a monitoring program to assess mortality for avifauna and bats in consultation with NRR and ECCC and implement for a minimum of two (2) years post-construction during the operation stage of the project. Guidance on monitoring requirements will be provided by NRR. Reporting of the monitoring program results shall be on an annual basis to the appropriate regulatory agencies. Pending review of results of the monitoring program, additional monitoring or mitigation measures may be required.
10. Engage with NRR and ECCC to develop an adaptive management plan to inform decision-making related to adverse effects of the project on migratory bird and bat species. Additional surveys or mitigations may be required following a review of the effectiveness of the plan.
11. Revegetate cleared areas using native vegetation or seed sources following consultation with NRR.
12. Develop a plan to prevent the spread of invasive species both on and off site. Implementation of the plan can only occur following approval from NRR. The plan should include monitoring, reporting, and adaptive management components.
13. The proponent must describe the impacts of the project on landscape-level connectivity for wildlife and habitat (e.g., habitat fragmentation, loss of intact forested habitat, increased road density). An assessment of the cumulative effects of the project on landscape-level connectivity and habitat loss, and the measures proposed to mitigate those effects, must be provided.



Kwilmu'kw Maw-klusuaqn Negotiation Office  
**Mi'kmaq Rights Initiative**

75 Treaty Trail  
Truro, NS B6L 1W3

**Tel** (902) 843 3880 **Fax** (902) 843 3882

**Toll Free** 1 888 803 3880

**Email** [info@mikmaqrighs.com](mailto:info@mikmaqrighs.com)

**www.mikmaqrighs.com**

Our Rights. Our Future.

April 18<sup>th</sup>, 2023

Jeremy Higgins  
Environmental Assessment Officer  
Environmental Assessment Branch  
Nova Scotia Environment and Climate Change  
Email: [jeremy.higgins@novascotia.ca](mailto:jeremy.higgins@novascotia.ca)

**RE: Consultation with the Mi'kmaq of Nova Scotia on the Higgins Mountain Wind Farm Project, Cumberland and Colchester Counties, N.S.**

Mr. Higgins,

I write in response to your letter dated March 14, 2023, requesting consultation under the *Terms of Reference for a Mi'kmaq-Nova Scotia-Canada Consultation Process (ToR)* as ratified on August 31, 2010, on the above noted project. We wish to proceed with consultation.

The Kwilmu'kw Maw-Klusuaqn Negotiation Office (KMKNO) are pleased to see Sipekne'katik First Nation as a partner with Elemental Energy and Stevens Wind Ltd. on this proposed wind project. We recognize more needs to be done in the transition away from fossil fuels and are encouraged that the Mi'kmaq are at the forefront in various renewable energy projects.

This project may impact various communities' rights recognized under section 35 of the Constitution Act, 1982. This project may impede the ability in the surrounding area to hunt, fish, and gather in the project area. As referenced in the Environmental Assessment Registration Document (EARD) and Mi'kmaq Ecological Knowledge Study (MEKS) Moose, Salmon, Lobster, Trout, Deer and Partridge, but not limited to, are all species that are important to the Mi'kmaq and are all found in the project area. It is our expectation that Nova Scotia Environment and Climate Change (NS-ECC) will ensure this endangered species will not be impacted by this proposed project.

This EARD states that the project study area is classified as "Mainland Moose concentration area". Endangered Mainland Moose as defined under the Moose Special Management Practice (SMP), any activity that causes habitat degradation for a species at risk is unacceptable. Mainland moose populations have declined in recent years due to increased industry development, climate change, habitat, and habitat connectivity loss. It has been implied that moose will alter movement due to the sensory disturbance; and have documented that they may

not inhabit an area within 3-4 km due to continued industry development. While we are encouraged to see several tracking and pellet surveys take place, and with just ~700 mainland moose in Nova Scotia, we can not support any activity that will degrade the habitat of this endangered species. Strict mitigative measures must be developed and implemented.

The EARD and MEKS makes mentions of Black Ash, Sweet Grass and Various Berries located within the project area. Every effort should be made to preserve the already established ecosystem from future developments. Further, whereby vegetation resources will be removed for new builds, we expect that suitable immature to mature craft would be made accessible for harvest to the local Mi'kmaw Communities should they have interest.

The EARD identified several wetlands and watercourses located in the project area may be altered, disrupted, or destroyed due to the construction and development of this proposed project. The restoration and/or creation of wetland areas is supported and encouraged, however, it is our understanding that wetlands are complicated systems that cannot be easily replicated from a biological perspective. It is our expectation that Consultation will continue on future permits and approvals for this project such as a Fisheries Act Authorization or alternative permitting from Department of Fisheries and Oceans that will allow the proponent to alter or disturb these bodies of water.

The EARD also mentions several avian species that are classified as "Species at Risk" or "Special Concern" that are found in the project area. Our office remains concerned for these species and how the wind turbine generators will effect their habitats and migratory routes. Our office recommends the proponent reach out to The Mi'kmaq Conservation Group (MCG) for any studies and surveys that may result of the conditions of this project should it be approved.

It is our expectation that the application of the use of Crown Lands that has been submitted to the Nova Scotia Department of Natural Resources and Renewables (NRR) will be sent to our office for review and comment.

The Mi'kmaq Nation in Nova Scotia has a general interest in all lands and resources in Nova Scotia as the Mi'kmaq Nation has never surrendered, ceded, or sold the Aboriginal title to any of its lands in Nova Scotia. The Mi'kmaq have a title claim to all of Nova Scotia and as co-owners of the land and its resources it is expected that any potential impacts to rights and title shall be addressed.

KMKNO's Archaeology Team is currently reviewing Section 9.0 of the EARD and Permit Report A2022NS134 provided by the Office of L'nu Affairs. Additional time is needed on this review and our office will forward these comments to NS-ECC upon completion.

KMKNO does not represent the communities of Millbrook, Sipekne'katik, or Membertou First Nations. Millbrook First Nation is the nearest community and it is expected that they are being consulted directly.

Please contact \_\_\_\_\_, Senior Mi'kmaw Energy and Mines Advisor at KMKNO for any further questions.

Yours in Recognition of Mi'kmaw Rights and Title,

Director of Consultation  
Kwilmu'kw Maw-Klusuaqn Negotiation Office

c.c.:

---, Kwilmu'kw Maw-Klusuaqn Negotiation Office  
Nova Scotia Office of L'nu Affairs  
Nova Scotia Office of L'nu Affairs

Neil Gillis, Nova Scotia Environment and Climate Change

Charlotte Sullivan, Nova Scotia Environment and Climate Change

Melanie Cameron, Nova Scotia Department of Natural Resources & Renewables