3.0 Adaptive Management Program

The adaptive management program described in this section outlines mitigation measures that will be implemented should potentially significant unanticipated adverse environmental effects be observed, so that they do not become significant. Wind projects are a relatively new type of development in Ontario and the adaptive management measures set out below are meant to support the documentation submitted in the ERR.

An adaptive management program allows mitigation measures to be implemented in the event that unanticipated potentially significant adverse environmental effects are observed. Should a potentially significant adverse environmental effect be discovered during the post-construction monitoring program, the Parties will be notified by CREC during the survey period, prior to the completion of the surveys and reporting period. As circumstances permit, immediate mitigative action may be taken prior to contacting the Parties if it is deemed necessary by CREC. Responses to unanticipated adverse environmental effects through mitigation will be decided upon collectively by CREC, NRCan, EC, and the MNR per corresponding area of regulation.

The following sections identify potential management responses and mitigation measures available to the Project over the three year post-construction monitoring program or as otherwise may be reasonably extended or shortened as may be collectively decided by the parties.

3.1 BACKGROUND - NORTH AMERICAN MORTALITY EXPERIENCE

3.1.1 North American Wind Plants

Arnett et al (2007) reviewed avian fatality rates from 14 wind plants across North America with modern WTGs, where recent standardized mortality monitoring was conducted using a systematic survey process for a minimum of one year and incorporating scavenging and searcher efficiency bias corrections. The results of this evaluation indicated fatality rates ranged from 0.63 to 7.7 birds/WTG/year (0.95 to 11.67 birds/MW/year). The highest value was derived from a site with only three WTGs, thus comprising a very small sample size (Arnett et al. 2007; National Research Council 2007). The average annual fatality rate at two sites in eastern North America was 4.27 birds/WTG (2.96 birds/MW) (Arnett et al., 2007). Average annual fatality rates were slightly lower at three other regions in North America (e.g. 2.2 birds/WTG or 3.5 birds/MW) in the Upper Midwest which included wind farms in Wisconsin, Minnesota, and Iowa.

Annual raptor mortality estimates at newer wind energy facilities in North America but outside of California, ranged from 0 to 0.07 birds/WTG (0 to 0.09 birds/MW), with an average annual raptor fatality rate at 14 sites of 0.03 raptors/WTG (0.04 raptors/MW (Arnett et al. 2007; National Research Council 2007). By contrast, annual fatality rates for raptors at four older generation turbines in California were generally higher than for newer turbines and ranged from 0.01 to 1.0 raptors/MW.

At the Maple Ridge facility, located approximately 75 km southeast of the Wolfe Island Wind Plant, the annual avian mortality rate was estimated at 5.81 birds/MW (Jain et al. 2007). This rate, although above the North American mean, was well below the upper recorded rate, and occurred at a wind plant that has 195, 1.65 MW WTGs. Jain et al. (2007) concluded that such a rate, provided that it did not involve endangered or threatened species at risk, was not likely to lead to significant adverse effects on a population level, "even with respect to cumulative impacts of fatalities from many wind plants." Arnett et al (2007) similarly concluded that the fatality of passerines, which comprise the majority of collision victims at wind facilities, has been so low that it "is not significant at the population level."

Annual mortality levels at existing wind plants in southern Ontario have been low (approximately 2 birds/MW/year). This estimate is based on the following studies:

- R. 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).
- Stantec Consulting Ltd. (2008) estimated the 2007 annual mortality rate at the Melancthon 1 Wind Plant, based on 12 weeks of monitoring in spring and fall, was 1.4 birds/WTG (0.9 birds/MW).

Large-scale, multiple fatality events that occur in one night or one day, at the scale of those previously recorded at communications towers or high-rise buildings, have not been reported at wind facilities in North America. The two principal mortality events involve a total of 33 fatalities at three wind turbines on a single night in West Virginia, and a total of 14 fatalities at two turbines on a single night in Minnesota (Erickson et al. 2005).

Arnett et al (2007) reviewed bat fatality rates from 22 wind plants across North America with modern WTGs, where recent standardized mortality monitoring was conducted using a systematic survey process for a minimum of one year and incorporating scavenging and searcher efficiency bias corrections. The results of this evaluation indicated fatality rates ranged from 0.1 to 69.6 bats/WTG/year (0.3 to 53.3 bats/MW/year).

3.1.2 Ontario Wind Plants

As discussed above, results of post-construction studies from other sites in southern Ontario in recent years suggest that annual avian mortality is approximately 2 birds/MW. The sample size

of Ontario studies is still small, however, and results from additional areas such as Wolfe Island, conducted by different sets of observers, will help to confirm whether this pattern of low mortality is widespread. Pre-construction surveys indicate that large numbers of raptors migrate through the Wolfe Island Study Area (Northern Harriers in particular, which may have flight patterns similar to resident Short-eared Owls) and that large numbers of swallows congregate in late summer (swallows have been one of the most common casualties, albeit in relatively low number, at another wind facility in Ontario).

3.1.3 Other Sources of Collision Mortality

The following table has been extracted from Erickson (2005) in order to provide additional context around the limited effects of wind generation facilities when compared to other anthropogenic structures on annual avian mortality throughout the USA:

Type of Structure	Bird Deaths per Year
Power Lines	174 million
Buildings and Windows	98 million to 980 million
Vehicles	60 million to 80 million
Communication Towers	4 million to 50 million
Wind Turbine Generators	10,000 to 40,000

3.1.4 Other Sources of Mortality - House and Free-Roaming Cats

Additionally, BirdWatch Canada (2007), a publication of Bird Studies Canada, provides insight into the annual impact on birds from domestic cats. BirdWatch Canada (2007) cites a 1992 Virginia study that closely monitored five cats over a period of 11 months, counting confirmed kills for each cat. The study conservatively estimated that each domestic cat killed about 26 birds per year in urban areas, and about 83 birds per year in rural areas – representing over 26 million birds per year in Virginia alone.

In another example presented in the same article, a four-year study estimated that rural free-roaming cats kill at least 7.8 million and perhaps as many as 219 million birds per year in Wisconsin.

3.2 MORTALITY MONITORING – REPORTING, NOTIFICATIONS AND ADAPTIVE MANAGEMENT

All bird and bat mortality will be reported in biannual submissions. Mortality rate is usually expressed as the number of fatalities per WTG or per MW of nameplate generation capacity, each year. Because different WTG models have different generation capacities (typically ranging from 0.75 to 2.3 MW), fatalities per MW are often used in the published literature to allow a standardized comparison of mortality between sites. In the follow-up program reporting, and where possible in this document, mortality rates will be expressed both as birds/WTG/year and birds/MW/year. Mortality of priority species in Bird Conservation Region ("BCR") 13 and mortality of all species of conservation concern, such as raptors and declining grassland species, will be highlighted in the bi-annual post-construction monitoring reports.

Within the bi-annual report, projected annual avian mortality levels will be compared to levels reported at other wind power plants in North America (e.g., summarized in Arnett et al. 2007, National Research Council 2007). If the projected annual mortality levels are at the low or middle end of the reported scale, no immediate action is required. If projected mortality levels approach the higher reported levels, CREC will work with EC, MNR and DUC as necessary to implement additional reporting and/or monitoring activities as described in section 3.2.2 to further investigate why the mortality levels may be at the higher end of the reported scale, and as necessary, develop options for mitigation.

Should a potentially significant adverse environmental effect be discovered during the post-construction monitoring program, the Parties will be notified by CREC during the survey period, prior to the completion of the surveys and reporting period as described in the following section.

3.2.1 Thresholds for Notifications

As circumstances permit, immediate mitigative action may be taken prior to contacting the Parties if it is deemed necessary by CREC. The sections below describe when NRCan, EC, and MNR shall be immediately contacted.

3.2.1.1 Birds

Single Mortality Event - Birds

NRCan, EC and MNR will be immediately informed if 10 or more birds are found at any one WTG, or if 33 or more birds[4] (excluding raptors) are found at multiple WTGs during a single mortality monitoring survey. The distribution and species composition of the fatalities will be considered in determining whether actions are required. The Parties to this plan will be immediately contacted whenever any species at risk are involved (see Section 3.2.1.3).

Single Mortality Event – Raptors

NRCan, EC and MNR will be immediately informed if 2 or more raptors are found during a single mortality monitoring survey. The distribution and species composition of the fatalities will be considered in determining whether actions are required. The Parties to this Plan will be immediately contacted whenever any species at risk are involved (see Section 3.2.1.3).

High Annual Mortality Rates - Birds

NRCan, EC, and MNR will be immediately informed if the projected annual mortality level of all birds, including raptors, at Wolfe Island, derived from three consecutive weeks of surveys, is greater than or equal to 11.7 birds/MW[5]. In the context of the Wolfe Island Wind

[4] This number represents the largest observed single mortality event in North America, at the Mountaineer site (a wind plant half the size of the Wolfe Island Wind Plant) (Kerns and Kerlinger, 2004)
[5] 11.7 birds/MW is the highest rate of bird mortality recorded in North America, at the Buffalo Mountain facility in Tennessee (Arnett et al., 2007)

Plant, this means that NRCan, EC and MNR will be contacted if 65 bird fatalities[6] are noted over a consecutive three-week period. DUC will also be informed of any unexpected high weekly waterfowl mortality rates and consulted if the events involve a large proportion of waterfowl.

High Annual Mortality Rates - Raptors

NRCan, EC, and MNR will be immediately informed if the projected annual mortality rate at Wolfe Island, derived from six consecutive weeks of surveys, is greater than or equal to 0.09 raptors/MW[7]. In the context of the Wolfe Island Wind Plant, this means that NRCan, EC and MNR will be contacted if 2 raptor fatalities are noted over a six-week period.

3.2.1.2 Bats

Single Mortality Event

NRCan, the MNR, and EC will be immediately informed if there is any large-scale, multiple fatality event at an individual WTG or among a number of WTGs over a relatively short period of time (e.g., ≥84 bat fatalities per week[8])

High Annual Mortality Rates

NRCan, the MNR, and EC will be immediately informed if the projected annual mortality level of all bats, derived from three consecutive weeks of surveys, is greater than or equal to 20 bats/WTG[9], or high incidence of bat mortality such that projected annual mortality rate would approach significance levels according to MNR's *Guideline to Assist in the Review of Wind Power Proposals: Potential Impacts to Bats and Bat Habitats*. In the context of the Wolfe Island Wind Plant, this means that NRCan, EC and MNR will be contacted if 49 bat fatalities[10] are noted over a consecutive three-week period.

3.2.1.3 Species at Risk

Any and all mortality of species at risk (i.e., a species listed as Endangered, Threatened or Special Concern under Schedule 1 of the federal *Species at Risk Act* or a species listed on the Species at Risk in Ontario list as Extirpated, Endangered, Threatened, or Special Concern under the provincial *Endangered Species Act*, 2007) that occurs will be reported immediately to NRCan, EC and the MNR.

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[6] corrected for projected scavenger removal and searcher efficiency
[7] 0.09 raptors/MW is the highest rate of raptor mortality recorded In North America, outside California, at the Stateline, Oregon facility (Arnett et al., 2007)
[8] This number is representative of 20 bats/WTG/year, pro-rated for seasonal concentration. 20 bats/WTG/year is the highest documented Ontario mortality.
[9] 20 bats/WTG/year is the highest documented Ontario mortality
[10] corrected for projected scavenger removal and searcher efficiency

3.2.2 Adaptive Management

The following section describes the response that the Parties will undertake if one of the events requiring notification (section 3.2.1) occurs or if within the bi-annual report, projected annual avian mortality levels are at the high end of the scale compared to levels reported at other wind power plants in North America.

3.2.2.1 Birds

If, with due consideration of seasonal abundance and species composition, annual mortality levels are projected to exceed the thresholds noted above, NRCan, EC, and the MNR will be engaged to initiate an appropriate response plan, which may include some or all of the following (or alternate plan reasonably agreed to among the Parties[11]):

- initiation of research to identify those factors that are contributing to the high levels of mortality (e.g., weather conditions, time of year when bird density is particularly high).
- increasing survey frequency
- increasing reporting frequency to speed decision-making
- adding behavioural or movement surveys (depending on the species involved)

After exhausting reasonable efforts to determine the cause of mortality, as determined through discussions with the Parties, and if unanticipated potentially significant adverse environmental effects persist that cannot be mitigated by managing those factors, CREC is committed to implementing technically and economically feasible operational mitigation that includes blade feathering and, if necessary, shutdown of problematic WTGs. If required, this mitigation will be reasonably developed with NRCan and the Party or Parties responsible for the species.

Blade feathering consists of changing the pitch of the turbine blades such that the reduced aerodynamics preclude efficient operation of the WTG. This slows WTG rotation, while reducing energy output of the unit. This would be the approach taken to manage turbine operations at certain times of day, under certain meteorological conditions, or for short periods that may be considered to present high risk.

Turbine shutdown includes the temporary removal from service of a WTG for a set period of time, until the perceived period presenting risk has passed (e.g., the core migration period). The WTG will produce no electricity during the shutdown period.

Blade feathering will be the first operational control considered if unanticipated potentially significant adverse environmental effects remain after exhausting all the potential responses identified above. Should the unanticipated potentially significant adverse environmental effects remain after blade feathering, turbine shutdown will be considered for the duration of the period of risk (to be reasonably determined collectively by the Parties). Both blade feathering and

[11] An alternate plan maintains flexibility within the Plan to consider alternative response ideas that may arise over the course of the Plan (e.g., changes in technology).

turbine shutdown will be considered on a turbine-by-turbine basis, based on the results of the monitoring program.

Appropriate operational controls in response to a large mortality event will vary according to the species involved, behaviour implicated (e.g., migrating, foraging, etc.), and geographical extent of the observed mortality. Any operational controls will be reasonably determined collectively by the Parties on a case-by-case basis tailored to individual circumstances.

As technology develops, continuous remote monitoring and sensoring may be used as an integrated approach to controlling WTGs in the unlikely event of significant mortality (e.g., web reference: http://www.technologyreview.com/Energy/18167/). Such technology is currently in its infancy and requires further research and development, but as necessary CREC would consider the possibility of utilizing this type of technology when it is commercially viable, available, and demonstrated effective.

3.2.2.2 Bats

If, with due consideration of seasonal abundance and species composition, annual mortality levels are projected to exceed the thresholds noted in section 3.2.1.2, NRCan and the MNR will be engaged to initiate an appropriate response plan, which may include some or all of the following (or alternate plan reasonably agreed to among the Parties[12]):

- initiation of research to identify those factors that are contributing to the high levels of mortality (e.g., weather conditions, time of year when bat activity is particularly high).
- increasing survey frequency for decision support
- increasing reporting frequency to speed decision-making
- CREC may consider retrofitting problematic WTGs with ultrasonic deterrent devices or similar-purpose device. Such devices are being studied or developed by third parties, and CREC would consider the possibility of utilizing this type of technology when or if it is commercially viable, available, and demonstrated effective
- increase of rotor “cut-in” wind speed of specific WTGs, as bats are more active at lower wind speeds

After exhausting reasonable efforts to determine the cause of mortality, and if unanticipated potentially significant adverse environmental effects persist that cannot be mitigated by managing those factors, CREC is committed to exploring and developing an operational control protocol as per Section 3.2.2.1 above.

3.2.2.3 Species at Risk

Monitoring and immediate reporting of any and all mortality of species at risk (e.g., Short-eared Owl) will enable the MNR and EC and NRCan to track effects, if any, and determine if any

[12] An alternate plan maintains flexibility within the Plan to consider alternative response ideas that may arise over the course of the Plan (e.g., changes in technology).

additional study and/or mitigation is required. Should any species at risk mortality be recorded during the field surveys, NRCan, EC, and MNR will be immediately contacted to determine if additional actions are required. Such measures may include:

- initiation of research to identify those factors that are contributing to the mortality (e.g., weather conditions, time of year)
- increasing survey frequency
- increasing reporting frequency to speed decision-making
- adding behavioural or movement surveys (depending on the species involved)
- consultation with the appropriate agency or agencies to reasonably determine if operational control protocols as Section 3.2.2.1 are required.

3.3 DISTURBANCE TO WINTERING RAPTORS - NOTIFICATION AND ADAPTIVE MANAGEMENT

NRCan, MNR and EC shall be contacted in the event of:

Potentially significant decline of wintering raptors in large portions of the areas identified during the pre-construction baseline studies over a period of more than one month as compared to the pre-construction survey results.

Significant decline is considered to be a decrease in population to an extent that direct intervention may be required to halt further decline. Significance will be evaluated and considered at the site level. A potentially significant decline of wintering raptors will be defined by an absence of raptors in 50% or more of the areas observed to support raptors during pre-construction surveys.

Assuming there are no other external factors contributing to low numbers (e.g., a year at the low end of the vole population cycle, natural variation, etc.), potential responses include:

- *expand survey:* to adjacent areas (e.g., to determine if the effect on wintering raptors is localized). Results will be reviewed amongst the Parties to determine if the effect is localized.
- *mitigation banking:* building upon a successful approach applied in the United States of America, this strategy involves providing a financial contribution toward a mitigation bank or Environmental Non-Government Organization ("ENGO") specialized in habitat protection, restoration, and enhancement. The mitigation bank or ENGO would then utilize the contribution to manage an existing habitat site(s) with high wildlife value, restore degraded sites, or create new sites with desirable habitat features.

  One of the main advantages of this holistic approach is that the mitigation bank or ENGO can facilitate the employment of specialists with expertise in habitat

management, which greatly improves the chances of restoration / enhancement success. Additionally, the mitigation bank or ENGO can take on the long-term responsibility of managing and maintaining habitat and facilitate the restoration and protection of large parcels of land.

Any contribution to a mitigation bank or ENGO would be species / habitat specific to the avian fauna impacted by the wind plant.

- *land donation:* similar to mitigation banking, this strategy involves the contribution towards the purchase of an on-island or off-island land parcel by CREC for habitat protection or enhancement, and possibly a subsequent donation to an ENGO (or similar organization) with demonstrated expertise in habitat management. This would involve a specific tract of land, but unlike mitigation banking, there may not be the opportunity to aggregate resources across several third parties.

  Should this strategy ultimately be pursued, the focus of donation or land stewardship (e.g. conservation easements) shall be within the regional landscape. In identifying a potential land parcel(s), first consideration will be given based upon similar habitats for the species of interest. The size and location of the parcel(s) will be determined through discussion amongst the Parties. The contribution to an on-island land donation can be considered if suitable habitat is available and is considered by the Parties to be useful in mitigating the effect.

- *financial contribution:* from CREC to an independent, qualified third party to further expand the knowledge base related to raptor conservation. For example, the Migration Research Foundation is undertaking a long-term research program to address conservation concerns regarding the Short-eared Owl, including toxicology, habitat management, site fidelity, and dispersal/migration patterns. This knowledge could be further developed and/or utilized by agencies and/or ENGOs to provide information for future renewable energy projects. An Ontario-based academic institution may also be considered as the potential beneficiary of a financial contribution.

3.4 DISTURBANCE TO STAGING WATERFOWL - NOTIFICATION AND ADAPTIVE MANAGEMENT

NRCan, EC, and MNR shall be contacted in the event of:

A potentially significant decline in the total waterfowl use days of offshore staging and inland foraging waterfowl in previously used areas over a period of more than one month as compared to pre-construction survey results.

In this context, a potentially significant decline is a reduction in staging waterfowl of 30% or more compared to pre-construction survey results. Waterfowl guilds (i.e., geese, dabblers, sea ducks, and bay ducks) will be considered individually.

Assuming there are no other external factors contributing to low numbers (e.g., early freeze in staging bays, large scale crop changes in foraging areas, other development, natural variation, etc.), potential responses are indicated below. The results of waterfowl monitoring, will be reviewed collectively as to the effect of external factors on the monitoring results.

- for offshore staging waterfowl, expanding survey to adjacent areas (e.g., to determine if the effect on waterfowl is localized)
- for inland foraging waterfowl, initiating a study to determine the relative effect of turbines and other independent factors
- for inland foraging waterfowl, mitigation banking or land donation may be considered (Section 3.3). Primary funding consideration would be intended for restoration, enhancement, and management of waterfowl habitat locally (e.g., DUC)
- a financial contribution from CREC to an independent, qualified third party (e.g. university) to further expand the knowledge base related to waterfowl conservation through research (e.g., to study the energetic consequences to birds of displacement from preferred habitats).

3.5 DISTURBANCE TO GRASSLAND BREEDING BIRDS REPORTING AND ADAPTIVE MANAGEMENT

Approximately 13% of grassland habitat in the study area lies within 300 m of a WTG. Strickland and Morrison (2008) concluded that "Displacement of grassland nesting birds is likely but the magnitude is uncertain and may range from near 0 to several 100 m for songbirds and even greater for other species (e.g. nesting effects may be much larger for prairie grouse)." Information from the 50 m distance band studies (Section 2.2.5) will be used to estimate the percentage of grassland habitat that has been subjected to a significant displacement effect.

The Parties will collectively review the results of the post-construction monitoring to determine if an ecologically significant displacement effect to grassland breeding birds is occurring, and whether such effect is attributed to the WTGs and access roads and not external factors. Discussions will determine whether mitigation is required to replace the habitat lost through displacement, and could include, for example:

- expanding survey to adjacent areas (e.g., to determine if the effect on grassland birds is localized)
- mitigation banking, land donation, or conservation easements may be considered as referenced above
- a reasonable financial contribution from CREC to an independent, qualified third party (e.g., university) to further expand the knowledge base related to grassland bird conservation through research
- promotion of land-use control (e.g., managing land-use effects on grassland birds). It is noted that CREC has Licence and Option to Lease Agreements with landowners participating in the Project, however, CREC has no such agreements with non-

participating landowners. Recognizing the lands are privately held and controlled by the landowners, CREC can solicit and promote voluntary land-use controls around the WTGs from the participating landowners. It may also be possible for CREC to solicit land-use control with non-participating properties

For example, with landowner understanding, agreement, and participation, it is possible to modify land-use (e.g., crop type) or cropping practices (e.g., delaying hay cutting) around a specific WTGs and/or on properties without WTGs. While participation would be voluntary, it is recognized, at least with participating landowners, that some form of negotiated payment by CREC to the landowner would be required to compensate for lost agricultural revenue.

3.6 DISTURBANCE TO WETLAND BREEDING BIRDS AND WATERFOWL REPORTING AND ADAPTIVE MANAGEMENT

The Parties will collectively review the result of the post-construction monitoring to determine if an ecologically significant displacement effect to wetland breeding birds and waterfowl is occurring, and that such effect is attributed to the WTGs and not external factors. Discussions will determine whether mitigation is required to replace the habitat lost through displacement, and could include, for example:

Assuming there are no other external factors contributing to low numbers (e.g., low water levels, other development, natural variation, etc.), potential responses include:

- expanding survey to adjacent areas (e.g., to determine if the effect on wetland breeding birds is localized).
- mitigation banking or land donation may be considered as referenced in Section 3.3.
- a reasonable financial contribution from CREC to an independent, qualified third party (e.g., university) to further expand the knowledge base related to wetland bird conservation through research.

4.0 Information Sharing

4.1 THE PLAN

This Plan is posted on CREC's Wolfe Island Wind Plant website at www.wolfeislandwind.com for stakeholder information. Hard copies of the final Plan are also available at the Township office on Wolfe Island and at the public library on Wolfe Island.

Written notification that the final Plan is available was provided to all stakeholders on the mailing list compiled during the environmental screening process.

It is also noted that a draft of the Plan was made available for stakeholder review and comment from November 26, 2008 to January 16, 2009. The comments received were considered by the Parties and the draft Plan was revised as appropriate to produce this final Plan. A summary of stakeholder comments received on the draft Plan and how they were addressed can also be found on the Project's website and the two locations noted above.

4.2 BI-ANNUAL REPORTS

As noted in section 2.4, bi-annual post-construction monitoring reports will summarize and analyze the results of all bird and bat survey types. These reports will also note whether any notifications, as required in section 3, were provided, and if so will summarize the actions taken following the notification. Each report will be submitted to NRCan, EC and the MNR within three months of the bi-annual dates of June and December. Personnel at EC and/or the MNR will conduct reviews of the post-construction monitoring report(s) and report back to NRCan within three months of receipt of the reports. DUC will be circulated the bi-annual monitoring reports for review and comment.

Comments submitted by the public to the Project website on the avian and bat observation form will be summarized and presented in an appendix to the final bi-annual monitoring reports.

The final version of all bi-annual monitoring reports, along with EC's and MNR's comments on the final bi-annual monitoring reports shall be posted on the Project's website for stakeholder review. Hard copies of these documents will also be made available at the Township office on Wolfe Island and at the public library on Wolfe Island.

In accordance with the Ontario Municipal Board Hearing, CREC will also be continuing to hold Community Liaison Group meetings twice per year over the course of wind plant operations. These public meetings will provide an appropriate forum for community discussion regarding the bi-annual monitoring reports as necessary.

4.3 ADAPTIVE MANAGEMENT STRATEGIES

In the event that a specific adaptive management strategy, as discussed in sections 3.3, 3.4, 3.5, and 3.6 of this Plan, is deemed necessary by the Parties to prevent an unanticipated potentially significant adverse environmental effect from becoming significant, details of the strategy, as developed among the Parties, will be posted on the Project website for stakeholder information. Hard copies of the adaptive management strategies will also be made available at the Township office on Wolfe Island and at the public library on Wolfe Island.

4.4 BIRD STUDIES CANADA DATABASE

The final version of the bi-annual monitoring reports will be submitted to the joint Canadian Wildlife Service – Canadian Wind Energy Association – Bird Studies Canada – Ontario Ministry of Natural Resources Wind Power and Birds Monitoring Database. Access to the data will be restricted to agency staff and authorized agents, as determined by the database steering committee. This database will be used to assess the potential effects of future wind farm proposals.

5.0 Project Resources

5.1 LENGTH OF PROGRAM

Any of the elements of the post-construction monitoring program described in Section 2 may be extended, altered or added to if unanticipated potentially significant adverse environmental effects related to mortality or disturbance are confirmed and additional study deemed necessary by the Parties.

Each element of the post-construction monitoring program will be considered independently, and will also be reviewed as a whole, which includes cross-analysis of survey results. Nevertheless, extension of one survey type to an additional year does not imply the entire program will be extended. In other cases, where either mortality or disturbance is low, the program may be shortened or revised accordingly in these select areas.

This Plan will be implemented in its entirety once the Wolfe Island Wind Project has achieved commercial operations. The commercial operations date is targeted for the end of June 2009. The WTG commissioning schedule is such that new WTGs will come on-line gradually throughout May and June, 2009.

Bird and bat mortality monitoring will be conducted at each turbine once it becomes operational throughout the commissioning process. Once the wind project has reached commercial operations, mortality monitoring will be conducted according to the frequency and methods discussed in section 2.2 of this Plan.

Surveys designed to assess disturbance effects to birds from operating WTGs as described in section 2.2 of this Plan will commence in the fall of 2009 since the Wolfe Island Wind Project will begin commercial operation at the end of June 2009. The schedule for commencement of each survey type is summarized below.

Winter Raptor Use Surveys	Winter 2009
Aerial Waterfowl Surveys	Fall 2009[13]
Grassland Point Counts and Area Searches	June 2010
Waterfowl Pairs Surveys	May 2010
Wetland Point Counts and Area Searches	June 2010
Inland Waterfowl Foraging Surveys	Fall 2009
Woodland Point Counts and Area Searches	June 2010

13 It is noted that Spring 2009 aerial staging waterfowl surveys described in the background of section 2.2.4 of this Plan are also being conducted, but are to be considered as pre-construction surveys.

Should any unanticipated potentially significant adverse environmental effects be incidentally observed once the post-construction monitoring program is complete, NRCan, EC, and the MNR shall continue to be notified.

5.2 CORPORATE CAPACITY

CREC is a wholly owned subsidiary of Canadian Hydro. Canadian Hydro, a publicly traded company (TSX:KHD), is the owner and operator of Canada's oldest wind plant (1993) – Cowley Ridge, Alberta. Canadian Hydro is also the owner and operator of Canada's second oldest wind plant (1998) – Le Nordais, Quebec.

At the time of Plan drafting, Canadian Hydro owned and operated 20 renewable energy facilities in Ontario, Quebec, Alberta, and British Columbia. Approximately 80% of the electricity sold by Canadian Hydro is under long-term contract with provincial governments; providing economic stability to the company.

At the time of Plan drafting, Canadian Hydro has an enterprise value of approximately $1.4 billion, with a BBB Dominion Bond Rating Service investment grade credit rating. As such CREC, through Canadian Hydro, has the corporate capacity to implement the post-construction monitoring program and adaptive management strategies identified herein.

6.0 References

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ATTACHMENT A: Letter of Commitment – CREC to the Ontario Ministry of the Environment

Canadian Renewable Energy Corporation
A Wholly Owned Subsidiary of Canadian Hydro Developers, Inc.

SENT BY EMAIL:
Heather.Brown1@ontario.ca

14 March 2008

Ontario Ministry of the Environment
Environmental Assessment and Approvals Branch
Project Coordination Section
2 St. Clair Avenue West
Toronto, ONT
M4V 1L5

Attention: Heather Brown, Special Project Officer

Dear Ms. Brown,

RE: Letter of Commitment
Post-Construction Follow-Up Plan & Related Items
Wolfe Island Wind Project

Building upon the comprehensive Environmental Review Report ("ERR") for the above captioned renewable energy project, this letter sets out several commitments that Canadian Renewable Energy Corporation ("CREC") is making in addition to other activities and commitments already made as part of the project's Environmental Screening Process ("ESP"). Specifically, CREC agrees to:

- continue to work with Environment Canada / Canadian Wildlife Service ("EC") and the Ontario Ministry of Natural Resources ("MNR") to finalize the Post-Construction Follow-up Plan ("PCFP") subsequent to the completion of the ESP
- apply reasonable commercial efforts to finalize the PCFP[1] prior to commercial operation of the wind plant
- post the final version of the PCFP on the project website
- post the final version of monitoring reports that come from the PCFP on the project website
- carry out its obligations under the PCFP using reasonable commercial efforts.

CREC makes the above commitments with the understanding that they form part of the project's ESP and as such are enforceable under Ontario Regulation 116/01 and its governing act, the *Environmental Assessment Act*. The commitments also serve to increase the transparency of this unique project.

[1] The PCFP will be determined as final once all parties, acting reasonably, are satisfied with the plan as documented through acknowledgement letters (or similar).

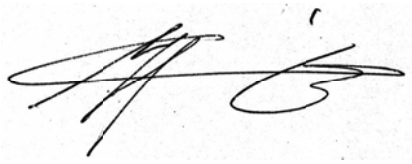
CREC notes that it has agreed to enter into the PCFP for this specific project due to several unique factors and considerations, the combination of which are distinct to this particular project, and include among others:

- the project is sited on an island with an Important Bird Area designation due to the presence of globally and continentally significant congregatory species and for continentally significant migratory waterfowl concentrations
- Species at Risk are present
- the potential effects of the wind plant have been carefully considered and examined in the ERR and are generally mitigable through well established practices, procedures, and measures as set out in ERR Section 7. Nevertheless, the commitments contained in this letter and the PCFP are meant to further minimize potential effects on bird and bat resources should any significant unanticipated adverse effects be encountered during initial operation activities. These commitments are made in recognition of the unique environment in which the project is situated.

With the above commitments in hand, coupled with the extensive work previously completed as part of the ESP, we look forward to receipt of the Director's Decision on this important renewable energy initiative on or before 27 March 2008, which coincides with the end of the Director's 30-day decision period under the ESP. Should you have any additional questions or comments please feel free to contact either Rob Miller or myself.

Sincerely,

CANADIAN HYDRO DEVELOPERS, INC.



Geoff Carnegie
Manager, Ontario Projects

ec: Rob Read, Environment Canada
Katie Griffiths, Ministry of Natural Resources
Rob Nadolny, Stantec Consulting Ltd.