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May 3, 2010

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Natural Resources Canada
615 Booth Street, Room 160
Ottawa, Ontario K1A 0E9

Dear Ms. Harris,

Re: Comments on 2nd Post-Construction Monitoring Report for the Wolfe Island EcoPower Centre

This letter contains Environment Canada's (EC) comments on the second post-construction monitoring report (hereafter referred to as the Report) for the Wolfe Island EcoPower Centre covering the period of July to December 2009. This is the second in a series of reports that are intended to document the impacts of the project on birds and bats and the first report issued where the project has been in full operation for the majority of the reporting period. We understand that the facility became fully operational during the week of July 6, 2009. Thank you for the opportunity to review and comment on the documentation.

The field surveys conducted during this reporting period included:

- bird and bat mortality monitoring, and
- disturbance effects monitoring in relation to staging and foraging migratory waterfowl as well as wintering raptors.

Based upon our review of the Report, we believe the surveys and the analysis were conducted in a manner that is consistent with the methodologies described in February 2010 version of the Post-Construction Follow-up Plan (PCFP) that has been developed for the project.

EC supports the proposed changes to the mortality monitoring schedule that are described in the Report as we believe they will improve the accuracy of the correction factors. We also agree that it would be best to delay comparison of the post-construction monitoring results from the Wolfe Island Ecopower Centre with results from other projects until a full year of information has been collected. EC recommends that the monitoring continue as described in the PCFP with the modification to the mortality monitoring schedule that has been recommended in the Report.

Outlined below are EC's specific comments and recommendations following our review of the Report.

Mortality Monitoring – Birds:

Based on the information presented in the Report, we understand that 100 carcasses involving 33 different bird species were collected during the reporting period; 81 of these were collected during the summer monitoring period (July, August and September) and 19 during the fall monitoring period (October, November and December). The total corrected estimate for this 6-month period is 6.99 birds/turbine, or 3.04/MW.



Comparisons with other studies are often difficult, because different search frequencies may have been used (e.g., 1 day vs 3 days vs 7 days) and different search periods (e.g., summer vs. winter) and lengths may have been covered. The value of 3.04 birds/MW that was reported on Wolfe Island during this survey period is lower than what was reported by Jain et al. (2007) at the Maple Ridge Wind facility in New York where mortality ranged from 3.44 to 3.82 birds per MW but higher than the levels reported by Jain et al. (2009) at three other wind facilities in New York where the range spanned 0.50 to 2.86 birds per MW. We agree with the suggestion in the Report that it is logical to delay any direct comparisons with mortality studies conducted at other wind farms until a full year/period of monitoring is complete.

Swallows and Martins:

The majority of avian mortality pertained to swallows and martins accounting for 38% of the mortalities. No apparent clustering of mortality at specific turbines could be attributed to these or any other species during the survey period.

Twenty eight actual mortalities involved Tree Swallow; the highest total for any species. However, as the Report notes, the estimated population size in Ontario is 400,000 individuals (p. 4.1). Given that these mortalities represent 0.00007 percent of this population; it is highly unlikely that they represent a significant population level effect. Of the 10,000 Tree Swallows that have been estimated to gather at Wolfe Island in late summer, the 28 mortalities represent 0.0028 percent of the total. It should be noted that the 28 mortalities are uncorrected, and the estimated number of Tree Swallows may be about six times higher (Table 3.4 in the Report shows that the 100 avian fatalities yielded a corrected estimate of 602 individuals). An approximate corrected estimate of 168 TRSW (28 x 6) is 0.00042 percent of the provincial estimate, and 0.017 percent of the staging population on the island. Even these numbers do not appear to represent population level threats.

Tree Swallows have declined in Ontario at significant annual rate of 2.8% from 1980 to 2007 (Sauer et al 2008). The mortality from a single site like Wolfe Island might not be having significant population level impacts. But cumulative impacts from many windfarms in Ontario and elsewhere across the species' breeding/staging range might do so. EC believes this issue bears continued monitoring in the years to come. However, Wolfe Island appears to be an especially important staging area for swallows, and the levels of mortality reported here may not be representative of windfarms elsewhere in the province where staging numbers are much lower.

Bobolinks:

Eight actual Bobolink fatalities were recorded over the reporting period. The Report concludes that this number of fatalities is likely insignificant at the population level (estimated at 800,000 individuals for the province, and between 1000-1500 individuals in the study area. EC believes that this conclusion is reasonable.

Raptors:

Twelve raptor/vulture mortalities were recorded over the reporting period that involved 6 Turkey Vultures, 3 Red-tailed Hawks, 2 American Kestrels, and 1 Merlin.

EC was interested in the fact the no Short-eared Owls were among the observed mortalities despite the fact that a number of individuals were on the island. As noted on page 3.8 of the Report, at least 15 individuals were observed within the project study area on December 22nd.

The resultant total raptor/vulture mortality for the reporting period is 0.15 raptors and vultures/turbine (0.07 raptors and vultures/MW). The raptor mortality estimate of 0.07 per MW, including vultures, is beginning to approach the maximum level – 0.09 – reported outside of the facility in Altamont, California (Arnett et al. 2007). The rate for Wolfe Island could increase once mortalities from the first half of 2011 are included.

This information will provide a better estimate of annual mortality levels as one complete year of data will be available.

Half of the fatalities during the reporting period were Turkey Vultures, a species that is increasing in abundance throughout northeastern North America (Peck 2007). If vultures are removed from the raptor total (technically, they're most closely related to storks), the raptor mortality estimate is 0.04. However, other studies have included vultures among their raptor casualties (e.g. Smallwood and Thelander 2008, Smallwood and Karas 2009) so a valid comparison of Wolfe Island's numbers should use the one that includes vultures (i.e., 0.07 raptors/MW). The current Wolfe Island estimate is the second highest raptor mortality rate we are aware of outside those published by Arnett et al. (2007). Raptors have been a primary concern at the Wolfe Island facility and their mortality merits continued, close monitoring in the future.

Searcher Efficiency:

Twenty bats were placed for each searcher to find as part of the metric to calculate searcher efficiency (p. 2.3). Many birds are bigger than bats and therefore easier to detect; the searcher efficiency variable is therefore a conservative estimate for calculating bird mortality.

Modification to Carcass Search Schedule

We agree with the recommended change to two treatments for the carcass searches with one consisting of half the turbines to be searched twice per week and the other group to be searched once per week. Turbines in each of these groups should be distributed evenly across the study area in representative habitat types.

Indirect Effects: Waterfowl

- Results of the inland foraging surveys (weekly surveys for 17 consecutive weeks in fall/early winter) indicate an increase in waterfowl abundance. As noted in the Report, this increase is largely attributable to higher Canada Goose numbers in the 2009 survey. The species composition in 2009 was similar to that of 2007 pre-construction surveys. Some fields used as primary feeding areas shifted between weeks during the reporting season, and between 2007 and 2009. Many factors might influence the shifts, such as the presence of turbines, type of crop, tilling history, and disturbance from hunting.

The Report (p. 4.3) notes that:

Although waterfowl were not observed directly adjacent to wind turbines (i.e., within 100m) during the post-construction monitoring, flocks were often foraging in the vicinity of (i.e., within 500m) and between strings of turbines.

This suggests that turbines may be having some limited disturbance impacts on feeding geese. But the fact that geese have increased on the island between pre and post-construction periods suggests there are ample foraging opportunities in fields >100 m from the turbines.

- No waterfowl fatalities were recorded during the reporting period. The Report notes that "waterfowl did appear to adjust their flight route to avoid flying in close proximity to turbines" (p. 4.3). Perhaps the same avoidance behaviour that keeps them from foraging immediately beneath the turbines also serves to reduce the risk of collision with turbines.
- Results of overland movement surveys (p. 3.6), based on 17 weekly surveys at the same locations as were used during pre-construction surveys in 2007 suggests that "...major movement routes were similar in 2007 and 2009."
- Aerial waterfowl surveys were conducted in association with EC's Canadian Wildlife Service (CWS). The same methods were used in CWS's 1999 waterfowl surveys, the 2008 pre-

construction surveys and the 2009 post-construction surveys (p. 2.7). The total waterfowl days were similar among the three years, with a 6% increase between 2008 and 2009 (p. 3.7)

Indirect Effects: Wintering Raptors

Lower numbers of raptors were found at Wolfe Island in 2009 compared to those reported during preconstruction surveys. The Report (p. 4.5) stated that "Differences in raptor density observed within the study area between 2006 and 2009 are reflective of observations throughout the Kingston area and across southern Ontario." Raptor numbers certainly appeared to be down significantly across the province in 2009; e.g. a March/2010 CWS survey in the Fisherville area, a well-known wintering raptor locale where no turbines currently occur, produced about 30% of the raptor total recorded in 2007 (L. Friesen, unpubl. data). Given the small numbers of winter raptors reported across southern Ontario in the winter 2009/2010, it is difficult to conclude that the Wolfe Island turbines could have been the primary cause of the decreased number of raptors in the area during the reporting period.

Appendices

The appendices to the Report are clear and well laid-out. Appendix E provides a good summary of mortality details. EC recommends that it be revised to include a graph that shows the distance of bird and bat mortalities from the turbine base.

Minor Items

We could not find a full reference to the literature Ross (1989) and Jain et al. (2009) that are cited in the Report and recommend that it be revised to include these missing items.

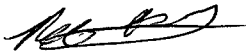
Wind Energy Bird and Bat Database

We encourage the proponent to submit the raw monitoring data that has been collected to the Wind Energy Bird and Bat Database that is available at: <http://www.bsc-eoc.org/birdmon/wind/main.jsp>. A description of the database and its purpose can be found on the website that has been established for the initiative.

Summary

Thank you for providing us with the second Wolfe Island Ecopower Centre post-construction monitoring report for review. Please let me know if you have any questions concerning the comments and recommendations we have provided in this letter. We look forward to the opportunity to review the next bi-annual monitoring report.

Sincerely,



Rob Read
Environmental Assessment Officer

cc: R. Dobos, Environment Canada
J. Fischer, Environment Canada
E. Cotnam, Ontario Ministry of Natural Resources
G. Perfect, TransAlta

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