



Environmental Review Tribunal

Case Nos.: 12-015/12-018

Monture v. Director, Ministry of the Environment

In the matter of appeals by William Monture, filed March 29, 2012, and Haldimand Wind Concerns, filed March 30, 2012, for a hearing before the Environmental Review Tribunal pursuant to section 142.1 of the *Environmental Protection Act*, R.S.O. 1990, c. E.19, as amended, with respect to Renewable Energy Approval number 2484-8RQUS4 issued by the Director, Ministry of the Environment, on March 16, 2012 to Summerhaven Wind, LP under section 47.5 of the *Environmental Protection Act*, regarding the construction, installation, operation, use and retiring of, fifty-eight (58) wind turbine generators, one (1) transformer substation, and associated ancillary equipment, systems and technologies including on-site access roads, underground cabling and overhead distribution and transmission lines located at Concession Road 5, Lot 19-20, Concession 5, Haldimand County, Ontario;

In the matter of a proposed withdrawal of the appeal by Haldimand Wind Concerns; and

In the matter of a hearing held on May 28, 29, 30, June 7, 8, 11, 12, 25, July 16 and 19, 2012 at the Hagersville Community Centre, 62 Main St. South, Hagersville, Ontario, and heard on June 6 and June 15, 2012 at 655 Bay Street, Toronto, Ontario.

Before:

Heather I. Gibbs, Panel Chair
Robert V. Wright, Vice-Chair
Dirk VanderBent, Vice-Chair

Appearances:

Graham Andrews, Eric Gillespie and Rebekah Church	-	Counsel for the Appellant, Haldimand Wind Concerns
William Monture	-	Appellant, on his own behalf
Nadine Harris and Mario Faieta	-	Counsel for the Director, Ministry of the Environment

Dennis E. Mahony, - Counsel for the Approval Holder, Summerhaven
John A. Terry and Wind, LP
Alexander C.W. Smith

Norman Negus - Participant, on his own behalf

Dated this 28th day of September, 2012.

Reasons for Decision

Background:

On March 16, 2012, the Director, Ministry of the Environment (“MOE”) issued Renewable Energy Approval number 2484-8RQUS4 (“REA”) under section 47.5 of the *Environmental Protection Act* (“EPA”) to Summerhaven Wind, LP (the “Approval Holder” or “Summerhaven”) to engage in a renewable energy project (the “Project”) in respect of a Class 4 Wind facility located at Lot 19-20, Concession 5, Haldimand County. The Project consists of the construction, installation, operation, use and retiring of 58 wind turbine generators, each rated at 2.221 MW generating output capacity, one transformer substation, and associated ancillary equipment, and systems and technologies including on-site access roads, underground cabling and overhead distribution and transmission lines.

On March 29, 2012, William Monture (the “Appellant”) filed a notice of appeal (Case No. 12-015) with the Environmental Review Tribunal (the “Tribunal”) which included grounds that the REA failed to respect the rights of the Onkwehonwe that were granted under the Nanfan Treaty of 1701 (“Treaty”). Mr. Monture further submitted that the Project will have a negative impact on the hunting and fishing rights of the Onkwehonwe under the Treaty, and will cause harm to birds and wildlife and their habitat, trees and prime agricultural land.

On March 30, 2012, Haldimand Wind Concerns (“HWC”) filed a notice of appeal (Case No. 12-018) with respect to various terms, conditions and reasons of the decision to issue the REA, on the grounds that the Project would cause serious harm to human health.

On April 2, 2012, in response to a request by the Tribunal for further details of the appeal, Mr. Monture submitted that the Project would cause serious harm to human health and that the Project would cause serious and irreversible harm to plant life, animal life and the natural environment by destroying medicinal plants, wildlife habitat and agricultural land.

The Tribunal issued orders on preliminary issues in this appeal on May 7, 2012, May 18, 2012 and July 9, 2012. The main hearing commenced on May 28, 2012. During the course of the proceeding, HWC proposed to withdraw its appeal on a without-costs basis. All other parties consented to this proposed withdrawal, which is confirmed below.

For the reasons that follow, the Tribunal finds that the Appellant has not established that the Project as approved will cause serious harm to human health, or serious and irreversible harm to plant life, animal life or the natural environment, and therefore dismisses the appeal.

Issues:

1. Whether HWC's appeal should be dismissed in light of HWC's proposed withdrawal from the proceeding.
2. Whether engaging in the renewable energy project in accordance with the renewable energy approval will cause (a) serious harm to human health; or (b) serious and irreversible harm to plant life, animal life or the natural environment.
3. If the answer to Issue No. 2 is yes, whether the Tribunal should revoke the decision of the Director, by order direct the Director to take some action, or alter the decision of the Director.

Relevant legislation, regulation and rules:

The relevant legislation, regulation and rules are set out in Appendix A.

Issue #1: Whether HWC's appeal should be dismissed in light of HWC's proposed withdrawal from the proceeding.

At the hearing on July 16, 2012, counsel for HWC stated that HWC would be withdrawing its appeal in this matter. In response, Summerhaven and the Director confirmed that they agreed to the proposed withdrawal on a without-costs basis. The Appellant, the participants Norman Negus and Lonny Bomberry on behalf of the Six Nations Elected Council, and the presenter William Stewart were notified on July 17, 2012, by email from the Tribunal, of HWC's proposed withdrawal. There were no objections to the withdrawal on a without-costs basis.

Rule 199 of the Tribunal's Rules of Practice provides that, where there is a proposed withdrawal agreed to by all parties that does not alter the decision under appeal, the Tribunal shall issue a decision dismissing the proceeding.

The Tribunal finds that the proposed withdrawal of the appeal is not opposed by any of the parties in this matter and the decision under appeal is not altered within the meaning of Rule 199. As a result, the Tribunal finds that the proceeding should be dismissed as it relates to HWC's appeal.

Issue #2: Whether engaging in the renewable energy project in accordance with the renewable energy approval will cause (a) serious harm to human health; or (b) serious and irreversible harm to plant life, animal life or the natural environment.

Discussion and analysis:

Overview

Under section 145.2.1(3) of the *EPA*, the onus rests on the Appellant to demonstrate that engaging in the Project in accordance with the REA will cause serious harm to human health or serious and irreversible harm to plant life, animal life or the natural environment. Mr. Monture's appeal, and the evidence he adduced in support of it regarding the impact of the Project, can be categorized as follows:

1. impact on birds and bats, and on animal habitat;
2. impact of land use change resulting in the loss of plant life traditionally valued by First Nations people for medicinal purposes; and
3. impact on the rights of First Nations peoples for freedom of movement across the land, and the right to hunt and gather.

Although Mr. Monture indicated that he was also alleging serious harm to human health, he did not bring evidence specific to this ground, other than in the context of loss of medicinal plants, nor was it addressed by the other parties. As a result, this decision will focus mainly on section 145.2.1(2)(b) of the *EPA*, regarding serious and irreversible harm to plant life, animal life or the natural environment.

Mr. Negus, a participant in this proceeding, addressed a fourth category: the impact of electromagnetic fields emanating from power lines to be installed as part of the Project, in terms of its impact on human and animal health, as well as the safety hazard that he asserts will result due to the potential that natural gas wells could be exposed to stray voltage.

The Tribunal will first provide a brief synopsis of the pertinent evidence, which includes an overview of the relevant aspects of the regulatory regime regarding applications for a renewable energy approval. The Tribunal will then address the submissions of the Parties and its present findings in respect of those submissions.

Appellant's evidence

At the outset of the hearing, the Appellant sought to bring evidence to support the argument that there was inadequate consultation with First Nations peoples in the REA processes that preceded this hearing. The Tribunal issued an earlier order in this proceeding, with reasons dated July 9, 2012, dismissing Mr. Monture's appeal as it relates to the duty to consult. The Tribunal agreed with an earlier Tribunal decision, *Preserve Mapleton Inc. v. Ontario (Ministry of the Environment)*, [2012] O.E.R.T.D. No. 19, that it does not have the jurisdiction in a renewable energy appeal to consider issues related to the Director's duty to consult with First Nations peoples.

The Tribunal ruled during the hearing, however, that it would hear the Appellant's evidence regarding Aboriginal and Treaty rights to the extent the evidence relates to alleged harm to human health, plant life, animal life or the natural environment in respect of the Project.

Mr. Monture, Lester Green, Peter Slaman, Kelly Curley and Jan Longboat gave evidence in support of Mr. Monture's appeal. Mr. Monture did not seek to formally qualify any expert witnesses to give opinion evidence in the manner outlined in the Tribunal's Rules. However, he confirmed that he and Mr. Green acted as representatives for Onkwehonwe people in the area where the Project will be located. As Mr. Monture described in his submissions, the Onkwehonwe have brought forth their perspective and expertise in this proceeding, sharing their knowledge of observed changes in behaviours of the animals and birds as a result of development. Both he and Mr. Green testified that they relied, in part, on knowledge of the natural environment, including plant and animal life, accumulated over generations through the oral traditions of the Onkwehonwe. In expressing their concerns, they clearly stated that they provided their opinions and views in the context of the traditional values of the Onkwehonwe. The Tribunal has admitted their opinion evidence in this context.

The evidence of both Mr. Monture and Mr. Green highlighted several considerations. They emphasized that it is not disputed that bird and bat mortalities will occur. They question why anyone would allow such activity to occur knowing this to be the case. They cautioned everyone to consider not just the short term impact of the Project on animal life, but the long term ecosystem impacts this could have as well, and the need

to preserve the environment for future generations. In this context, they asserted that even one bird or bat death constitutes serious and irreversible harm. They pointed out that if an adult bird is killed, chicks in the nest will also be impacted. They reviewed evidence regarding the height of the wind turbines, confirming that they will reach approximately 437 feet to the tip of the blade, which is within the zone (up to 500 feet) where birds will generally fly. They emphasized that the area in the vicinity of the Project is a migratory pathway, and asserted that the installation of such a large wind turbine project, such as this Project, can only have harmful impacts.

The Appellant emphasized that there are raptor and bat populations in the Project area, pointing out that it is not disputed that such species are particularly vulnerable because of their longevity and low reproductive rates. The Appellant noted in particular, the sensitivity of bats.

The Appellant questioned whether the data submitted in support of the Project underestimates average bird and bat mortality rates, which are based on carcass searches. The Appellant questioned whether the search area required under Ontario Regulation 359/09 of the *EPA* ("O.Reg. 359/09" or the "Regulation") is sufficiently broad, and whether an accurate count can be obtained if carcasses are removed by scavenging animals. In addition, the loss of an adult species during the nesting season may result in the death of nestlings incapable of foraging for themselves.

The Appellant also contended that the 120m setback from important habitat areas, as outlined in the Regulation, is not sufficiently protective for animal life.

Some of the articles filed by the Appellant dealt specifically with the Altamont Pass industrial wind turbine project in California, where raptor mortality was particularly significant in the past. However, these articles also explained that an important mortality factor was the lattice design of the towers, which encouraged eagles to nest in them. Adult eagles and chicks were then disproportionately impacted by the wind turbines when they dove for prey. The article notes that effective mitigation has included replacing the lattice-style towers with solid ones, and replacing the five-bladed turbine with three longer, slower-moving blades.

The Appellant pointed out that there are several other large industrial wind turbine projects adjacent to the Project area or within the larger region adjacent to the north shore of Lake Erie (either approved or in the process of seeking approval). He submitted that there must be a consideration of the cumulative impact of multiple industrial wind turbine projects.

Mr. Slaman is a local resident and farmer who has lived in the area for many years. In his evidence, he questioned the adequacy of field investigations by Summerhaven's consultants, in particular with regard to tundra swans, and maintained, based on his experience, that Summerhaven's assessment significantly underestimates the number of turkey vultures in the area. He also asserted that wind turbines maim and kill wildlife, destroy their habitat, interfere with their breeding and feeding habits, and drive animals away.

With respect to plant life, Mr. Monture gave evidence that First Nations people in the area traditionally rely on wild plants for their medicinal value, and consider all plants to be medicine. He pointed out that the construction of the wind turbines and other related facilities would displace land where such plants could grow.

Mr. Monture gave evidence respecting Treaty rights of First Nations peoples in the area to access all lands in the area, including the area covered by the Project, for purposes including hunting and fishing rights, noting that access will be restricted by fencing on the land where the Project substation and switchyard will be located.

Participant's Evidence

Of the participants and presenters granted status in this proceeding, only Mr. Negus made a presentation to the Tribunal.

Mr. Negus gave evidence on his concerns about harm to human health and animal health from the effects of power lines to be installed in a right-of-way within the Project area. He referenced several internet sources providing general information and opinions regarding the impacts of electromagnetic fields. He submitted a paper by Michael Michrowski, entitled "*Land Severance Guidelines for Electromagnetic Consideration – High Voltage Transmission Lines – transformer stations – Summerhaven*", dated April 26, 2012, which proposes that guidelines be created on this topic. Mr. Negus highlighted that this article states that it is not yet determined what levels of power-frequency electromagnetic fields are harmful. Mr. Michrowski was not called to give evidence in this proceeding.

Director's Evidence

Peter Carter was qualified as an expert to give opinion evidence as a biologist with expertise in birds on behalf of the Director. He testified that he is the Senior Policy Advisor, Renewable Energy Program with the Ministry of Natural Resources ("MNR"). He indicated that, prior to May 2012, he was a Senior Biologist, Fish and Wildlife Program Advisor with MNR, and in this capacity, he participated in the development of

the “Birds and Bird Habitats: Guidelines for Wind Power Projects” dated October 2010, (the “Bird Guideline”), and “Bats and Bat Habitats: Guidelines for Wind Power Projects” dated March 2010 (the “Bat Guideline”), as well as the *Natural Heritage Assessment Guide for Renewable Energy Projects*, dated December 2010 (the “NHA Guide”), and updates to the Significant Wildlife Habitat Technical Guide.

More specifically, he indicates that he has supported the integration of science into renewable energy policy and technical guidance via the coordination of renewable energy research projects, including several projects related to bird and bat migration and potential interactions with wind power developments in Ontario. He provided input toward research project design, assisted with implementation and reviewed results. Research partners included MNR’s Science Information and Research Division, academia, Environment Canada - Canadian Wildlife Service and the United States Fish and Wildlife Service. He is a steering committee representative to the Wind Energy Bird and Bat Monitoring Database partnership, a research monitoring initiative that tracks and reports wind power project monitoring information related to birds, bats and their habitats. He notes that database partners include Bird Studies Canada, Canadian Wind Energy Association, Environment Canada - Canadian Wildlife Service and MNR. He indicates that, in his role as Senior Fish and Wildlife Program Advisor, he has conducted wind power development site visits to observe post-construction bird and bat monitoring protocols and operations. In addition to consultation with others, he advises that he also reviewed literature and industry studies from North America and Europe, and attended meetings hosted by other jurisdictions to gain insight into the latest wind - wildlife science and policy considerations from other jurisdictions.

Mr. Carter described the regulatory regime that applies to applications for renewable energy approvals, which are governed by O.Reg. 359/09. The provisions relevant to the subject matter of this appeal are found in the part entitled “Natural Heritage”, sections 23.1 to 28, reproduced in Appendix A. In summary, the Regulation requires that an applicant undertake a number of investigations and conduct analyses, in accordance with the requirements set out in the Regulation, which includes by reference some MOE guidelines. The Regulation further requires that results of these investigations and analyses be submitted in the form of plans/assessments. These are then submitted to MNR, which is required to evaluate whether they satisfactorily applied the evaluation criteria or procedures established or accepted by MNR. Once this has been established, MNR provides a written letter of confirmation, which is submitted to the Director, MOE, in his or her review of the application for the REA.

The plans/assessment required under the Regulation are:

- Section 23.1(2): An environmental effects monitoring plan in accordance with MNR's Bird and Bat Guidelines, as amended from time to time. Excerpts of these Guidelines are found in Appendices B and C.
- Section 24(1): A natural heritage assessment which consists of a records review, a site investigation, and an evaluation of the significance or provincial significance of natural features identified in the course of the records review and site investigation, all of which are required to be conducted in accordance with the provisions of this part of the Regulation.

The Regulation expressly references the Bird and Bat Guidelines. These Guidelines have been updated, the latest issuance being December 2011 for the Bird Guideline, and July 2011 for the Bat Guideline. Although not expressly referenced in the Regulation, the MNR has published a guideline governing natural heritage assessments, the *NHA Guide* dated December 2010, referred to above.

Mr. Carter referred to Part 1.1 of the Bird Guideline which addresses potential direct and indirect effects of wind power projects on birds. It states:

Bird mortality monitoring results from Ontario wind power projects are consistent with studies undertaken around the world. These studies identify that relatively low numbers of bird fatalities occur at Ontario wind power projects. Ontario results show that approximately 2.5 birds per year are killed by individual wind turbines. At current mortality levels, wind power projects are not a sustainability concern for most of Ontario's bird populations.

Part 1.1 is reproduced in Appendix B.

Mr. Carter adopted his written witness statement as part of his evidence in this proceeding. The following excerpt summarizes some of his evidence regarding impacts of wind turbines:

10. The Bird Guidelines address both impacts on birds and impacts on bird habitats during the planning, construction and operation of the wind power project.
11. The first line of defense against potential negative effects on birds is to identify, avoid and mitigate negative effects on bird habitats.
12. Under the Renewable Energy Approvals Regulation (O. Reg. 359/09), the applicant must submit all reports related to the Natural Heritage Assessment and the Environmental Effects Monitoring Plan for birds to MNR. The Bird Guidelines detail the steps to be followed by the applicant in assessing the potential impact of the project on bird habitats and mitigating this impact.

13. MNR is responsible for reviewing the reports. In reviewing the bird component of the report, MNR ensures that the report is prepared in accordance with the Bird Guidelines. MNR will provide written confirmation when the applicant has conducted their Natural Heritage Assessment in accordance with MNR criteria and procedures including the Bird Guidelines. MNR may also provide additional comments in writing to the applicant where the Bird Guidelines have not been properly followed.
14. MNR is also responsible for providing the applicant with comments on the Environmental Effects Monitoring Plan for birds and ensures that this Plan is prepared in accordance with the Bird Guidelines. MNR confirmation of the Natural Heritage Assessment and comments are required under the Renewable Energy Approvals Regulation and are submitted as part of an application to the Ministry of the Environment for a Renewable Energy Approval.
15. As part of the Renewable Energy Approval regulation, a renewable energy facility must be set back 120 metres from significant wildlife habitat, including bird habitat. Significant bird habitats include locations where birds nest, feed and travel. Should a wind power applicant propose to locate a project within 120 metres of significant bird habitat, Renewable Energy Approval Regulation provisions require an Environmental Impact Study to demonstrate how the development can avoid or mitigate negative environmental effects to bird significant bird habitat. Wind power applicants must also conduct post-construction monitoring at wind power projects to assess potential negative effects related to birds and associated significant bird habitat. These steps must all be carried out as required by the Bird Guidelines.
16. In addition to ensuring that the project is designed, constructed and operated to minimize impact on bird habitat, the Bird Guidelines set out a mortality threshold that cannot be exceeded and require 3-year of annual post-construction bird mortality monitoring. This monitoring is set out in the Environmental Effects Monitoring Plan, compliance with which is a condition of the approval issued by the Ministry of the Environment.
17. If a wind power project reaches or exceeds provincial mortality thresholds established in the Bird Guidelines, the project must conduct additional scoped monitoring and consider mitigation strategies, including changes to operating procedures, as identified in their Environmental Effects Plan Bird Mortality Thresholds in the Bird Guidelines.
18. To support implementation of the Renewable Energy Approval regulation, MNR prepared updated Bird Guidelines, to address requirements of the Renewable Energy Approval regulation, incorporate new North American science and information, and provide guidance on identifying and addressing potential negative effects on birds and their habitats during the planning, construction and operation of wind power projects in Ontario. The regulation prescribes requirements for protection of a number of natural heritage features, including significant wildlife habitat. MNR Significant Wildlife Habitat Technical Guide identifies and provides criteria for identifying candidate bird significant habitat and confirming bird significant habitat. The Renewable Energy Approval regulation also establishes requirements for monitoring potential negative environmental effects to bird significant habitat and/or associated with bird mortality.
19. Bird mortality thresholds in the Bird Guidelines were established based on considering the range of bird mortality at wind power projects in Ontario and in comparison with jurisdictions across North America. The annual bird mortality threshold of 14 birds /turbine /year was established below the 95th percentile of bird mortality rates in Ontario, a recommendation received via the Environmental Registry

- public consultation process. By establishing the bird mortality threshold below the 95th percentile, outlier turbines with significant bird mortality are required to be addressed through mitigation and/or additional scoped monitoring. At current bird mortality levels, wind turbines are not a major concern with respect to the sustainability of migratory bird populations in Ontario.
20. The bird mortality thresholds were established to identify and address localized concerns related to outlier turbines and potential negative effects to birds and/or bird significant wildlife habitat.
 21. Three years of post-construction monitoring was established to allow for three years of inter-annual variability to be accounted for. Three years of post-construction mortality monitoring is consistent with recommendations in Environment Canada - Canadian Wildlife Service "Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds" (EC-CWS, 2007) and in wind power guidelines in other jurisdictions.
 22. Post-construction bird mortality survey data may be used to identify specific species, periods of high bird mortality or turbines/ turbine groups linked to bird mortality. This knowledge can be used to identify and scope subsequent monitoring, evaluate the success of mitigation measures and identify potential mitigation options, including operational mitigation.
 23. Ontario is the only North American jurisdiction with guidelines required in regulation (i.e. not voluntary). Additionally, Ontario Guidelines are unique in establishing mortality thresholds, upon which monitoring and consideration of changes to operating procedures are required.
 24. MNR staff considered wind-power related bird mortality in Ontario and other jurisdictions, as well as industry reports and wind-wildlife studies related to potential impacts of wind power projects to bird populations.
 25. Raptor mortality thresholds are based on the highest observed raptor mortality outside of California. California results are considered to be an anomaly associated with local topography and old lattice style turbines.
 26. For Ontario, data from the Wind Energy Bird and Bat Monitoring Database confirm that: Ontario bird mortality levels and timing of mortality are consistent with other North American mortality reports. In Ontario, the post-construction monitoring season for birds (May 1 to Oct. 31) was established based on bird activity patterns, covering spring activity through fall migration, developed in consultation with Environment Canada -Canadian Wildlife Service.
 27. Ontario Ministry of Natural Resources Bird Guidelines are consistent with Environment Canada - Canadian Wildlife Service "Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds" (EC-CWS, 2007).
 28. The calculation for determining mortality search area was based on Ontario post-construction bird mortality data, which identified most birds appear to fall within 50 metres of a wind turbine base. The search area was established in consultation with Environment Canada - Canadian Wildlife Service and is consistent with Environment Canada's 'Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds' (EC-CWS, 2007).

29. The calculations for determining mortality was determined in consultation with Ontario Ministry of Natural Resources Science staff and Environment Canada - Canadian Wildlife Service staff and are consistent with Environment Canada's "Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds" (EC-CWS, 2007).
30. The Bird Guidelines provide detailed methods for post-construction monitoring and take into account such factors as the level of carcass scavenging, the searcher efficiency and the proportion of the area searched.

In addition to this evidence, Mr. Carter testified that MNR conducted an analysis of provincial data in 2010, which indicated that annual bird mortality in Ontario due to wind turbines was 1200 to 1500 birds. As there were 685 wind turbines in the province at that time, he indicated the average annual bird mortality rate was 2.5 birds /turbine /year. Mr. Carter further stated that MNR manages wind facility impact on the bird population to this level, and that scientific literature supports the conclusion that there are no resulting sustainability concerns for bird populations in the province. Mr. Carter noted that, under the current provincial plan to expand electricity production through green energy, there is an anticipated expansion of wind turbine installations to the year 2030. Applying the current annual mortality rate to the anticipated number of wind turbines in 2030, Mr. Carter estimates approximately 10,000 bird deaths per year will occur. He notes that scientific literature indicates that hundreds of millions of birds are killed in North America by other sources including collisions with office towers, cars, and predation by other animals such as cats. He indicated that the literature identifies that an annual mortality rate of 10,000 is not projected to have significant impact on bird populations in Ontario. He further advised that MNR consulted with Environment Canada, and the Canadian Wildlife Service. He said that, taking their advice into consideration, MNR is satisfied that the literature and evidence supports the conclusion that wind turbines will have little impact on birds or bird populations.

Mr. Carter pointed out that, in formulating the Bird and Bat Guidelines, MNR, nonetheless, decided to require mitigation measures for individual wind turbines. He explained that, if avian mortalities at a particular wind turbine were at a level that suggests sustainability issues for birds either locally, regionally, or provincially, then the Bird and Bat Guidelines require that mitigation strategies be implemented.

As noted above, Mr. Carter points out that the Bird and Bat Guidelines establish "mortality thresholds", which, if exceeded will require mitigation strategies in consultation with MNR. Such strategies could include "operational mitigation", a term

used to describe measures related to the operation of the wind turbine, such as stopping operation during specific times of the day, or during specific periods of the year. Mr. Carter explained that the thresholds address individual classes of species, to take into consideration species that are more susceptible to human impacts on the environment. He pointed to the current mortality thresholds set out in section 4.1 of the Bird Guideline, reproduced in Appendix B.

Mr. Carter confirmed that the first iteration of the Bird Guideline (in force at the time Summerhaven submitted its application for the REA), provided that bird mortality is considered significant when a threshold of annual bird mortality (non-raptor) exceeds 18 birds /turbine /year for individual turbines or turbine groups. Mr. Carter explained that this rate was based on data respecting the highest mortality rate in North America (excluding the State of California where higher mortality rates are considered to be the result of factors that are not representative of other jurisdictions). He indicated that in subsequent consultations, non-government organizations recommended that the threshold rate be set at the 95th percentile of bird mortality rates in Ontario, which is 14 birds /turbine /year (non-raptors). MNR accepted this recommendation and amended the Bird Guideline accordingly.

Mr. Carter agreed that the mortality threshold applicable to Summerhaven's REA, that is, the threshold beyond which additional mitigation measures will be implemented, is that from the earlier iteration of the Bird Guideline, or 18 birds /turbine /year (non-raptor). Mr. Carter's testimony indicated that reaching the threshold, whether 14 or 18, was "not expected to have any effect on local, regional, or provincial populations of birds".

The applicable thresholds are found in section 1.4 of Summerhaven's Environmental Effects Monitoring Plan ("EEMP"), which is a condition of the REA, and are as follows:

- 10 bats per turbine per year, corrected for area searched, searcher efficiency and scavenger impact;
- 18 birds per turbine per year at individual turbines or turbine groups, corrected for area searched, searcher efficiency and scavenger impact;
- 0.2 raptors per turbine per year across a wind project;
- 0.1 raptors per turbine per year (raptors of provincial conservation concern) across a wind project;
- 10 or more birds at a single turbine on one monitoring event;
- 33 or more birds at multiple turbines on one monitoring event; and
- Any one species at risk mortality observed during any site visit.

As described in section 4.1 of the Bird Guideline, mortality thresholds are annual rates, and, consequently, project operators are required to report annually. However, should a mortality threshold be exceeded mid-year, Summerhaven's EEMP requires that such exceedance be reported to the MNR within 48 hours of the monitoring event which identified that the exceedance has occurred.

Mr. Carter pointed out that monitoring is not required at all turbines, but rather at a representative subset. He indicated that it is accepted in the scientific community that an analysis based on representative sampling provides accurate information regarding the entire project. Mr. Carter also pointed out that annual monitoring is not required for the full duration of a project, as the scientific literature indicates that shorter term monitoring can be used to reliably predict the annual impacts in the long term. Mr. Carter refers to section 4.2 of the Bird Guideline, found at Appendix B, which requires monitoring for a minimum of three years post-construction, and lays out the method and frequency of monitoring.

Mr. Carter also indicated that the Bird Guideline focuses on protecting terrestrial habitat. He noted that published literature and statements by other organizations identify that interference with bird habitats, such as habitat fragmentation and habitat displacement, has been the biggest threat to bird populations. He explains that it is very important to identify significant wildlife habitat and ensure appropriate setbacks are implemented, as well as mitigating potential effects on those habitats.

Mr. Carter responded to questions respecting location of wind turbines in or near migratory pathways. He explained that the previous guideline did have a preconstruction requirement to monitor bird flight activity, but, when updating the Bird Guideline, MNR's research showed, based on literature and latest science, that the higher levels of pre-construction activity did not translate into higher levels of post-construction mortality. He indicated that experts whom MNR consulted advised that migration paths within one species can be broad and abundant. For this reason, he expressed his opinion that narrowing the evaluation of impacts to a point to point movement is not effective.

Regarding bats, the Bat Guideline adopts a similar approach to the Bird Guideline. Section 1.1 of the Bat Guideline deals with potential direct and indirect effects of wind power projects on bats, and is reproduced in Appendix C. It notes that:

Bat mortality has been documented at wind power projects in a variety of habitats across North America. In Ontario, annual mortality estimates at wind power projects range from 4 to 14 bat mortalities/turbine/year. Annual bat mortality estimates at wind power projects in North America vary from less than 1 to over 50 bat mortalities/turbine/year.

In recent years, there has been elevated concern about bat mortality at wind power projects because:

- some wind power projects have shown particularly high levels of bat mortality;
- bats can range widely across landscapes and migrate long distances, which may make them more susceptible to cumulative effects;
- post-construction monitoring and research at turbines sites suggest that bats may be more susceptible to wind turbine mortality than birds; and
- potential impacts of White Nose Syndrome make certain species of bats particularly vulnerable to increased mortality.

The Renewable Energy Approvals Regulation and this Guideline focus on consideration and protection of bat SWH [significant wildlife habitat] when selecting a project location. This approach appears to be a key factor in preventing negative effects on bats and bat habitats. However, knowledge gaps and concerns remain relating to the effect of wind turbines on bats and their habitats.

The mortality threshold for bats is set out in section 4.1 of the Bat Guideline. It states that “(b)at mortality is considered by this Guideline to be significant when a threshold of annual bat mortality (averaged across the site) exceeds 10 bats/ turbine/ year”.

The Director called as a fact witness Amy Cameron, a biologist with MNR. Ms. Cameron testified that, where a project may impact an endangered species, the provisions of the *Endangered Species Act* (“ESA”) would apply. Ms. Cameron testified that, although she was not within the group of MNR biologists that reviews for species at risk, to her knowledge there was one species at risk identified within the Project area, that being the bobolink. She also stated that, to her knowledge, there has been no decision yet on Summerhaven’s application for a permit under the *ESA*.

Vic Schroter, Director, testified that Summerhaven completed and submitted the required plans and assessments, using MNR’s applicable evaluation criteria and procedures. MNR provided written confirmation to the Director to this effect, and Mr. Schroter relied on this confirmation when making his decision to approve the REA.

Summerhaven’s evidence

Summerhaven relied on the evidence of the Director. In addition, Summerhaven called Kevin Trimble who was involved in the investigations and preparation of the Natural Heritage Assessment conducted by Summerhaven and submitted in support of its application for the REA. Mr. Trimble was qualified as an expert to give opinion evidence as a biologist.

Mr. Trimble responded to assertions made by Mr. Slaman that field investigations were inadequate, noting that there were additional field notes of which Mr. Slaman was not aware, and that the field investigators had the qualifications necessary to conduct the required field searches within the Project area. He also testified that Summerhaven's assessment included consideration of tundra swans, and the presence of migratory pathways and staging areas.

In support of its application for the REA and as required by the Regulation, Summerhaven submitted an EEMP dated January 4, 2012. Section 1.2.3 states:

1.2.3 Performance Objectives, Mitigation and Contingency Measures

... The performance objective is to maintain baseline avian activity levels. Annual reports will be reviewed cooperatively with the MNR, and compared to baseline information, in order to determine if significant avian disturbance (specifically migratory disturbance) beyond MNR specified tolerances is occurring, and whether the disturbance can be attributed to the Project. In the event that significant negative effects are identified and attributed to the Project, mitigation measures, which may include curtailment will be implemented. Curtailment is described in MNR (2011) as an effective method of reducing bat mortality. However, no similar methods are suggested for birds. The appropriate mitigation measures will be determined through consultation between and MNR and NextEra Energy Canada. Contingency measures are actions to be implemented in the event that mitigation measures are found to be deficient in addressing identified negative environmental effects. Contingency measures will involve implementing additional mitigation measures, and additional monitoring to evaluate effectiveness. The design and timing of such measures will depend upon the type of negative environmental effect occurring, and should be determined in cooperation with the MNR.

In response to the Appellant's concerns regarding access to medicinal plants and animals for hunting, Benjamin Greenhouse, Project Director for Summerhaven, indicated that virtually all of the small percentage of the Project area that will be disturbed is privately held agricultural land, and that the Project will not result in any access restrictions, except for the Project substation and a switchyard for safety reasons, for the duration of the Project.

In response to Mr. Slaman's evidence, Mr. Greenhouse testified that power lines will be installed underground wherever possible. He also advised that the concern respecting the above ground power lines to be installed in the right-of-way area referenced by Mr. Negus related to existing power lines of Haldimand County Hydro. He indicated that the concern was that the Project's power lines could induce voltage on the neutral line of the Haldimand County line. He testified that Haldimand County Hydro had agreed to Summerhaven's proposal for an assessment and mitigation strategy, and, as this line required the approval of the Ontario Energy Board, this strategy was imposed as a condition of that approval. Regarding electromagnetic fields in general, Mr. Greenhouse noted that Hydro

One's setback requirement from homes was 15 metres, and that the Project had been designed so that the closest the lines would be is 80 metres.

Mr. Greenhouse identified that he was not an engineer for purposes of giving expert opinion evidence, but, speaking as project director, he indicated that Summerhaven did not expect electromagnetic forces would present any impacts to people in the area.

Submissions of the parties on the legal test: "serious and irreversible harm to plant life, animal life or the natural environment"

The Appellant submits that in the Onkwehonwe perspective all life is sacred and even one bird or bat death is too many. Thus, he submits that one death should be considered serious and irreversible harm, such that the Tribunal can then exercise its jurisdiction under section 145.2.1(4) of the *EPA*. In addition, the Appellant submits that the additive and compounding effect of this Project should be considered together with other wind projects in the vicinity, and together with other sources of bird and bat deaths. He gave the example of White Nose Syndrome which is threatening population collapse for several species of bat, some of which are found in the area of the Project. He argues that the Project may cause serious and irreversible harm in combination with these other population stressors. Mr. Monture pointed to Jan Longboat's evidence of loss of biodiversity over time, and her testimony that, as an example, there has already been an 85 percent loss of wetlands.

The Appellant argues that "setting a kill threshold that protects population stability should be based on real knowledge and cannot be guessed at." He emphasizes that simply counting carcasses (i.e monitoring the kill rate) is not an effective means of preventing serious and irreversible harm.

The Appellant proposes three framework questions that should be asked before a renewable energy project is approved:

- 1) What is the resource?
- 2) How do we determine its capacity and set sustainable limits?
- 3) What are the causes of particular adverse effects?

The Appellant argues that if "irreversible harm" is the "tipping point of sustainability", no appellant should be required to prove it will occur.

In the Director's submission, the Appellant's interpretation is inconsistent with the ordinary meaning of the words "animal life" and "plant life". The Director asserts that the Legislature could have made the test serious and irreversible harm to "the life of a plant or an animal" or "a plant or an animal", but did not do so. Instead, the Director asserts,

the Legislature chose the words “animal life” and “plant life” which connote an ecosystem approach as these terms are akin to flora and fauna. The Director notes that dictionaries define “fauna” as “the animal life of a particular region, geological period or environment” and “animal life”, and define “flora” as “the plants or plant life of a given area, habitat or epoch”.

The Director further argues that, had the Legislature intended the interpretation proposed by the Appellant, it would have used wording similar to that found in the “deemed impairment” provisions in section 1(3) of the *Ontario Water Resources Act* (“OWRA”) or the prohibition provisions in section 9(1) of the *ESA*. The Director points out examples where the Legislature did use language approaching that proposed by the Appellant. Section 1(3) of the *OWRA* deems water to be impaired by a discharge of a material if the material “causes or may cause injury or interference with any living organism...”, and that section 9(1) of the *ESA* prohibits, among other things, the killing, harming or harassing of “a living member of a species” that is endangered or threatened (emphasis added).

The Director also asserts that the Appellant’s interpretation is inconsistent with the purpose of the *EPA*, which provides for the protection and conservation of the natural environment, defined in the *EPA* as air, land and water. The Director maintains that the focus of the *EPA* is the overall environment and not the protection of an individual plant or animal.

The Director maintains that it is a well-established principle of statutory interpretation that the Legislature does not intend to produce absurd consequences. The Director observes that the construction of a renewable energy project necessitates some land clearing, thereby causing the death, for example, of a blade of grass or a worm. As such, the Director maintains that “harm” under the relevant sections of Part V.0.1 of the *EPA*, as interpreted by the Appellant, would occur every time a person engaged in a renewable energy project. The Director, therefore, submits that the phrase “serious and irreversible harm to plant life, animal life or the natural environment” should not be interpreted in a manner that produces this absurd consequence.

The Director submits that the determination of serious harm requires a consideration of the harm caused to the sustainability of the plant population, animal population or the natural environment. The Director submits that this approach not only reflects the plain language and purpose of the *EPA* but is also the approach used by biologists in assessing the harm caused by a renewable energy project. In support of this submission the Director points to the evidence provided by qualified biologists, Mr.

Carter and Mr. Trimble, who testified that impacts on birds and bats are managed not at an individual animal level but rather at a regional or provincial population level.

Summerhaven agrees with the Director's submissions that the appropriate interpretation of "serious harm" for animal life is at the level of sustainability of a population. Relying on *Rizzo and Rizzo Shoes Ltd. (Re)*, [1998] 1 S.C.R. 27 at para. 41, among other cases, Summerhaven reiterates the principle of statutory interpretation that the words of an Act (in this case the *EPA*) are to be read in their entire context, in their grammatical and ordinary sense harmoniously with the scheme of the Act, the object of the Act, and the intention of Parliament.

In this regard, Summerhaven observes that section 142.1(3)(b) of the *EPA* was adopted in conjunction with the Regulation and that section 23.1 of the Regulation requires that proponents prepare an environmental effects monitoring plan in accordance with the relevant Bird and Bat Guidelines. As already described, these Guidelines establish thresholds for mortality: 14 birds per turbine per year (at individual turbines or turbine groups) in the current Bird Guideline (lower for raptors) and 10 bats per turbine per year (averaged across the site) in the Bat Guideline. Summerhaven submits, therefore, that when the word "irreversible" is read in conjunction with these provisions, it is clear that the Legislature could never have intended that the "irreversible" threshold would be triggered through the death of one bird or one bat.

Findings:

(a) Legal test to be met

This is the first case in which the Tribunal is required to directly address section 145.2.1(2)(b) of the *EPA*.

The Tribunal notes that the Appellant provided only a limited analysis for the statutory interpretation of the words and concepts in the phrase "serious and irreversible harm to plant life, animal life or the natural environment". The Tribunal is mindful that future appeals may raise issues and arguments that were not fully canvassed in this proceeding. However, as discussed below, the evidence adduced by the Appellant predominantly raised questions and expressions of concern regarding the potential for harm, as opposed to evidence that harm will occur. As a result, it is not necessary for the Tribunal to conduct a detailed analysis of the phrase in section 145.2.1(2)(b) in order to dispose of this case.

For the following reasons, the Tribunal finds that the test proposed by the Appellant, that one bird or bat mortality will always constitute “serious and irreversible harm to plant life, animal life or the natural environment”, would make the section 145.2.1(2)(b) threshold so low as to render it meaningless. The Tribunal is also conscious of the importance of avoiding an interpretation of the threshold test that would render the test equally meaningless as an impossibly high one to meet.

However, until parties to an appeal provide more detailed argument on section 145.2.1(2)(b), the Tribunal is not prepared to decide conclusively on the specific parameters of the phrase used in this section, and the factors to be addressed.

The REA provisions of the *EPA*, including sections 142.1 and 145.2.1, must be interpreted in the context that these sections establish a threshold that must be met before the Tribunal may exercise its jurisdiction to alter or revoke the Director’s decision, or order the Director to take such action as the Tribunal considers the Director should take. The purpose of the threshold is to establish a standard to delineate when the Tribunal may act, and when it may not. No one disputes that the construction and operation of a wind energy project, of necessity, will cause the death of some individual plants or animals. The result of using the Appellant’s interpretation, as pointed out by the Director and Summerhaven, would be that the threshold would always be satisfied in respect of any wind energy project. Consequently, if the Appellant’s interpretation is universally adopted, the threshold would always be exceeded, which is clearly contrary to the purpose of this section. As noted in *Sullivan on the Construction of Statutes*, 5th ed. (Markham: LexisNexis Canada Inc., 2008) at p. 210:

Every word in a statute is presumed to make sense and to have a specific role to play in advancing the legislative purpose.... For this reason courts should avoid, as much as possible, adopting interpretations that would render any portion of a statute meaningless or pointless or redundant.

The fact that section 23.1 of the Regulation adopts the Bird Guideline and the Bat Guideline, both of which prescribe mortality thresholds, is an indication that it is anticipated that wind energy projects can be approved notwithstanding that some mortalities will occur.

With respect to section 145.2.1(2) in particular, the Tribunal finds that it is intended to act as a filter that determines whether the Tribunal will then exercise its discretion under section 145.2.1(4). It follows, therefore, that interpretations that automatically result either in screening out no appeals, or screening out all appeals, do not accord with the Legislature’s intention.

The Appellant's submissions highlight the need to prevent serious and irreversible harm by measuring the wind Project's actual impact on animals, plants and the natural environment. The Bird and Bat Guidelines, on the other hand, purport to evaluate the significance of bird and bat mortality based solely on whether the wind Project causes mortality consistent with the provincial average and whether individual turbines are operating within the 95th percentile as compared to the bird and bat mortality rates of other turbines.

Turning to the Director's submission that the focus of the *EPA* is on the overall environment, not the protection of an individual plant or animal, the Tribunal notes that the terms "plant life" and "animal life" are found elsewhere in the *EPA* (including the definition of "adverse effect") and its regulations in a context that suggests a much smaller reach than the sustainability of a population at the provincial level. For example, O.Reg. 222/07 under the *EPA*, entitled *Environmental Penalties*, at section 10(3) defines a contravention as "serious" if it causes or may cause "localized injury or damage to any animal life", and at section 10(4) as "very serious" if it causes or may cause "widespread injury or damage to plant or animal life". While these sections deal with serious contraventions rather than serious harm, they do demonstrate that more analysis of the words used in section 145.2.1 will be needed from parties as more cases are brought under this new provision.

In *Erickson v. Ontario (Ministry of the Environment)* (2011), 61 C.E.L.R. (3d) 1 ("*Erickson*"), the Tribunal's first decision interpreting paragraph (a) of section 145.2.1(2), which deals with "serious harm to human health", the Tribunal commented on the meaning of "serious" at paras. 637 and 638. It held that the concept of "serious harm" has to be one that has relevance to humans as well as plant life, animal life and the natural environment, because the word "serious" is used in both clauses (a) and (b) of section 145.2.1(2). The Tribunal said that it was avoiding an approach of finding a synonym for "serious" or creating a list of medical conditions that are serious. It stated instead that interpretation of the word "serious" must be conducted through a case-by-case assessment of what is serious according to all relevant factors.

This panel adopts the reasoning in *Erickson*, and finds that determining what is "serious and irreversible harm" under paragraph (b) of the provision also requires a case-by-case assessment according to all relevant factors.

Accordingly, the Tribunal finds that the threshold respecting "serious and irreversible harm to plant life, animal life or the natural environment", as set out in section 145.2.1(2)(b) of the *EPA*, is not automatically satisfied by demonstrating that one bird or bat mortality will occur. This finding does not preclude the possibility that a single

mortality in some circumstances could constitute “serious and irreversible harm”. Whether the threshold has been met must be determined on the individual circumstances of each case.

The Tribunal also observes that the test under section 145.2.1 of *EPA* is not whether a proponent’s application has satisfied the requirements of the Regulation, or is within the bounds of the Guidelines. Accordingly, it remains open to an Appellant to adduce evidence to establish that serious and irreversible harm will occur, even where a proponent has demonstrated compliance with the requirements of the Regulation.

b) Whether the test has been established in this case

The Appellant has the onus to establish that serious and irreversible harm will occur, on a balance of probabilities.

The Appellant’s evidence and submissions emphasize the importance of a protective approach. The Appellant argues that the number of bird and bat mortalities cannot be predicted, and, consequently, that the impact of such mortalities is unknown. Consequently, the Appellant maintains that the Project should not be approved in the face of this uncertainty.

It is clear that the evidence of the Appellant, and others who gave evidence on his behalf, is informed by the accumulated knowledge of the Onkwehonwe people as traditionally passed down through the generations, as well as cultural values that emphasize the importance of respecting and protecting the natural environment. The Tribunal is mindful that the Appellant’s evidence and submissions are informed by such traditional knowledge and values. However, other than the acknowledged fact that the Project will cause some plant and animal mortalities, the Appellant’s evidence only made general reference to the issues of habitat loss, fragmentation, avoidance of resting and foraging grounds, and sensory disturbances.

Documentary evidence filed by the Appellant to support his submissions was, in large measure, downloaded from the internet. The fact that there was no opportunity to cross-examine the authors, and in several cases the author was unknown, means the Tribunal can place less weight on the reliability of the information.

However, the Tribunal does accept the general proposition that some habitat loss occurs due to the footprint of a project, having regard to the pre-construction conditions of the site.

The Appellant asserts that each industrial wind turbine project must be mandated to consider collective adverse impacts for all habitats, land, air, water. He maintains that the real risk of harm cannot be predicted, measured, or justified, or any conclusion reached about capacity, sustainable limits, and added adverse effects without considering the wind farms' collective impacts. He asserts that micro-siting issues must be discussed in the context of macro-environmental considerations.

The Tribunal finds that the Appellant has raised a concern relating to cumulative impacts, but the evidence falls short of establishing that serious and irreversible harm to plant life, animal life or the natural environment will occur as a result of cumulative impacts.

The Tribunal finds that the expert biological evidence given by Mr. Carter and Mr. Trimble to be more probative and relevant than the general documentary evidence filed by the Appellant.

Mr. Trimble concluded that bird deaths are projected to be well within the provincial kill average. In Mr. Carter's view, there are no sustainability concerns for bird populations in the province, and that MNR is satisfied that the literature and evidence supports the conclusion that wind turbines projected to be built in Ontario will cumulatively have little impact on birds.

The evidence of these experts was not weakened through cross-examination, and no contrary evidence was filed. The Tribunal accords it significant weight, though the Tribunal notes that it has not concluded that provincial kill averages or population sustainability thresholds are the only appropriate factors to consider under section 145.2.1(2)(b). Those were simply the areas in which the Tribunal received detailed evidence in this particular case.

The Tribunal finds that the Appellant's evidence only establishes a concern that there may be more bird mortalities than predicted from this Project due to its general location in a migratory pathway and due to cumulative effects. No evidence was led of serious harm to other types of animal life, or to the natural environment.

Regarding the loss of plants with medicinal value, the Appellant's evidence did not specifically address what type of plants would be removed as a result of the construction of the Project facilities, or their location; nor did the Appellant address how the loss of plants traditionally considered to be of medicinal value would result in harm to human health. In this regard, the Appellant did not dispute Summerhaven's evidence that only 1.5 percent of the agricultural land used for the Project would be unavailable for agricultural use for the life of the Project. Consequently, the Tribunal finds that the

Appellant's evidence falls far short of establishing that serious harm to human health under section 145.2.1(2)(a) of the *EPA* will occur because of a loss of medicinal plants.

Regarding the access of First Nations people to lands in the Project area and interference with any rights to hunt and gather, the Appellant did not explain how such loss would result in harm to human health, animal life, plant life or the natural environment sufficient to reach the applicable threshold tests.

In reviewing the totality of Appellant's evidence, the Tribunal finds that, beyond asserting that no animal or plant life mortality is acceptable, this evidence, at its highest, only identifies concerns that serious and irreversible harm *may* occur. The Tribunal finds that, when the operational and mitigation requirements imposed under the terms and conditions of the REA are taken into account, the Appellant has provided insufficient evidence to establish that the Project will cause serious and irreversible harm to plant life, animal life or the natural environment.

With respect to the impact of electromagnetic fields, neither Mr. Negus nor the Appellant provided any compelling evidence in this highly technical area related to engineering and health. The Tribunal finds that the evidence adduced simply raised the concern as one that perhaps should be studied in the future, but was insufficient to establish that any harm will result from electromagnetic fields that may be created by the Project.

For all the above reasons, the Tribunal finds that the Appellant has not established that engaging in the REA will cause serious harm to human health, or serious and irreversible harm to plant life, animal life, or the natural environment.

Issue #3: If the answer to Issue No. 2 is yes, whether the Tribunal should revoke the decision of the Director, by order direct the Director to take some action, or alter the decision of the Director.

As the finding of the Tribunal under issue No. 2 was no, there is no need to address issue No. 3.

Decision

The Tribunal accepts the withdrawal of and dismisses HWC's appeal on consent of the parties on a without-costs basis.

The Appellant has not shown that engaging in the Project in accordance with the REA will cause serious harm to human health as required by section 145.2.1(2)(a) of the *EPA*, or serious and irreversible harm to plant life, animal life or the natural environment as required by section 145.2.1(2)(b) of the *EPA*. The Tribunal, therefore, dismisses the appeal of Mr. Monture under section 145.2.1(5) of the *EPA*, and confirms the Director's decision.

Appeals Dismissed

Heather I. Gibbs, Panel Chair

Robert V. Wright, Vice-Chair

Dirk VanderBent, Vice-Chair

Appendix A: Relevant Legislation, Regulation and Tribunal Rules

Appendix B: Birds and Bird Habitats: Guidelines for Wind Power Projects, December 2011 (Excerpt)

Appendix C: Bats and Bat Habitats: Guidelines for Wind Power Projects, March 2012 (Excerpt)

Appendix A

Relevant Legislation, Regulation and Tribunal Rules

Environmental Protection Act

142.1 (3) A person may require a hearing under subsection (2) only on the grounds that engaging in the renewable energy project in accordance with the renewable energy approval will cause,

- (a) serious harm to human health; or
- (b) serious and irreversible harm to plant life, animal life or the natural environment.

145.2.1 (2) The Tribunal shall review the decision of the Director and shall consider only whether engaging in the renewable energy project in accordance with the renewable energy approval will cause,

- (a) serious harm to human health; or
- (b) serious and irreversible harm to plant life, animal life or the natural environment.

Onus of proof

(3) The person who required the hearing has the onus of proving that engaging in the renewable energy project in accordance with the renewable energy approval will cause harm referred to in clause (2) (a) or (b).

Powers of Tribunal

- (4) If the Tribunal determines that engaging in the renewable energy project in accordance with the renewable energy approval will cause harm referred to in clause (2) (a) or (b), the Tribunal may,
- (a) revoke the decision of the Director;
 - (b) by order direct the Director to take such action as the Tribunal considers the Director should take in accordance with this Act and the regulations; or
 - (c) alter the decision of the Director, and, for that purpose, the Tribunal may substitute its opinion for that of the Director.

Ontario Regulation O.Reg 359/09

NATURAL HERITAGE

Environmental effects monitoring plan

23.1 (1) A person who proposes to engage in a renewable energy project in respect of a Class 3, 4 or 5 wind facility shall prepare an environmental effects monitoring plan in respect of birds and bats. O. Reg. 521/10, s. 14.

(2) For the purposes of subsection (1), the person shall prepare the environmental effects monitoring plan in accordance with the following publications of the Ministry of Natural Resources:

1. "Birds and Bird Habitats: Guidelines for Wind Power Projects" dated October 2010, as amended from time to time and available from the Ministry of Natural Resources.
2. "Bats and Bat Habitats: Guidelines for Wind Power Projects" dated March 2010, as amended from time to time and available from the Ministry of Natural Resources. O. Reg. 521/10, s. 14.

Natural heritage assessment

- 24.** (1) A person who proposes to engage in a renewable energy project shall conduct a natural heritage assessment, consisting of the following:
1. A records review conducted in accordance with section 25.
 2. A site investigation conducted in accordance with section 26.
 3. Subject to subsection (3), an evaluation of the significance or provincial significance of each natural feature identified in the course of the records review and site investigation, conducted in accordance with section 27. O. Reg. 359/09, s. 24 (1).
- (2) For the purposes of this section and sections 25 and 26, in conducting a records review or a site investigation, identifying natural features and determining the boundaries of any natural features, a person mentioned in subsection (1) shall use applicable evaluation criteria or procedures established or accepted by the Ministry of Natural Resources, as amended from time to time. O. Reg. 359/09, s. 24 (2).
- (3) This section and sections 25, 26, 27 and 28 do not apply in respect of a proposal to engage in a renewable energy project in respect of a Class 2 wind facility. O. Reg. 359/09, s. 24 (3).

Natural heritage, records review

- 25.** (1) In conducting a records review mentioned in paragraph 1 of subsection 24 (1), a person who proposes to engage in a renewable energy project shall ensure that a search for and analysis of the records set out in Column 1 of the Table to this section are conducted in respect of the project location for the purpose of making the determinations set out opposite the records in Column 2 of the Table. O. Reg. 359/09, s. 25 (1).
- (2) For the purposes of this section, "natural feature" includes all or part of,
- (a) a sand barrens, a savannah, a tallgrass prairie and an alvar, if the records review is being conducted in respect of a project location that is in the Protected Countryside; and
 - (b) a sand barrens, a savannah and a tallgrass prairie, if the records review is being conducted in respect of a project location that is in the portion of the Oak Ridges Moraine Conservation Plan Area that is subject to the Oak Ridges Moraine Conservation Plan. O. Reg. 359/09, s. 25 (2).
- (3) The person mentioned in subsection (1) shall prepare a report setting out a summary of the records searched and the results of the analysis conducted under subsection (1). O. Reg. 359/09, s. 25 (3).

Table

Item	Column 1	Column 2
	Records to be searched and analyzed	Determination to be made
1.	Records that relate to provincial parks and conservation reserves and that are maintained by the Ministry of Natural Resources.	Whether the project location is in a provincial park or conservation reserve or within 120 metres of a provincial park or conservation reserve.
2.	Records that relate to natural features and that are maintained by, <ol style="list-style-type: none"> i. the Ministry of Natural Resources, ii. the Crown in right of Canada, iii. a conservation authority, if the project location is in the area of jurisdiction of the conservation authority, iv. each local and upper-tier municipality in which the project location is situated, v. the planning board of an area of jurisdiction of a planning board in which the project location is situated, vi. the municipal planning authority of an area of jurisdiction of a municipal planning authority in which the project location is situated, vii. the local roads board of a local roads area in which the project location is situated, viii. the Local Services Board of a board area in which the project location is situated, and ix. the Niagara Escarpment Commission, if the project location is in the area of the Niagara Escarpment Plan. 	Whether the project location is, <ol style="list-style-type: none"> i. in a natural feature, ii. within 50 metres of an area of natural and scientific interest (earth science), or iii. within 120 metres of a natural feature that is not an area of natural and scientific interest (earth science).

O. Reg. 359/09, s. 25, Table.

Natural heritage, site investigation

26. (1) Subject to subsection (1.1), for the purposes of conducting a site investigation mentioned in paragraph 2 of subsection 24 (1), a person who proposes to engage in a renewable energy project shall ensure that an investigation of the air, land and water within 120 metres of the project location is conducted, either by visiting the site or by an alternative investigation of the site, in order to determine,

- (a) whether the results of the analysis summarized in the report prepared under subsection 25 (3) are correct or require correction, and identifying any required corrections;
- (b) whether any additional natural features exist, other than those that were identified in the report prepared under subsection 25 (3);
- (c) the boundaries, located within 120 metres of the project location, of any natural feature that was identified in the records review or the site investigation; and
- (d) the distance from the project location to the boundaries determined under clause (c).
 O. Reg. 359/09, s. 26 (1); O. Reg. 521/10, s. 15 (1).

(1.1) The person mentioned in subsection (1) may conduct an alternative investigation of the site only if he or she determines that it is not reasonable to conduct a site investigation by visiting the site. O. Reg. 521/10, s. 15 (2).

- (2) For the purposes of this section, “natural feature” includes all or part of,

- (a) a sand barrens, a savannah, a tallgrass prairie and an alvar, if the site investigation is being conducted in respect of a project location that is in the Protected Countryside; and
- (b) a sand barrens, a savannah and a tallgrass prairie, if the site investigation is being conducted in respect of a project location that is in the portion of the Oak Ridges Moraine Conservation Plan Area that is subject to the Oak Ridges Moraine Conservation Plan. O. Reg. 359/09, s. 26 (2).
- (3) The person mentioned in subsection (1) shall prepare a report setting out the following with respect to the air, land and water in respect of which any site investigation was conducted:
 1. A summary of any corrections to the report prepared under subsection 25 (3) and the determinations made as a result of conducting the site investigation.
 2. Information relating to each natural feature identified in the records review and in the site investigation, including the type, attributes, composition and function of the feature.
 3. A map showing,
 - i. all boundaries mentioned in clause (1) (c),
 - ii. the location and type of each natural feature identified in relation to the project location, and
 - iii. all distances mentioned in clause (1) (d).
 4. A summary of methods used to make observations for the purposes of the site investigation.
 5. The name and qualifications of the person conducting the site investigation.
 6. If an investigation was conducted by visiting the site:
 - i. The dates and times of the beginning and completion of the site investigation.
 - ii. The duration of the site investigation.
 - iii. The weather conditions during the site investigation.
 - iv. Field notes kept by the person conducting the site investigation.
 7. If an alternative investigation of the site was conducted:
 - i. The dates of the generation of the data used in the site investigation.
 - ii. An explanation of why the person who conducted the alternative investigation determined that it was not reasonable to conduct the site investigation by visiting the site. O. Reg. 521/10, s. 15 (3).

Natural heritage, evaluation of significance

27. (1) In conducting the evaluation of the significance or provincial significance of a natural feature for the purposes of paragraph 3 of subsection 24 (1), a person who proposes to engage in a renewable energy project shall consider any information available to the person relating to natural features, including,

- (a) all information obtained during the records review conducted in accordance with section 25;
- (b) all information obtained during any site investigation conducted in accordance with section 26; and
- (c) all information received from the public, aboriginal communities, municipalities, local road boards and Local Services Boards until such time as the report mentioned in subsection 27 (4) has been prepared. O. Reg. 521/10, s. 16.

- (2) For the purposes of the evaluation under subsection (1), a person shall determine that a natural feature is significant if it is a woodland, a valleyland or a wildlife habitat,
 - (a) that the Ministry of Natural Resources has identified as significant; or
 - (b) that is considered to be significant when evaluated using evaluation criteria or procedures established or accepted by the Ministry of Natural Resources, as amended from time to time, for significant natural features. O. Reg. 359/09, s. 27 (2).
- (3) For the purposes of the evaluation under subsection (1), a person shall determine that a natural feature is provincially significant if it is a southern wetland, a northern wetland, a coastal wetland, an area of natural and scientific interest (earth science) or an area of natural and scientific interest (life science),
 - (a) that the Ministry of Natural Resources has identified as provincially significant; or
 - (b) that is considered to be provincially significant when evaluated using evaluation criteria or procedures established or accepted by the Ministry of Natural Resources, as amended from time to time, for provincially significant natural features. O. Reg. 359/09, s. 27 (3).
- (4) The person mentioned in subsection (1) shall prepare a report that sets out the following:
 1. For each natural feature shown on the map mentioned in paragraph 3 of subsection 26 (3), a determination of whether the natural feature is provincially significant, significant, not significant or not provincially significant.
 2. A summary of the evaluation criteria or procedures used to make the determinations mentioned in paragraph 1.
 3. The name and qualifications of any person who applied the evaluation criteria or procedures mentioned in paragraph 2.
 4. The dates of the beginning and completion of the evaluation. O. Reg. 359/09, s. 27 (4)
- (5) This section does not apply if the project location is,
 - (a) at least 50 metres outside of all areas of natural and scientific interest (earth science); and
 - (b) at least 120 metres outside of all natural features that are not areas of natural and scientific interest (earth science). O. Reg. 359/09, s. 27 (5).
- (6) If the project location is in the Protected Countryside or in the portion of the Oak Ridges Moraine Conservation Plan Area that is subject to the Oak Ridges Moraine Conservation Plan, this section does not apply in respect of,
 - (a) a sand barrens, a savannah, a tallgrass prairie or an alvar; or
 - (b) an area of natural and scientific interest (life science) that has been identified by the Ministry of Natural Resources using evaluation procedures established by that Ministry, as amended from time to time, but that has not been identified by that Ministry as provincially significant. O. Reg. 359/09, s. 27 (6).

Confirmation from Ministry of Natural Resources

28. (1) A person who proposes to engage in a renewable energy project shall submit to the Ministry of Natural Resources each plan the person is required to prepare under section 23.1 and each report the person is required to prepare under subsections 25 (3), 26 (3) and 27 (4). O. Reg. 359/09, s. 28 (1); O. Reg. 521/10, s. 17 (1).
- (2) The person mentioned in subsection (1) shall obtain the following in writing from the Ministry of Natural Resources:
 1. Confirmation that the determination of the existence of natural features and the boundaries of natural features was made using applicable evaluation criteria or procedures established or accepted by that Ministry, as amended from time to time.

2. Confirmation that the site investigation and records review were conducted using applicable evaluation criteria or procedures established or accepted by that Ministry, as amended from time to time, if no natural features were identified.
 3. Confirmation that the evaluation of the significance or provincial significance of the natural features was conducted using applicable evaluation criteria or procedures established or accepted by that Ministry, as amended from time to time.
 4. If the person has determined that the project location is not in a provincial park or conservation reserve, confirmation that that Ministry agrees with the determination.
 5. If the person has determined that the project location is in a provincial park or conservation reserve, confirmation that engaging in the project is not prohibited by or under the *Provincial Parks and Conservation Reserves Act, 2006*.
 6. If section 23.1 applies, comments received from the Ministry of Natural Resources in respect of the environmental effects monitoring plan required under that section. O. Reg. 359/09, s. 28 (2); O. Reg. 521/10, s. 17 (2).
- (3) As part of an application for the issue of a renewable energy approval, the person mentioned in subsection (1) shall submit,
- (a) the plan and reports mentioned in subsection (1);
 - (b) a copy of any confirmation or comment required under subsection (2); and
 - (c) any additional written comments provided by the Ministry of Natural Resources in respect of the natural heritage assessment. O. Reg. 359/09, s. 28 (3); O. Reg. 521/10, s. 17 (3, 4).s

Relevant rules:

Rules of Practice of the Environmental Review Tribunal

198. A Proponent or Applicant who proposes to withdraw his or her application, an Appellant who proposes to withdraw his or her appeal, or a Director, a Risk Management Inspector or Official or a municipality who proposes to revoke the decision that is the subject of the appeal shall notify the Tribunal, other Parties, Participants and Presenters by letter. Any Party, Participant or Presenter who objects to the proposed withdrawal of an appeal or revocation, with the exception of the revocation of an order made under section 74 of the *Ontario Water Resources Act*, shall notify the Tribunal and the other Parties, Participants and Presenters within ten days of the date of the letter.

199. Where there has been a proposed withdrawal of an appeal agreed to by all Parties and the decision under appeal is not altered by a settlement agreement, a proposed withdrawal of an application, or a proposed revocation of an order made under section 74 of the *Ontario Water Resources Act*, the Tribunal shall issue a decision dismissing the proceeding.

Appendix B

Birds and Bird Habitats: Guidelines for Wind Power Projects, December 2011 (Excerpt)

1.1 Potential Effects of Wind Power Projects on Birds

Bird mortality monitoring results from Ontario wind power projects are consistent with studies undertaken around the world. These studies identify that relatively low numbers of bird fatalities occur at Ontario wind power projects. Ontario results show that approximately 2.5 birds per year are killed by individual wind turbines. At current mortality levels, wind power projects are not a sustainability concern for most of Ontario's bird populations.

The Renewable Energy Approvals Regulation and this Guideline focus on consideration and protection of bird SWH [significant wildlife habitat] when selecting a project location. This habitat-based approach appears to be a key factor in preventing negative effects on birds and bird habitats. However, some knowledge gaps remain relating to disturbance, avoidance and bird migration.

This Guideline will assist in identifying and addressing concerns associated with bird SWH and interactions between wind turbines and birds and bird SWH, and contribute toward an adaptive management approach to protecting birds and bird habitats.

To this end, the Wind Energy Bird and Bat Monitoring Database for bird and bat data associated with wind power projects has been collaboratively established by MNR, the Canadian Wind Energy Association, Environment Canada - Canadian Wildlife Service, and Bird Studies Canada. The intent of this database is to facilitate an improved understanding of the effects of wind turbines on birds and bats, and to allow for greater consistency in assessment of wind power effects.

Wind power projects have the potential to affect birds directly (i.e. collision mortality) and indirectly (i.e. disturbance and avoidance). Direct and indirect effects of potential wind power projects on birds and bird habitats are outlined below. A detailed summary of potential effects of wind power projects on birds can be found in *Wind Turbines and Birds: A Background Review for Environmental Assessment* (EC-CWS, 2007a).

Direct Effects

Birds may be injured or killed through collisions with turbine blades and towers, guy wires, meteorological towers, and maintenance vehicles. In nocturnal birds, mortality may also arise from physical exhaustion associated with light-induced disorientation.

Three main factors contribute to avian mortality at wind power projects:

- density of birds in the area and their behaviours (e.g. flight displays, feeding, etc.);
- landscape features in the area (especially ridges, steep slopes, valleys and landforms such as peninsulas and shorelines that funnel bird movement); and
- poor weather conditions.

Appropriate selection of a project location is a key factor in preventing potential negative effects on birds.

Indirect Effects

Indirect effects on bird habitat and behaviour are also important when considering potential adverse effects of wind power projects. Birds may be displaced from suitable habitat by wind power projects at any stage in their annual cycle (e.g. breeding, migration). Displacement may be due to direct loss of feeding, breeding, or migratory stopover habitat during construction and operation of a facility, or to active avoidance of structures, human activity, noise, or infrastructure (e.g. roads, cut forest edges). Quality of breeding habitat may also be diminished by fragmentation effects (e.g. openings in contiguous habitat to accommodate turbines, transmission lines, and service roads) that may lead to changes in predation and parasitism levels or to adverse effects on area-sensitive species. The extent of avoidance behaviour is species-specific, and may lead to reduced energy intake through lost feeding opportunities.

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4.1 Mortality Thresholds

A threshold approach will be used to identify and mitigate potential negative environmental effects resulting from the operation of wind turbines (i.e. significant bird mortality).

Bird mortality is considered by this Guideline to be significant when a threshold of annual bird mortality exceeds:

- 14 birds/ turbine/ year at individual turbines or turbine groups;
- 0.2 raptors/ turbine/ year (all raptors) across a wind power project;
- 0.1 raptors/ turbine/ year (provincially tracked raptors) across a wind power project; or
- 2 raptors/wind power project (<10 turbines)

Provincially tracked raptors are defined as raptors of provincial conservation concern by the Ministry of Natural Resources Natural Heritage Information Centre.

Bird mortality thresholds have been established based on the range of bird mortality at wind power projects in Ontario and in comparison with jurisdictions across North America. The annual bird mortality threshold of 14 birds/ turbine/ year is below the 95th percentile of bird mortality rates in Ontario.

Establishing the bird mortality threshold below the 95th percentile requires outlier turbines with significant bird mortality to be addressed through mitigation and/or additional scoped monitoring.

These thresholds are not intended to replace any species-specific approaches that may be needed to comply with the *Endangered Species Act*.

Studies indicate that turbine-related mortality maintained at current levels is unlikely to affect most bird populations. Post-construction mortality reports from wind power projects in Ontario have shown that approximately 2.5 birds per year are killed by individual wind turbines.

A monitoring year is considered to be from May 1 – October 31 and continues until November 30 specifically for raptor monitoring. Additional bird mortality reported through supplemental monitoring (e.g. associated with SWH [*sic* Significant Wildlife Habitat]) and using the same standard protocols, should be included in the calculation of mortality rates. In this case, a monitoring year is defined as all reporting periods in one calendar year (i.e. from January 1 – December 31).

4.2 Post-Construction Monitoring

Post-construction monitoring is required for 3 years at all Class 3 and 4 wind power projects, as part of the Environmental Effects Monitoring Plan. Post-construction monitoring methods are set out in Appendix B.

Post-construction monitoring will consist of:

- regular bird mortality surveys around specific wind turbines;
- monitoring of bird carcass removal rate by scavengers (or other means);
- monitoring of searcher efficiency (i.e. number of bird fatalities present that are actually detected by surveyors);
- avoidance- disturbance effects monitoring (where a project is located within 120m of bird SWH);
- subsequent 2 years of scoped mortality and cause and effects monitoring at individual turbines (and unmonitored turbines in near proximity), following any given year where an annual postconstruction mortality reports identifies significant bird or raptor mortality; and
- an additional 3 years of effectiveness monitoring where mitigation applied.

Post-construction bird mortality surveys may identify specific species, specific periods of high bird mortality, or specific turbines/ turbine groups linked to bird mortality. This knowledge can be used to identify and scope subsequent monitoring, evaluate the success of mitigation measures (i.e. siting), establish protocols for operational mitigation and inform adaptive management.

Searcher efficiency and carcass removal by scavengers are highly variable among sites (varying by vegetation cover, terrain and season) and must be considered when estimating total bird mortality.

In Ontario, the post-construction monitoring season for birds is based on bird activity patterns, covering spring activity through fall migration; thus monitoring occurs from May 1 to October 31 for all birds and continues until November 30 specifically for raptor monitoring.

Monitoring Effort and Timing Requirements

Table 1 identifies the minimum requirements for post-construction monitoring.

Table 1.

Minimum Requirements for Post-Construction Monitoring Effort and Timing

- Post-construction monitoring (including mortality surveys, carcass removal and searcher efficiency trials) should be conducted during the core season when birds are active (i.e. May 1st – Oct. 31st) for the first 3 years of wind turbine operation.
- Bird mortality surveys should be conducted at each monitored turbine twice per week (3 and 4 day intervals) from May 1 – October 31; surveys for raptor mortality should be continued once per week from November 1 – November 30.
- Bird mortality surveys should occur at all turbines at wind power projects ≤ 10 turbines. For wind power projects >10 turbines, a sub-sample of at least 30% of turbines (minimum 10 turbines) should be selected to cover representative areas throughout the project location.

- All turbines within the project location should be monitored once a month during the May 1- October 31 survey period for evidence of raptor mortalities.
- Where significant annual bird mortality is identified, subsequent scoped mortality and cause and effects monitoring should be conducted for 2 years at individual turbines (and unmonitored turbines in near proximity).
- Where mitigation has been implemented, effectiveness monitoring at individual turbines should be conducted for an additional 3 years.

Post-construction mortality monitoring should begin on May 1st of the year that the wind power project is fully operational. If full project commissioning is delayed, post-construction monitoring of a partially completed project should not be delayed for longer than 1 year. If the project is constructed in phases, mortality monitoring for each phase should coincide with the commencement of operation of that phase. When available, post-construction monitoring data may be useful in considering potential effects to bird and bird habitat in adjacent phases.

Post-Construction Monitoring Reports should be submitted to the Ministry of the Environment for each monitoring year, as part of the Environmental Effects Monitoring Plan.

Appendix C

**Bats and Bat Habitats: Guidelines for Wind Power Projects,
March 2012 (Excerpt)**

1.1 Potential Effects of Wind Power Projects on Bats

Bat mortality has been documented at wind power projects in a variety of habitats across North America. In Ontario, annual mortality estimates at wind power projects range from 4 to 14 bat mortalities/turbine/year. Annual bat mortality estimates at wind power projects in North America vary from less than 1 to over 50 bat mortalities/turbine/year.

In recent years, there has been elevated concern about bat mortality at wind power projects because:

- some wind power projects have shown particularly high levels of bat mortality;
- bats can range widely across landscapes and migrate long distances, which may make them more susceptible to cumulative effects;
- post-construction monitoring and research at turbines sites suggest that bats may be more susceptible to wind turbine mortality than birds; and
- potential impacts of White Nose Syndrome make certain species of bats particularly vulnerable to increased mortality.

The Renewable Energy Approvals Regulation and this Guideline focus on consideration and protection of bat SWH when selecting a project location. This approach appears to be a key factor in preventing negative effects on bats and bat habitats. However, knowledge gaps and concerns remain relating to the effect of wind turbines on bats and their habitats.

This Guideline will assist in identifying and addressing concerns associated with bat SWH and interactions between wind turbines and bats, and contribute toward an adaptive management approach to protecting bats and bat habitats.

To this end, the Wind Energy Bird and Bat Monitoring Database for bird and bat data associated with wind power projects has been collaboratively established by MNR, the Canadian Wind Energy Association, Environment Canada - Canadian Wildlife Service, and Bird Studies Canada. The intent of this database is to facilitate an improved understanding of the effects of wind turbines on birds and bats, allow for greater consistency in assessment of wind power effects and lead to future improvements in approval processes.

Wind power projects have the potential to affect bats directly (i.e. collision mortality) and indirectly (i.e. disturbance and avoidance). Direct and indirect effects of potential wind power projects on bats and bat habitats are outlined below.

Direct Effects

Bats may be injured or killed through collisions with moving turbine blades, but do not appear to collide with stationary structures (e.g. turbine towers, transmission structures, guy wires, etc.). Barotrauma (internal haemorrhaging), caused by rapid air pressure reduction near moving turbine blades, has been found to be a source of bat mortality. This undetectable hazard may help explain why bats appear to be more susceptible to wind turbine mortality than birds.

The main factors that appear to contribute to bat mortality at wind power projects are time of year, species, habitat or landscape features in the area, and weather conditions, including wind speed. Bat mortality at wind power sites occurs primarily in the late summer and early fall. Long-distance migratory bats (i.e. hoary bat, eastern red bat, silver-haired bat) typically comprise the majority of bat fatalities. Weather conditions may influence the level of bat activity and consequent mortality at wind power sites. Warm clear nights with low wind have been associated with higher bat activity.

Indirect Effects

Bats may be indirectly affected by wind power projects through effects on habitat and behaviour. Bats may be displaced from suitable habitat due to habitat loss or fragmentation during the construction and/or operation of a project, human activity, or noise (e.g. construction activities, roads, turbines, etc.).

Deforestation associated with a project may remove woodland habitat important to breeding or roosting bats. Bat habitats may be affected by turbines placed near bat swarming and hibernation sites, breeding or roosting habitats, or migration stopover areas. High levels of bat activity have been documented in forested ridge habitats, forest canopy openings, and along the shores of large water bodies. These areas may offer attractive migratory and feeding habitat for some species of bats, which may lead to increased bat activity and mortality risk.

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4.1 Mortality Thresholds

A threshold approach will be used to identify and mitigate significant bat mortality (potential negative environmental effects) resulting from the operation of wind turbines.

Bat mortality is considered by this Guideline to be significant when a threshold of annual bat mortality (averaged across the site) exceeds:

- 10 bats/ turbine/ year.

This threshold of 10 bats/ turbine/ year has been determined based on bat mortality reported at wind power projects in Ontario and comparison with jurisdictions across North America. ...