

Stantec

**OSTRANDER POINT WIND ENERGY PARK
NATURAL HERITAGE ASSESSMENT AND ENVIRONMENTAL IMPACT STUDY**

Appendix C

Agency Comments

**Ministry of
Natural Resources**
Peterborough District Office
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1st Floor, South Tower
Peterborough, Ontario K9J 8M5

**Ministère des
Richesses naturelles**
Telephone: (705) 755-2001
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September 3, 2010

Mike Lord
Gilead Power Corporation
150 King Street East
Suite 5E
Peterborough, ON
K9J 2R9

To Mr. Lord:

In accordance with S.28 (1) and (2) and S.38 (2) of the Ministry of the Environment's (MOE) Renewable Energy Approvals Regulation (O.Reg.359/09), the Ministry of Natural Resources (MNR) has reviewed the natural heritage assessment for Ostrander Point Wind Energy Park in Prince Edward County submitted by Gilead Power Corporation and Stantec Consulting Ltd. August, 2010.

After reviewing your natural heritage assessment, the MNR provides the following confirmations:

1. The MNR confirms 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 MNR.
2. The MNR confirms that the site investigation and records review were conducted using applicable evaluation criteria or procedures established or accepted by MNR, if no natural features were identified.
3. The MNR confirms 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 MNR.
4. The MNR confirms that the project location is not in a provincial park or conservation reserve.
5. The MNR confirms that the environmental impact assessment report has been prepared in accordance with procedures established by the MNR.

The MNR also offers these additional comments in respect of the project.

The potential for ongoing risk of negative environmental effects has been identified in the natural heritage assessment (NHA). The project and potential effects will be monitored, as outlined in Table 5.3 of the NHA to ensure that proposed mitigation strategies are effective and contingency measures have been included for instances where performance objectives are not met and negative impacts are occurring. In particular, MNR continues to have concerns regarding potential disturbance and/or avoidance

effects to significant wildlife habitats identified for birds. Potential disturbance/avoidance effects will be monitored post-construction and results will be discussed collectively to determine whether significant effects are occurring and if so, the most appropriate form of mitigation. If determined to be required, mitigation options may include additional post-construction monitoring and/or operational controls.

In addition, post-construction mortality monitoring will be required as part of the Environmental Effects Monitoring Plan and will be implemented should the Ostrander Point Wind Energy Park proceed. Mitigation may be required at individual turbines or groups of turbines where post-construction monitoring identifies significant annual bird or raptor mortality or a single significant bird mortality event. Bird and bat post-construction monitoring and mitigation plans must be developed and implemented in accordance with MNR's Bird and Bat Guidelines for Wind Power Projects (2010). It is recommended that post-construction monitoring plans be submitted to MNR for review in advance of submitting an application to MOE for a Renewable Energy Approval in order to minimize delays in determining whether an application is complete.

This confirmation letter is valid for the project as proposed in the natural heritage assessment and environmental impact study, including those sections describing the Environmental Effects Monitoring Plan and Construction Plan Report. Should any changes occur to the proposed project design and operation that would alter the NHA MNR may need to undertake additional review. Such changes may include alterations to project location or setbacks requiring additional records review, site investigation or evaluation of significance or result in changes to mitigation.

Where specific commitments have been made by the applicant in the NHA with respect to project design, construction, operation, monitoring and mitigation MNR expects that these will be considered in the Renewable Energy Approval decision and if approved by MOE, be implemented by the applicant. Examples may include but are not limited to proposed setbacks from natural features, measures to be implemented during project construction (e.g. timing windows, silt barriers, vegetation staking, etc.), re-vegetation of disturbed areas, and others.

In accordance with S.12 (1) of the Renewable Energy Approvals Regulation, this letter must be included as part of your application to the MOE for a Renewable Energy Approval.

If you wish to discuss any part of this confirmation or additional comments provided, please contact Erin Cotnam at 705-755-5353.

Sincerely,



Kenneth W. Durst
A/District Manager
Peterborough District MNR

cc. Jim Beal, Renewable Energy Provincial Field Program Coordinator, Regional Operations Division, MNR
Narren Santos, Environmental Assessment and Approvals Branch, MOE



Environmental Protection Operations Division -Ontario
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File No.: 2007-096

February 24, 2010

Erin Cotnam
A/Southern Region Renewable Energy Coordinator
Ontario Ministry of Natural Resources
300 Water Street, 4th Floor, South Tower
Peterborough, ON, K9J 8M5

Dear Ms. Cotnam,

Re: Environment Canada's Comments on Gilead Power Corporation's Ostrander Point Wind Energy Park

Environment Canada has reviewed the draft February 2009 Environmental Review Report (ERR) and the January 2010 Draft Bird Report (DBR) for the proposed Ostrander Point Wind Project to be located on crown lands in the South Marysburgh Ward of Prince Edward County. Our comments are provided in relation to our departmental interests in the project. Environment Canada has a regulatory interest in migratory birds, species at risk and water quality as administrator of the *Migratory Birds Convention Act, 1994*, *Species at Risk Act*, *Canadian Environmental Protection Act, 1999* and subsection 36(3) of the *Fisheries Act*, respectively. Please refer to the attached Appendix, which provides further details of legislation and policies that should be consulted in context of our comments and recommendations.

Our key recommendations are summarized below. Supporting comments follow.

Key EC Recommendations

- Targeted surveys should be conducted for Whip-poor-will during the core breeding season from late May to early June 2010 to confirm whether or not the species is breeding on the site. If breeding is recorded, and the project is built, this preconstruction data will be very useful for assessing potential disturbance effects.
- Due to the uncertainty of impacts to nocturnal (and diurnal) migrants, EC recommends that a rigorous, multi-year mortality study be conducted, if the project proceeds. In particular, EC recommends that searches be conducted 3X/week, or perhaps even daily (depending on the results of scavenging studies), in order to get the best possible insights into collision impacts.
- EC recommends that post-construction monitoring be conducted to determine the potential disturbance and habitat fragmentation effects on breeding birds, and whether species having breeding displays (i.e. American Woodcock and Wilson's Snipe) are at particular risk of mortality.
- In order to avoid significant¹ adverse environmental effects on migratory birds, project works or activities with the potential to destroy or disturb migratory birds during construction or operation (including any

¹ Please note that these measures and recommendations are solely intended to avoid significant adverse environmental effects on migratory birds. This advice does not provide an authorization for incidental take or for the disturbance, destruction or taking of nests under the Migratory Bird Regulations (MBRs), nor does it provide a guarantee that the project will not result in contravention of the MBRs. It remains the proponent's responsibility to meet the requirements of the MBRs. Should this project or activities associated with it result in the contravention of the MBRs, prosecution under the *Migratory Birds Convention Act, 1994* may be initiated.



construction access, site grubbing, stockpiling, or vegetation clearing) should not take place in migratory bird habitat during the breeding season that, in this location, is defined to be from May 1 – July 23.

- If the proponent must conduct works that could destroy migratory birds or their nests within breeding bird habitat during the identified breeding season for migratory birds, a nest survey should be conducted by a qualified avian biologist prior to commencement of the works to identify and locate active nests of species covered by the *Migratory Birds Convention Act, 1994*. A mitigation plan (which may include establishing appropriate buffers around active nests) should then be developed to address any potential impacts on migratory birds or their active nests, and should be reviewed by Environment Canada prior to implementation.

Supporting Comments

The proposed Ostrander Point Wind Energy Park consists of 12 (1.65 MW) turbines on provincial Crown Land (320 ha) along the Lake Ontario shoreline. The Ostrander site is 8-10 km west of the Prince Edward Point National Wildlife Area.

The 2010 Bird Report (BR) is similar to the February 2009 Draft Bird Report (DBR), with several exceptions as noted in our detailed comments. The 2010 report confirms what we already know to be the case; this area is well used (or well traversed) by birds during migration and possesses a rich and diverse breeding bird community.

The Study Area contains unique habitats (i.e. alvar, open woodland) that are uncommon in southern Ontario. In terms of overall quality, it is one of the best areas for birds EC has seen in southern Ontario. EC agrees that this project merits a Level 4 Category of Concern, for the reasons outlined in Sec.1.2.3 of the DBR (p. 1.4).

The preconstruction field surveys (DBR, Sec. 2.2) were consistent with the recommendations provided by EC, with the exception that the fall raptor surveys were not continued late enough (i.e. only to mid-October) to adequately survey Golden Eagle (EC recommended surveys continue to late November). Seven types of surveys were conducted:

- Spring passerine surveys consisting of radar and migrant area searches from May 2nd to June 2nd. The latter consisted of daily two-hour surveys beginning 30 minutes after sunrise.
- Fall passerine surveys consisting of radar and migrant area searches from August 12th to October 28th. The latter consisted of daily one-hour surveys beginning 30 minutes after sunrise.
- Breeding bird point counts (19 stations were visited twice during the breeding season), including taped playback for Henslow's Sparrow.
- Four weekly singing ground surveys for American Woodcock and Wilson's Snipe using standard ground woodcock survey protocols (point counts at 16 stations).
- Six weekly spring waterfowl surveys between April 7th and May 14th.
- Fall raptor surveys; 12 days from the end of August to *mid-October*.
- Three winter raptor surveys.

Nocturnal Migrants

The Ostrander site is clearly an important concentration area for nocturnal passerine migrants, and the daily two-hour area search (DBR, Sec. 3.4) provided an excellent index of bird usage in the Study Area during the spring migration period.

Recent radar work in the Great Lakes Basin indicates that forested areas near the Great Lakes shorelines provide important stopover habitat for nocturnal migrants such as warblers, vireos, and thrushes (Bonter et al. 2008). We do not know how important the Ostrander site is, because there is not enough radar data from different sites to provide a regional perspective. We also do not know how many of the 'targets' passing over the site were birds rather than bats or insects.

The DBR (Sec. 1.2.1, p. 1.1) referenced recent studies to note that bird mortality due to wind turbines is relatively low at 'new generation' wind energy facilities, compared to mortality from other anthropogenic sources (e.g. Arnett et al. 2007, National Research Council 2007). Fatality rates ranged from 0.63 birds/turbine (0.95/MW) to 7.7 birds/turbine (11.67/MW). Data from Ontario reflect similar values:

- James (2008) estimated annual avian mortality at the 66-turbine Erie Shores Wind Farm to be 2 - 2.5 birds/turbine (1.3 – 1.6 birds/MW).
- James (2003) estimated annual avian mortality at a single turbine along the Lake Ontario shoreline at Pickering to be 3-4 birds/turbine (1.7 – 2.2 birds/MW).
- James and Coady (2004) estimated annual avian mortality at a single turbine at Exhibition Place in Toronto to be ~3 birds/turbine (~4 birds/MW).
- Natural Resource Solutions Inc. (2008) estimated annual avian mortality at the 126-turbine Prince Wind Power Project to be 0.39 birds/turbine (0.26 birds/MW).
- The 2007 estimated avian mortality rate at the Melancthon 1 Wind Plant, based on 12 weeks of monitoring in spring and fall, was 1.4 birds/turbine (0.9 birds/MW).
- The 2008 mortality estimate at the 38-turbine Ripley Wind Power Project was 3.01 birds/ turbine or 1.5 birds/MW.

Three recent studies in upstate New York fall within the range of the studies referenced above. Fatality rates at three large wind energy facilities (54, 67, and 67 turbines respectively), based on daily searches from mid-to-late April to mid-October and late November, were 2.1 birds/turbine (1.4 birds/MW), 1.43 birds/turbine (1.0 birds MW), and 4.3 birds/turbine (2.9 birds/MW) (Jain et al. 2009).

The question is whether the mortality levels observed at these sites is a reasonable predictor of what might occur at the Ostrander site. Ostrander possesses certain features (geographic location along the north shore of Lake Ontario, peninsula, shoreline habitat, natural vegetation) that, taken together, differentiate it from the other sites. Avian dynamics may also be different at Ostrander (e.g. higher concentration of migrants; more low level flights by migrants that are ascending or descending as they cross the lake; and the presence of breeding species such as American Woodcock and Wilson's Snipe that engage in high aerial flights that increase their risk of collision).

It is instructive to review mortality estimates from established wind facilities that lie closest to the Ostrander site to get some sense of what the possible mortality levels might be at Ostrander.

- The Pickering site is located along Lake Ontario ~190 km east of the Ostrander site. The Pickering facility consists of only one turbine, and it is located in a highly altered, human-dominated landscape that may not be as attractive to migrants as the Ostrander site. Bird mortality was low at the Pickering site although it is certain that many migrants moved through the area in spring and fall (passerine migration seems to occur along broad fronts and almost any area is likely traversed by some migrants).
- The Maple Ridge wind farm is located in eastern New York near Lowsville, ~115 km southeast of the Ostrander site and ~30 km from Lake Ontario. This large wind energy project (195 turbines) has undergone two years of post-construction mortality monitoring. Estimated avian mortality in 2006, based on weekly surveys of 30 turbines, was 3.1 birds/turbine/period (the period extended from mid-June to the end of November) (Jain et al. 2007); estimated mortality in 2007, based on weekly surveys of 64 turbines from April to November, was ~6 birds/turbine/period (Jain et al. 2009). It should be noted, however, that when turbines were searched more frequently, the mortality levels were higher: estimated avian mortality in 2006, based on daily surveys of a subset of 10 turbines from mid-June to mid-November, was 9.6 birds/turbine/period (Jain et al. 2007).
- The fatality rates at three large wind energy facilities (54, 67, and 67 turbines respectively) in upstate New York, based on daily searches from mid-to-late April to mid-October and late

November, were 2.1 birds/turbine (1.4 birds/MW), 1.43 birds/turbine (1.0 birds MW), and 4.3 birds/turbine (2.9 birds/MW) (Jain et al. 2009).

Mortality estimates from Maple Ridge and the other New York facilities cannot be directly extrapolated to the Ostrander site (Ostrander is on the shoreline, the others are inland; Ostrander consists of natural vegetation, the others feature a mosaic of land uses ranging from farmland to forest). However, considerable numbers of nocturnal migrants pass over the Maple Ridge site, as reflected by the fact that two-thirds of the 64 mortalities in 2007 occurred outside of the breeding season. Evans (2009) presented radar data showing that large numbers of nocturnal migrants move over land, and not necessarily over the lake, in eastern New York.

Radar data from Ostrander shows that large numbers of 'targets' moved through the area during migration: 70,000 targets in spring (BR App. H, Attach. 2, Table 1), and 160,000 in fall (BR App. H, Attach. 2, Table 2), with 41% (BR App. H, Attach. 2, Table 3) and 50% (BR App. H, Attach. 2, Table 4) respectively moving through at the height of the rotor swept zone. No effort was made by the consultant to identify what percentage of the 'targets' consisted of birds, bats, and insects (dragonflies and army worms are readily picked up by radar). It is impossible, therefore, to estimate how many birds traversed the site and how many were in the primary risk zone. Prince Edward Point is known, however, to attract large numbers of migrants and it is certain that many birds were included among the 'targets'. A recent study of migration in the Great Lakes Basin found that forested areas near water function as especially important stopover habitats for migrant passerines (Bonter et al. 2008). It seems reasonable to conclude that bird mortality at Ostrander would be at least as high as at Maple Ridge (i.e. ~10 birds/turbine/yr) and likely higher, factoring in the high volume of migrant bird traffic and the presence of breeding species that engage in territorial displays (e.g. that place them in the rotor risk zone).

The consultant's radar report explicitly stated that the radar data would not be used to provide recommendations for or against constructing a wind farm in the area with respect to potential threats to migratory birds and bats. Given the large number of nocturnal targets moving through the area, many at low heights - 70,000 targets in spring and 160,000 in fall with 41% and 50% respectively moving through at the height of the rotor swept zone (as above) - there certainly seems to be potential for a high number of collisions (although we don't know what proportion of the targets are birds, bats, or insects). The proportion of targets moving at rotor height is larger than reported in other studies (e.g. Cooper et al. 2004). Whether this represents a real difference from other studies (i.e. Ostrander is a really important site for migrants, many of which come in at low heights), or whether this is an artefact of equipment configuration, calibration, data processing and analysis, and interpretation, is unclear. The radar consultant contends that comparisons among studies are difficult if these factors are not uniform, and states: "It is for these reasons that I do not make comparisons between the data from this study and other studies in the region or elsewhere, nor do I recommend that others try to do so."

Both the radar study and the fall migration study show large numbers of 'targets' (many of which have to be birds), and raptors, moving over the site. The crucial question is what impact the turbines will have on them, and whether collisions would result in significant population impacts. Collisions will likely occur, but the impacts are largely unknown. While no high levels of mortality to nocturnal bird migrants have yet been reported at new generation wind facilities in North America, this may be because none of those facilities were located in areas with unusually high rates of migration traffic.

Despite the various studies conducted at Ostrander, EC still does not know whether Ostrander is a 'migration funnel' that is utilized by an exceptionally high number of birds. The radar consultant compared two nights of data from Ostrander in fall 2008 with two nights of data from Long Point in fall 2009 (BR App. H, Attach. 1, Results Sec., para. 1). The data suggests that the raw counts of targets detected at the two sites were comparable, both in abundance levels and flight heights. This could suggest that migrating nocturnal migrants move along broad fronts, at similar heights, and could be found at just about any place throughout southern Ontario. On the other hand, it may be that both Ostrander and Long Point lie along exceptional migration pathways (with fewer birds passing over other areas lying between or beyond these two sites).

The radar consultant reported that patterns of movement varied considerably within and between nights, and between spring and fall, and noted the considerable variability 'makes the job of assessment difficult.' (BR App. H, Attach. 1, Discussion Sec., para. 1). While there are several confounding factors associated with the radar study (as above), it seems as if the fall period may be the riskier time for migrants. More of the migrants are moving at lower altitudes in the fall, than in spring, and they appear to be 'milling' about along the shoreline before heading out across the lake.

Breeding Birds

Whip-poor-will, a species of partly open deciduous or mixed deciduous forest (Cink 2002), was recorded as "likely breeding" at two locations within the Study Area in 2008 (DBR, Sec. 3.5.2, p. 3.6, para. 3). Whip-poor-will is expected to be listed on Schedule 1 of the federal *Species at Risk Act* sometime in the near future. Once it is listed individuals will be protected by the Prohibitions of the Act. However, while the Whip-poor-will usually stays below the treetops during its hunt for insects, and it does not engage in high aerial courtship displays that would present collision risks with turbines (Cink 2002), its sensitivity to openings created for turbines (and hence disturbance impacts) is unknown.

Section 3.5 of the BR (p. 3.5, para. 1) also lists Whip-poor-will as a breeding species on the study site, yet this is inconsistent with a subsequent discussion of the species (BR Sec. 3.5.2, p. 3.6, para. 5; BR Sec. 3.8, p. 3.10, para. 4), where the consultant indicates that the only birds recorded were likely migrants. The consultant's dusk surveys for American Woodcock and Wilson's Snipe ended in mid-May, during which time they heard Whip-poor-will. They concluded these Whip-poor-will were migrants because the location of the birds changed each time they were heard, on three separate surveys. It is important to note that the earliest egg record for Whip-poor-will in BCR 13 is May 21. Since no dusk surveys were conducted during the prime nesting period in late May, and early June, it cannot be said for certain the birds did not remain on site to breed.

A total of 14 Partners in Flight priority species were present on the site, with thicket/open woodland species being the most abundant (e.g. Song Sparrow, Yellow Warbler, Clay-colored Sparrow, Brown Thrasher, American Robin, Alder Flycatcher, Eastern Towhee). Compared to most areas in southern Ontario where natural habitats are fragmented and isolated, the Study Area contains a rich and diverse breeding bird community. Early succession (shrubland) habitats and the species that depend on them have declined in southern Ontario, particularly within the southeastern region (Cadman et al. 2007). Habitat loss and fragmentation at the Ostrander site, resulting from permanent vegetation clearing to accommodate the turbine pads, roads, electricity lines and other linear corridors, is likely to contribute to the further loss of shrubland habitat.

Woodcock and snipe, for example, may be subject to fragmentation and disturbance/avoidance effects. These effects may result in lower productivity (because of increased predation), or may cause these species to abandon the area or breed in lower density. The extent and magnitude of these impacts are not known. Other breeding BCR priority species are likely to experience similar negative impacts; they may abandon their territories, or breed in lower densities near the turbines.

The Ostrander site supports an impressive concentration of breeding American Woodcock (7 pairs/10 ha) and Wilson's Snipe (~5pairs/10 ha). The Study Area is 320 ha which means that approximately 224 woodcock pairs, and approximately 160 snipe pairs, could be on site. All of the observed woodcock, and a majority of snipe, were seen displaying at blade sweep height. This flight behaviour may make these species highly vulnerable to wind turbine collision. It is unknown, however, how these species behave in the presence of wind turbines, or whether they possess the visual acuity and perspective to avoid contact with the blades. There simply is not enough evidence from other wind farms to indicate what the likely impacts will be.

Spring Waterfowl

Surveys (Sec. 3.3) showed little waterfowl activity in the area and few flights over the study area.

Migrant Raptors

While EC recognizes that the management and protection of raptors fall under provincial jurisdiction and raptors are not part of our departmental mandate, we provide the following observations for MNR's consideration:

The MNR-requested 2009 surveys for wintering and migrant raptors were undertaken from August to October (12, 6-hour surveys). Many raptors were seen flying over the Study Area in 2009, many at turbine blade height (BR Sec. 4.3.1, p. 4.4, para. 1). The BR cites an observation (credited to Phil Taylor) of ~1100 raptors at Prince Edward Point on Oct 29th, including 60 Golden Eagles and 25 Bald Eagles (BR Sec. 3.7, p. 3.9, para. 6). These numbers are confirmed by David Okine, director of the Prince Edward Point Bird Observatory (PEPBO). His records indicate 63 Golden Eagle that day (David Okine, pers. comm.). They approached Ostrander Point off the lake from the southeast, and then headed inland. This is an exceptional number of Golden Eagles, and it is quite possible, as noted in the BR, that some of these birds passed over the Ostrander site. In 2009, 2 Golden Eagle and 34 Bald Eagle were recorded by the consultant Stantec during the fall surveys at the Ostrander site.

To put Golden Eagle in perspective, in 2008, at Holiday Beach, which probably has the highest raptor counts in Ontario, a total of 133 Golden Eagle were recorded. This means that the Prince Edward Point locale (at the PEPBO) had 47 percent of the 2008 Holiday Beach total pass through in a single day.

In 2009, at Holiday Beach, 93 Golden Eagle were recorded during the entire migration period, with 48 tallied in November. Only two Golden Eagle were recorded during Stantec's fall 2009 surveys at Ostrander (BR Sec. 3.8, p. 3.11, para. 5). But the peak Golden Eagle migration periods extends for several weeks after Stantec's fall surveys were completed on October 15th. As a result, the Stantec surveys likely do not provide a reliable index of Golden Eagle movement over the site during the fall migration period.

David Okine's PEPBO records show that 1489 raptors passed over Prince Edward Point on October 29th, 2008. The majority of them, (1350) were Red-tailed Hawk. Another 'big day' occurred on October 15th, 2005, when 2156 raptors poured over PEP, with Red-tailed Hawk, Turkey Vulture, and Sharp-shinned Hawk being the most numerous species; only 6 Golden Eagle were among the day's migrants. It seems such large movements occur every few years when weather conditions are just right, and the numbers of Golden Eagle passing over are highly variable.

Only a handful of dead raptors were found at the Port Burwell site over two years of searching. But 7 raptors were found at the Enbridge site along Lake Huron. EC still don't know for certain how vulnerable migrant raptors are to colliding with wind turbines. Golden Eagles are a common casualty at Altamont but these are essentially overwintering 'resident' birds that are attracted by the large rodent prey base in the area. The Ostrander site does not have the type of habitat — large meadows, open fields, and hayfields — that supports large numbers of small rodents (BR Sec. 4.1.1, p. 4.1, para. 1). Golden Eagle and other raptor migrants may therefore be more focused on travel than on hunting while passing over the site, and may be at much lower risk of collision. On the other hand, David Okine noted that many of the raptors that flew over the point on October 29, 2008 dropped down out of the clouds and "instantly started to hunt.". He also believes that the Ostrander Study Area possesses habitat features that likely make it a good hunting area for raptors. EC suggests that MNR inquires as to whether Stantec noted any instances of hunting activity during their fall 2009 raptor surveys, since they supplied information on flight heights, but nothing on hunting activities.

The BR correctly states that there is "...little to no information available concerning the collision and disturbance effects to owls", so the possible impacts to Northern Saw-whet Owls are unknown (BR Sec. 4.3.2, p. 4.4, para. 5). There is great uncertainty over the location of the owls' migration routes as they arrive and depart from PEP, and of their flight patterns and height during migration (BR Sec. 4.3.1, p. 4.3, para. 4). The BR notes that the fact so many owls are netted at PEP provides good evidence that many are flying low to the ground (BR Sec. 4.3.1, p. 4.3, para. 5).

If this project proceeds, EC suggests MNR consider requesting rigorous mortality searches well into November, to assess the possible impacts. Perhaps MNR should also explicitly address potential mitigation early on. For example, if there are serious raptor issues at this site, MNR may consider it necessary to shut the turbines down during certain times of the day, during the peak raptor migration period.

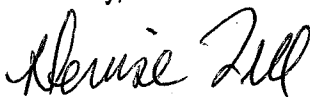
Wintering Raptors

No raptors were seen on any of the 3 winter surveys (DBR Sec. 3.2, p. 3.1, para. 4) conducted in 2008, so there was no evidence to indicate this is an important wintering area for species such as Short-eared Owl. At the request of MNR, 6 additional winter surveys were undertaken in 2009 for raptors, from January to March. Again, only 3 individual raptors were seen leading to the conclusion that the Study Area does not appear to be an important wintering raptor site (BR Sec. 4.1.1, p. 4.1, para. 1).

Environment Canada's foregoing comments are intended to provide expert support to project proponents and decision-makers, in accordance with its program related responsibilities and associated guidelines and policies. These comments are in no way to be interpreted as any type of acknowledgement, compliance, permission, approval, authorization, or release of liability related to any requirements to comply with federal or provincial statutes and regulations. Responsibility for achieving regulatory compliance and cost effective risk and liability reduction lies solely with the project proponent.

I trust that these comments and recommendations will assist you in your review of the proposed Ostrander Point Wind Energy Project. If you wish to discuss any matters related to this response, please contact me at (905) 336-4951 or by email at Denise.Fell@ec.gc.ca

Sincerely,



Denise Fell
Environmental Assessment Officer

cc: R. Dobos / J. Fischer, EC

References

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APPENDIX

Regulatory and Policy Context for Environment Canada's Comments and Advice

Environment Canada's mandate to protect the environment and to actively promote sustainable development extends beyond the Department's legislated responsibilities for undertakings that trigger the *Canadian Environmental Assessment Act*. Our review and comments are related, but not limited, to our areas of interest and expertise arising from the following legislation, policies and agreements. More information is available on-line, as indicated.

Department of Environment Act

<http://laws.justice.gc.ca/en/E-10/text.html>

The *Department of Environment Act* provides Environment Canada (EC) with general responsibility for environmental management and protection. Its obligations extend to and include all matters over which Parliament has jurisdiction, and have not by law been assigned to any other department, board, or agency of the Government of Canada as related to: preservation and enhancement of the quality of the natural environment (e.g. water, air, soil), renewable resources including migratory birds and other non-domestic flora and fauna, water, meteorology, and coordination of policy and programs respecting preservation and enhancement of the quality of the natural environment.

The *Department of Environment Act* states that EC has a mandated responsibility to advise heads of federal departments, boards and agencies on matters pertaining to the preservation and enhancement of the quality of the natural environment. This responsibility is reinforced as per subsection 12(3) of CEEA, which states that federal departments must provide specialist and expert information or knowledge to other federal departments or review panels.

Canadian Environmental Protection Act, 1999

http://www.ec.gc.ca/CEPARRegistry/subs_list/

<http://www.ec.gc.ca/CEPARRegistry/policies/>

The Canadian Environmental Protection Act, 1999 (CEPA) contributes to sustainable development through pollution prevention and protects the environment, human life and health from the risks associated with toxic substances. Key parts of CEPA include:

- public participation;
- information gathering, objectives, guidelines and codes of practice;
- pollution prevention;
- controlling toxic substances;
- animate products of biotechnology;
- controlling pollution and managing wastes including nutrients, protection of the marine environment, disposal at sea, fuels, vehicle engine and equipment emissions, international air pollution and international water pollution, and hazardous and non-hazardous waste;
- environmental matters related to emergencies including requirements for environmental emergency plans;
- government operations - federal and aboriginal lands including regulations to close any regulatory gap between federal and provincial requirements; and,
- enforcement.

The Canadian Environmental Protection Act, 1999 enables the government to manage a toxic substance throughout its life cycle. Provisions under CEPA require Environment Canada, under certain conditions, to develop a "regulation or preventive or control instrument" for a substance that is found to be "toxic" under the Act. CEPA further requires the virtual elimination of anthropogenic releases to the environment of substances that are declared toxic and that are bioaccumulative and persistent. CEPA also establishes the requirements for the assessment of chemicals, polymers and products of biotechnology, prior to import or manufacture of substances not on the Domestic Substances List.

Fisheries Act

http://www.ec.gc.ca/ele-ale/policies/c_and_e_fisheries_act/main_e.asp.

Environment Canada's mandate to advocate for the protection of water quality stems from the pollution prevention provisions of the *Fisheries Act*, which are administered by EC. Please be advised that the Compliance and Enforcement Policy for the Habitat Protection and Pollution Prevention Provisions of the *Fisheries Act* states that compliance with the federal *Fisheries Act* is mandatory. Subsection 36(3) of the *Fisheries Act* specifies that, unless authorized by federal regulation, no person shall deposit or permit the deposit of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water. Proponents should note that only a federal regulation under the *Fisheries Act* or another Act of Parliament can authorize a discharge of a deleterious substance; no federal permit, provincial, territorial or municipal regulatory permit or approval allows for exemption from the *Fisheries Act*.

In the application of the *Fisheries Act*, court cases have accepted that a discharge or effluent that is acutely lethal to fish is deleterious. In other words, results of tests designed to determine whether fish will die in an effluent or discharge within a specified time period will determine one aspect of deleteriousness. However, any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat is also deleterious. For example, substances (such as sediment) that smother nesting areas or spawning grounds, or interfere with reproduction, feeding or respiration of fish at any point in their life cycle are also considered deleterious. In general, any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat may be considered deleterious.

The act of depositing a deleterious substance should be considered a violation of the *Fisheries Act*, regardless of whether the water itself is made deleterious by the deposit. Subsection 36(3) of the *Fisheries Act* makes no allowance for a mixing or dilution zone. Any measurements or tests to determine whether something is deleterious should be done where the substance is at its highest concentration, typically at the point of discharge to the receiving water.

Migratory Birds Convention Act, 1994

http://www.cws-scf.ec.gc.ca/legislations/laws1_e.cfm

Migratory birds, including their nests, are protected under the *Migratory Birds Convention Act, 1994* (MBCA) and Regulations against disturbance or harm. Specifically, the disturbance, destruction or taking of a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird are prohibited under section 6 of the *Migratory Bird Regulations* (MBRs), under the authority of the MBCA. "Incidental take" is the killing or harming of migratory birds due to actions, such as economic development, which are not primarily focused on taking migratory birds. No permit can be issued for the incidental take of migratory birds or their nests as a result of economic activities.

Project-related adverse environmental effects on migratory birds could occur through direct mortality (destruction of individuals or their nests), disturbance, or through habitat loss or impairment. These

impacts could potentially occur during site access, site preparation (including vegetation clearing) and equipment staging, materials stockpiling, or construction.

Under section 5.1 of the MBCA, no person shall deposit or permit to be deposited oil, oil wastes or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds.

- * Please note that amendments to the MBCA in Bill C-15 came into force on June 28, 2005. This pollution prohibition was previously contained in s.35(1) of the *Migratory Bird Regulations*, which has now been repealed and is included as s.5.1 of the amended MBCA, 1994.

Species at Risk Act

http://www.speciesatrisk.gc.ca/default_e.cfm

The *Species at Risk Act* (SARA) was proclaimed on June 5, 2003 and is intended to provide protection for individuals of wildlife species at risk listed under Schedule 1 of the Act, their residences (dwelling places, such as a den or nest or other similar area that is occupied or habitually occupied by one or more individual during part or all of its life cycle) and critical habitat (that part of areas used or formerly used by the species to carry out their life processes that is deemed essential for survival or recovery). Critical habitat will be identified for each listed species in Recovery Strategies or Action Plans. The prohibitions under SARA came into force on June 1, 2004 and apply to listed (Schedule I) endangered and threatened species for all federally protected aquatic species and migratory birds (including their residences) found anywhere, as well as to all endangered and threatened species, when found on federal lands.

One of the purposes of SARA is to to manage species of special concern to prevent them from becoming endangered or threatened. In this context, we also recommend that all federal EAs consider potential impacts on any species listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). http://www.cosewic.gc.ca/eng/sct5/index_e.cfm

Other legislation, agreements and federal policies respecting environmental matters

The above list is not exhaustive; EC may have other interests in this project not identified at this time based on our review of additional information provided at a later date. For further information on EC's mandated interests, please refer to <http://www.ec.gc.ca/EnviroRegs>.

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March 8, 2010

Marnie Dawson
Gilead Power Corporation
150 King Street East
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Peterborough, ON
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To Ms. Dawson:

In accordance with S.28 (1) and (2) of the Ministry of the Environment's Renewable Energy Approvals Regulation (O.Reg.359/09), the Ministry of Natural Resources (MNR) has reviewed the natural heritage assessment for Ostrander Point Wind Energy Park in Prince Edward County submitted by Gilead Power Corporation and Stantec Consulting Ltd. on December 22, 2009.

After reviewing your natural heritage assessment, the MNR provides the following confirmations:

1. The MNR confirms that the project location is not in a provincial park or conservation reserve.

The MNR offers additional comments (attached) in respect of the site investigation and evaluation of the significance of natural features. Based on our review, additional significant natural features to those identified in the report are present therefore MNR is not able to provide further confirmation at this time.

Based on the presence of significant natural features within the project location, as identified in the Natural Heritage Assessment (NHA) report prepared by Stantec Consulting Ltd., an Environmental Impact Study(s) will be required.

As described in S.12 (1) of the Renewable Energy Approvals Regulation, you must include this letter, and future correspondence from MNR, as part of your application to the Ministry of the Environment for a renewable energy approval.

If you wish to discuss any part of this confirmation or additional comments provided, please contact Erin Cotnam at 705-755-5353.

Sincerely,

Kenneth W. Durst
A/District Manager

Peterborough District MNR

cc. Jim Beal, Renewable Energy Provincial Field Program Coordinator, Regional Operations Division, MNR

Sandra Guido, Environmental Assessment and Approvals Branch, MOE

Additional MNR Comments

Section numbers refer to those in the Natural Heritage Assessment report unless otherwise indicated.

Site Investigation

Section 26 of the Renewable Energy Approvals Regulation (O.Reg.359/09) requires a site investigation to confirm or correct whether the project location is in or within the setback of natural features (from records review) and whether any additional natural features exist, the boundaries of those features and the distance from the project location to those features.

In order to meet requirements of O.Reg.359/09, section 26, results and findings of site investigation should be discussed and considered in the context of natural features, in addition to presenting species lists and observations. For example, findings outlined in section 3.2.2 (wildlife) should be considered in the context of significant wildlife habitats. An evaluation of significance is not required if the project location remains outside of natural feature setbacks.

MNR understands that much of the field work contributing to site investigation was completed prior to O.Reg.359/09 coming into effect and that natural features, as defined in the Regulation, are predominantly discussed in 4.0 (evaluation of significance).

Please illustrate *all natural features and project location*, regardless of significance, in Figure 4 (see O.Reg.359/09, S.26 (3) for requirements). The following comments outline additional (significant) natural features MNR considers to be present which should also be delineated on a map.

2.2.1 Vegetation Community and Vascular Plants Assessment

This section indicates that field investigations took place on June 10 and 11, 2008 to confirm and assess existing conditions; however these dates are not included in Table 2.1, Appendix B.

3.2.1.1 Vegetation Communities

Ensure consistent reference to Figure 2, Appendix A and Table 3.2, Appendix B in this section.

Bland (1997) described pockets of alvar vegetation scattered in the grassland and shrub communities. Similarly, section 3.2.1.1 indicates that the treed alvar occurred as a complex with deciduous thicket swamp and that variable soil depths contribute to variations of alvar community; as such, variations were mapped as complexes in the same unit. Alvar is considered a natural feature (wildlife habitat) so should be delineated separately.

In order to apply the setback-based approach as outlined in O.Reg.359/09, it is necessary to identify the most accurate location of significant natural features. MNR recommends that delineation/mapping of alvar communities be refined to ELC vegetation type (as described in Lee, et al., 1998) in order to confirm where the alvar

indicator species are best represented and where alvar communities are found on the site. Refinement of vegetation communities may require reclassification of communities previously considered to be alvar, possibly resulting in a smaller proportion of alvar on the property. This will assist in determining more specifically the project location relative to alvar communities.

MNR is requiring further study of Whip-poor-will use at Ostrander Point for purposes of the *Endangered Species Act (2007)*. We suggest that refinement of vegetation communities occur during spring whip-poor-will study. In the interim, based on current delineation of alvar and project location, MNR recommends that an EIS be completed and mitigation proposed, although the extent of necessary mitigation may vary depending on refinement of mapping and project location relative to the natural feature and setbacks.

Evaluation of Significance

Please keep in mind that the evaluation shall consider any information available relating to natural features, including all information obtained during consultation; the NHA should identify information as a result of consultation and indicate how it has been considered.

Section 1.2 indicates that because the project location is within 120m of natural features an evaluation has been completed for each identified feature. The NHA states that significant woodlands, provincially significant wetland, and significant wildlife habitat (amphibian breeding habitat) occur in the study area. An Environmental Impact Study (EIS) has not been provided however, based on Figure 4 (revised, received Feb.2/10) the project location is in and within significant natural features and an EIS will be required.

Furthermore, MNR considers there to be additional natural features in the study area, which may be located within 120m of the project location. It also MNR's opinion that several of these features are significant. See further explanation below.

4.1 Wetlands and Coastal Wetlands

An unevaluated wetland was identified in the southeastern corner of the project location (S.3.2.1.2) however an evaluation of this wetland did not occur to determine significance. Based on Figure 4 (revised, received Feb.2/10) it appears as though the eastern most turbine and road are within 120m of the unevaluated wetland. Please indicate whether an evaluation will be completed in order to determine significance or whether the project location will be at least 120 metres outside of this feature, in which case an evaluation is not required (O.Reg.359/09, S.27 (5)). Please also confirm whether the unevaluated wetland is a coastal wetland.

4.2 Life Science ANSI

Based on O.Reg.359/09 definition of a life science ANSI and S.27 (determination of significance), MNR concurs that the project location is within a provincially significance ANSI, however ANSI status is candidate (unconfirmed), therefore an evaluation of significance is not required and the feature is not subject to development prohibitions or setbacks.

4.5.2 Woodland – Ecological Function

MNR is in agreement that the woodland be considered significant on the basis of size and function and further suggests that the woodland be considered to provide a significant function as a stopover area for migrating landbirds. Large numbers of Northern Saw-whet owls are known to occur within the Important Bird Area (IBA). Little is known regarding migration height, route or use of Ostrander Point however there is potential for Northern Saw-whet owls to use this woodland during migration stopover as well.

Identification as a significant woodland will provide protection through a 120 metre setback; if the project location is proposed in the woodland or the setback, an EIS will be required, to address environmental effects to the feature and functions. (*see Seasonal Concentration Areas below*)

4.6 Wildlife Habitat

4.6.1 Seasonal Concentration Areas – Landbird Migratory Stopover Areas

Based on criteria in the Significant Wildlife Habitat Technical Guide (SWHTG) including adjacency to Lake Ontario, high diversity of species, including species at risk and of conservation concern, during migration (103 and 120 species during spring and fall migration, respectively), high number of migrating individuals (suggested by the number of targets during radar and raptor monitoring), and size of the woodlot, MNR considers the woodland to be a significant landbird migratory stopover area. Literature has shown that areas adjacent to shorelines are important stopover locations for nocturnal migrants.

Additionally, American Woodcock and Wilson's Snipe were observed during the breeding season in relatively high concentrations and engage in behavior that puts them at greater risk (i.e. all woodcock and the majority of snipe were observed displaying at blade sweep height). Information is lacking regarding behavior of Woodcock and Snipe in the presence of wind turbines so it is difficult to assess potential impacts. Similarly, as mentioned above, little is known regarding height or route of migrating Northern Saw-whet Owls, or behavior relative to wind turbines. Further post-construction monitoring is recommended should the project proceed at Ostrander Point.

Comments received from Environment Canada (EC) have recommended that no works or activity that may negatively impact migratory birds take place within migratory bird habitat during the breeding season (May 1 – July 23). Studies indicate that the site serves as an important concentration area for migratory birds.

If project location is within the woodland feature or the 120 metre setback, an EIS will be required and should consider the function of the woodland for landbird migrants.

4.6.2 Migration Corridors (Movement Corridors)

As indicated, the SWHTG refers to animal movement corridors rather than migration corridors. As described in the SWHTG movement corridors are elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another.

Ostrander Point is located within the Prince Edward County South Shore Important Bird Area (IBA), under the congregatory species category; during spring and fall, the geographical and habitat features of the peninsula act as a funnel for birds on migration. Large numbers of Northern Saw-whet owls are also known to move through the IBA in the fall.

Stantec's Bird Report (2009) stated that 103 and 120 species of birds were observed during spring and fall migration surveys, respectively. Radar studies conducted nightly by Acadia University in 2008 detected 70, 355 during spring migration with 41% occurring within blade sweep height and 160, 649 targets in fall, with 50% occurring within blade sweep height. Relatively high raptor activity was also observed, with commonly used routes across the study area and 31% at blade sweep height (Bird Report, 2009).

Although criteria for bird migration corridors have not been defined in the SWHTG, MNR recognizes the importance of the Lake Ontario shoreline in migration. Bird behavior/activity at Ostrander Point may put birds at higher risk due to the nature and location of the site (i.e. adjacent to Lake Ontario shoreline, on a relatively natural peninsula, in an IBA) as birds may be ascending and descending during migration. MNR strongly recommends that Gilead/Stantec prepare a post-construction monitoring plan for birds, with consideration for adaptive management and operational control options.

4.6.3.1 Rare Vegetation Communities - Alvar

Alvar vegetation was identified to occur on the site in the records review stage (3.1.5) and confirmed during site investigation (3.2.1.1), including grassland, shrub and woodland alvar.

Although alvar-like conditions are considered to be well represented in the Prince Edward County South Shore IBA it is considered to be globally rare habitat, and is generally limited to the southern portion of the County planning area. According to Appendix J of the SWHTG all alvar communities found in Ecoregion 6E are considered provincially rare (ranked S1 to S3) and the highest priority for protection should be given to all provincially rare communities (Appendix Q).

Some recreational activities take place on the site however it is undeveloped and disturbances are considered temporary in nature. The study site is located on Crown land and is part of a larger natural area along the Prince Edward County south shoreline, including Crown land at Pt. Petre and the national wildlife area at Prince Edward Point. The location on Crown land offers greater opportunity for protection from potential threats and potential for protection is considered high.

Rare communities providing significant wildlife habitat are considered most significant. MNR considers portions of the alvar communities provide significant breeding bird habitat for area-sensitive species and species of conservation concern (see below).

Based on these considerations MNR considers all alvar communities on the site as significant wildlife habitat under the category of rare vegetation communities. Please see comments above (3.2.1.1) regarding refinement of vegetation community mapping.

An EIS will be required if the project location is in or within 120 metres of this natural feature.

4.6.4 Habitat of Species of Conservation Concern

Species that are considered of conservation concern include species listed as rare in Ontario (S1 to S3), species whose populations are known to be experiencing substantial declines in Ontario, and those subject to recovery plans.

Rigid Sedge is ranked S3 in Ontario; pockets were found throughout the alvar communities associated with low depressions (s.4.6.4). Locations of rigid sedge communities are necessary in order to determine relativity to project location. An evaluation will be required if project location is in or within 120m of this habitat.

Five species identified by PIF in the shrub/early successional category were considered to be breeding within the site, and are among the most common species in the study area. These include Black-billed Cuckoo, Willow Flycatcher, brown Thrasher, Eastern Towhee and Field Sparrow. Based on criteria in Appendix Q of the SWHTG, MNR considers the shrub/successional habitat to provide significant breeding habitat for species of conservation concern.

As indicated in the Natural Heritage Assessment, densities of shrub species reflect the predominance of this habitat type within the study area. There is a provincial responsibility for the protection of this habitat; MNR is an active participant in Partners in Flight and bears management responsibility to ensure that actions do not negatively impact such bird populations. Further, the site is considered to be relatively undisturbed and supports more than one species of conservation concern; the site is large with large areas of suitable habitat. Habitats of species currently experiencing severe population declines due to habitat loss are most significant.

MNR considers this habitat to be significant; the habitat should be delineated on Figure 4 and an EIS required if the project location is in or within 120 metres of this natural feature.

Appendix A

Section 26 (3)(3) requires a map showing the boundaries of *any natural features* within 120 metres of the project locations, the location and type of natural heritage features in relation to the project location and the distance from the project location to the boundaries of identified natural features.

Please provide a map that includes *all* natural heritage features (regardless of significance and including those recommended by MNR) within 120 metres of the project location, and relation to and proximity of features to project location.

Project location, as defined in O.Reg.359/09, means a part of land in, on or over which a person is engaging in or proposes to engage in the renewable energy project. Mapping should illustrate the proposed location of generation facility (components) within the project location, in order to accurately determine distance from natural heritage features, potential environmental negative effects and appropriate mitigation measures.

MNR also recommends that a map be provided outlining the location of all significant natural features relative to project location, in order to illustrate where an EIS will be required.

Appendix H

O.Reg.359/09, S.26 (3)(8) and S.27 (4)(3) require the names and qualifications for any person who conducted site investigation and who applied the evaluation criteria/procedures, respectively. Curricula vitae have been provided in Appendix H for two individuals, however summaries of site investigations identify several additional individuals. Please include names and qualifications for all individuals, as per the above noted sections.

Environmental Impact Study and Mitigation

Based on Figure 4 and MNR recommendations above, an EIS will be required.

The Decision Support System is a tool associated with the SWHTG and intended to assist in identifying potential for impacts and possibilities for mitigation. MNR recommends reference to this document.

Post-Construction Monitoring

Due to the operational risks to birds and bats from wind turbines, a multi-year post-construction bird and bat monitoring will be required should the project proceed at Ostrander Point. The post-construction monitoring plan will be a component of the environmental effects monitoring plan (O.Reg 359/09, Table 1, item 4 paragraph 4).

MNR is currently reviewing the bird and bat monitoring guidelines, and recommends that post-construction monitoring for birds and bats at the Ostrander Point Wind Energy Park be consistent with the new guidelines, once approved.

MNR strongly recommends that operational controls be considered including turbine shut-down and changes to cut-in speeds. Consideration should be given to timing of shut-down (i.e. core activity periods) and mitigative thresholds.

Based on the results of pre-construction monitoring at Ostrander Point, particular consideration should be given to developing mitigative options for raptors and Northern Saw-whet owls. The 2009 Bird Report indicates that behavioral monitoring was also completed during raptor migration monitoring; MNR would like to request any information regarding raptor behavior (i.e. in addition to height data) if available, particularly whether raptors were observed to be foraging on site.

Further discussion is needed regarding species at risk and potential post-construction mitigation or monitoring, particularly regarding Golden Eagle and Peregrine Falcon and behavior and use of the site (i.e. foraging).

MNR strongly recommends that development of the post-construction monitoring plan be completed in consultation with MNR and EC staff.