Mean flight direction through the Project area in the spring was generally northeast (44° ± 49°), but varied between nights.

The seasonal mean flight height of targets was 305 ± 1 meters (m; 1000 ft [']) above the radar site, and nightly flight heights ranged from 135 ± 31 m to 486 ± 85 m. Flight heights, when analyzed for the anticipated 150 m (492') height of the proposed turbines; indicate that the percentage of targets flying below turbine height ranged from 7 to 63 percent with a seasonal average of 30 percent.

These results are within the range of those recorded at other radar studies conducted at other proposed wind projects in the northeast. Of note, the spring average passage rate at the Project (223 ± 23 t/km/hr) is at the low end of the range of results from among other spring radar studies conducted at proposed wind projects on forested ridges in the east. Results from other projects range from 147 t/km/hr at the Stetson Wind Project in Washington County, Maine (Woodlot Alternatives, Inc. 2007b) to 1020 t/km/hr at the New Creek Wind Project in Grant County, WV (Stantec Consulting Services Inc. 2008c).

The spring average flight height (305 ± 1 m) is near the mid-range of average flight heights recorded at other radar studies conducted on forested ridges in the east, and is above the proposed turbine height (150 m). Comparative results range from 210 m at the Stetson Wind Project in Washington County, Maine (Woodlot Alternatives, Inc. 2007b) to 552 m at the Sheffield Wind Project in Caledonia County, VT (Woodlot Alternatives, Inc. 2006b). Both of these projects have been permitted and are now operational.

Fall Results

The overall passage rate for the entire fall survey period was 138 ± 9 targets per kilometer per hour (t/km/hr). Fall nightly passage rates varied from 4 ± 2 t/km/hr on October 1 to 538 ± 71 t/km/h on August 26. Individual hourly passage rates varied between nights and throughout the season, and ranged from 0 t/km/hr during various hours of various nights to 839 t/km/hr during the 2nd hour of August 26. For the entire season, mean passage rates increased rapidly between the 1st and 3rd hours after sunset, then gradually declined until sunrise.

Mean flight direction through the Project area in the fall was generally southwest (217° ± 56°), but varied between nights.

The fall seasonal mean flight height of targets was 203 ± 1 m (666') above the radar site. The average nightly flight height ranged from 147 ± 23 m on August 24 to 266 ± 45 m on September 9. The percent of targets observed flying below 150 m was 40 percent for the season and varied nightly from 25 percent (169 targets) on September 9 to 56 percent (74 targets) on August 18 (Figure 2-9). For the entire fall season, the mean hourly flight heights were lowest during 1st and 10th hour after sunset.

The fall average flight height (203 ± 1 m) is among the lowest average flight heights recorded among other fall radar studies conducted at proposed wind projects on forested ridges in the east. Comparative study results ranged from 287 m at the Sisk Wind Project in Franklin County, Maine (Stantec Consulting Services Inc. 2009) to 583 m at the Liberty Gap Wind Project in Pendleton County, West Virginia (Woodlot Alternatives, Inc. 2005). Of note, the recorded flight height at the proposed Project of 203 ± 1 m is still above the proposed turbine height (150 m) for the Project. The nightly average flight height was below the proposed turbine height on only one night (August 24) and at the proposed turbine height on only one night (October 1) out of a 30 night season. It should be noted, however, that passage rates on these nights were very low: 38 t/km/hr on August 24 and 4 t/km/hr on October 1.

The fall average passage rate at the Project (138 ± 9 t/km/hr) is at the low end of the range of results of other fall radar studies conducted at proposed wind projects on forested ridges in the east. Comparative study results range from 91 t/km/hr at the Sheffield Wind Project in Caledonia County, VT (Woodlot Alternatives, Inc. 2006b) to 811 t/km/hr at the New Creek Wind Project in Grant County, WV (Stantec Consulting Services Inc. 2008c).

5.1.4 Rare Raptor Nesting Survey

An assessment of rare raptor nesting within a 10-mile radius of the proposed Antrim Wind Energy Project was conducted in 2011, consistent with USFWS recommendations. The purpose of rare raptor nest surveys associated with the proposed Project was to determine the current status of bald eagle, golden eagle, and peregrine falcon breeding activity in the Project area and surrounding vicinity. Specific study objectives included:

- confirm presence or absence of bald eagle, golden eagle and peregrine falcon nesting activity at any known nest sites (current or historical) or suitable habitat within roughly a 10-mile radius of the proposed Project;
- monitor the proposed Project vicinity for bald eagle, golden eagle, or peregrine falcon activity that may indicate nesting at previously undocumented sites through incidental observations during other field surveys; and
- map (if found) bald eagle, golden eagle, or peregrine nest site locations within or adjacent to the proposed Project vicinity.

A desktop research exercise, including data inquiries, was conducted to ascertain the location of any historic nest locations or potential nesting habitats for the species being assessed. This exercise found that no territorial golden eagles have been documented during the breeding season in New Hampshire in nearly three decades. All of the State's historic golden eagle nesting sites are located in the White Mountains or in the Lake Umbagog region, all of which are considerably north of the proposed Project area. It was also found that the State's current peregrine falcon population occupies territories which occur mostly in the White Mountains. A few additional nests occur on cliffs in the far northern portion of the state, and one nest is located in an urban site (on a building) in the city of Manchester, in southern New Hampshire. All known peregrine falcon breeding sites in New Hampshire are on cliffs with the exception of the site in the City of Manchester. The closest known peregrine falcon nesting site relative to the proposed Antrim Wind Energy Project is the urban location in the City of Manchester; this location is over 25 miles away from the proposed Project. No high quality nesting habitat for golden eagles or peregrine falcons was identified within 10 miles of the proposed

Project. For these reasons, the potential for nesting establishment by golden eagles or peregrine falcons within 10 miles of the Project area was estimated to be extremely low. Conversely, it was determined that there are several areas of potential bald eagle breeding habitat within a 10 mile radius of the proposed Antrim Wind Energy Project. Given the recent success and expanding population of this species, establishment of nest sites (and breeding home ranges) within 10 miles of the Project area was deemed possible. Furthermore, data from the New Hampshire Audubon identified one historic bald eagle nest site within a 10-mile radius of the proposed Project. This nest site, located in an historic bald eagle territory on Nubanusit Lake in Nelson, NH, was occupied most recently in 2010. Based on the findings of this exercise, and associated consultation with the agencies, it was decided that the rare raptor nest survey for this area should focus on bald eagle nesting.

Pursuant to this consultation, on May 6, 2011, an aerial survey was conducted in an effort to identify and document bald eagle nesting activity within a 10-mile radius of the proposed Antrim Wind Energy Project.

During the aerial survey, two biologists (both experienced in conducting aerial avian and wildlife surveys) visually inspected the shoreline and islands of 34 lakes and ponds that were identified as having potential bald eagle breeding habitat (i.e. ponds greater than 35 acres in size) and which were located (at least partially) within a 10-mile radius of the proposed Project area. The survey was performed from a helicopter which flew as low and as slowly as possible. The survey was performed during favorable weather conditions, which consisted of calm to light winds and clear conditions with unlimited visibility.

During the survey, bald eagle nesting was confirmed at Nubanusit Lake. One adult bald eagle was observed sitting on a nest located on the north shore, on the far west end of the north arm of Nubanusit Lake. At least two chicks (in gray down) were also confirmed on the nest during the flight. This nest is located approximately 3.24 miles from proposed turbine #9, which is the closest proposed turbine associated with the Project.

Nubanusit Lake is a known historic bald eagle nesting territory which has been occupied for 15 years (1997-2011). Nesting was documented in 13 of these years. This 15-year-long occupation constitutes the second most persistent bald eagle territory documented within the State of New Hampshire since 1988 (a territory at Lake Umbagog has been occupied during 22 years of monitoring (New Hampshire Audubon 2010). The female at this territory was banded as a fledgling (in Massachusetts) in 1992 and has been confirmed present at Nubanusit Lake since 1999; in October of 2011, this female was found mortally injured at 19 ½ years of age (New Hampshire Audubon 2011). It is expected that a new female will occupy the matriarchal vacancy at Nubanusit Lake.

The Nubanusit Lake bald eagle territory is one of 22 occupied territories identified in New Hampshire as of 2010. The number of occupied bald eagle territories has been increasing in New Hampshire: the 22 occupied territories in 2010 represent a "record-high" as of that year, and a one-year increase of 10% compared to the previous high of 20 occupied territories documented in 2009. (New Hampshire Audubon 2010).

5.1.5 Eagle Use Survey

Based on the findings of the rare raptor nesting survey conducted in 2011 (which identified an active bald eagle nest approximately 3.24 miles from the nearest proposed Project turbine), USFWS requested additional eagle use data for the area of proposed development. This data will allow the USFWS to perform a qualitative prediction of potential risk to bald eagles as a result of Project development.

Eagle use data for the Project will be collected from mid-May through August, 2012. Based on the findings of observations made during this period, data collection may extend into the fall if deemed necessary. The eagle use survey will consist of two survey events per month over the course of the survey period. Each survey will entail approximately 6 hours of continuous observation generally spanning from late morning to mid-afternoon. Surveys will be performed from a vantage which allows a view of the majority of the area of proposed development. The primary vantage for eagle use surveys will be the same as that used during fall raptor migration surveys, on the southeast flank of Willard Mountain. Alternate viewing sites may be selected as appropriate. All data will be provided to the USFWS to inform the agency's bald eagle risk assessment.

5.2 Bat monitoring

5.2.1 Acoustic Monitoring

Passive acoustic bat surveys for the proposed Antrim Wind Energy Project were performed in 2011. The purpose of this passive acoustic bat echolocation monitoring survey was to sample and document bat activity patterns and species composition within the Project area during spring, summer and fall seasons, when bats are known to be active.

A total of six bat detectors were deployed in the Project area by April 15, 2011. Two detectors were deployed in the guy wires of an existing meteorological tower at the east end of the Tuttle range. The remaining four detectors were deployed throughout the Project area, suspended from trees along forested corridors and adjacent to wetlands where bats would likely travel or forage. The detectors were removed in late October, 2011.

Anabat II detectors (Titley Electronics Pty Ltd.) were used for data collection based upon their widespread use for this type of survey, their ability to be deployed for long periods of time, and their ability to detect a broad frequency range, which allows detection of all species of bats known to occur in New Hampshire. Detectors were programmed to begin monitoring at one half hour before sunset each night and end monitoring at one half hour after sunrise each morning.

All data collected was visually inspected to screen out bat calls, and each call file was qualitatively identified to guild and to species, when possible. This method of guild identification represents a conservative approach to bat call identification. Once all call files were identified and categorized in appropriate guilds, nightly tallies of detected calls were compiled to provide an index of bat activity. Detailed weather data as recorded by the meteorological tower on Tuttle Hill was obtained. These data were applied to describe bat activity levels in relation to site-specific weather variables that have been documented to affect rates of bat mortality at operational wind projects in the Northeast.

Spring Results

Spring acoustic bat surveys were conducted between April 7 and June 1, 2011. The six detectors recorded a total of 1,483 bat call sequences yielding an overall detection rate of 4.9 bat call sequences per detector-night.

Rate of detection varied among individual detectors (ranging from 5 sequences at the high detector on the met tower, to 760 sequences at a lower elevation, forested site). Detection rates also varied by night, ranging from 0.1 sequences per detector-night, to 14.1 sequences per detector-night. These types of variation are typical of this type of survey.

Bats within the *Myotis* genus comprised the greatest overall percentage of detected call sequences (32 %) recorded in the spring; however, most of these sequences were recorded at a single detector over only a few nights. The big brown bat/silver-haired bat guild was the second most commonly identified guild, comprising 31 percent of the total call sequences recorded. Most call sequences within this guild were identified as big brown bats or big brown/silver-haired bats, and only a small fraction were classified as silver-haired bats. Hoary bats comprised 12 percent of bat call sequences recorded; this species was recorded at all six detectors. The eastern red bat/tri-colored bat guild was the least commonly detected guild, comprising only 1 percent of the recorded call sequences. Twenty-four percent of call sequences were classified as "unknown" due to their relatively short length or quality.

Overall, spring 2011 acoustic bat surveys documented variable activity levels within the Project area, with May activity increasing relative to April's.

Summer/Fall Results

Summer/fall acoustic bat surveys were conducted between June 1 and October 23, 2011. The six detectors recorded a total of 35,450 bat call sequences yielding an overall detection rate of 52.4 bat call sequences per detector-night.

Among sampling locations, detection rates ranged from 2.6 to 126.2 bat call sequences per detector-night. Typical of this type of survey, activity levels varied considerably among nights within the survey period and among detectors. Bats within the big brown bat/silver-haired bat (BBSH) guild comprised the greatest overall percentage of detected call sequences (48%, n=17,006). The majority of BBSH calls were recorded at the low detector positioned on the met tower. The eastern red bat/tri-colored bat guild comprised 15 percent of the recorded call sequences. The Myotis guild comprised 12 percent and the hoary bat guild comprised 5 percent of the recorded call sequences. Twenty of the call sequences were classified as "unknown" due to their relatively short length or quality.

Of note, hoary bats were detected at five of the six detectors during the summer/fall study period, and species belonging to the *Myotis* guild and the eastern red bat/tri-colored bat guild were recorded by all six detectors.

Overall, summer/fall 2011 acoustic bat surveys documented variable activity levels within the Project area, although results suggest that activity was highest in July and August.

5.2.2 *Bat Mist Netting Survey*

A bat mist netting survey was conducted for the proposed Project in the summer of 2011, subsequent to a consultation with the NHDFG and the USFWS on June 21, 2011 to agree upon protocol for a mist net survey at the proposed Project. The primary objective of this summer survey was to document the potential presence of the eight bat species known to occur in the region.

Since there currently is no prescribed protocol for each bat species known to occur in New Hampshire, the federal Indiana Bat Survey Protocol was followed. (USFWS 2007). The bat mist net survey was conducted at four survey sites, as agreed upon during consultation with the agencies. Two of these sites were located at the south end of the proposed area of Project development, on or near Willard Mountain; one site was located in a wetland near the center of the proposed Project area; and one site was located near the existing meteorological tower on Tuttle Hill, at the northeast end of the proposed Project area. There were no suitable mist net sites on the immediate summits of Tuttle Hill or Willard Mountain, so sites were placed slightly off the peaks where better canopy closure provided more suitable mist net set locations.

The location of mist net sites was based on habitat features that may be selected by foraging little brown and northern long-eared bats, as well as eastern small-footed bats. Good-quality bat capture sites were sought; such sites are located in potential travel corridors such as forest roads, trails, streams, or other linear corridors that serve to funnel traveling bats into mist nets.

Mist net surveys were conducted on eight survey nights, which commenced on July 12, 2011 and were completed on July 28, 2011. During each sampling event, two mist net sets were erected over trails, roads, or across forest gaps. Each mist net set contained three vertically-stacked nets.

One bat was captured during 41 total survey hours among the four survey sites. This juvenile, male, big brown bat (Eptesicus fuscus), weighing 17.25 grams, was captured on

July 27, 2011 at the northeastern survey site (located downslope from the meteorological tower on Tuttle Hill). This bat was banded with NHFG band # 43152. No other bats were captured during the bat mist netting survey.

Low capture rates were not unexpected for this survey location. Mist net surveys can be biased toward those species that fly beneath the forest canopy such as North American *Myotis* species; as such, the relative abundance of expected captures is expected to trend toward *Myotis* species. In New England, high concentrations of *Myotis* species are generally expected at low elevations, where temperatures tend to be warmer and more stable than at higher elevations; however, *Myotis* bats are still expected to be present and active in lower concentrations at higher elevations such as ridge tops. For these reasons, it was expected that this study would result in the capture of at least some myotis bats. The capture of only one bat (which was not a *Myotis* species) was not the expected outcome of this effort. While not known definitely, the capture of only a single individual may be evidence of diminished populations of bats as a result of white-nose syndrome (WNS).

White-nose syndrome (WNS) is an emerging disease that has spread throughout the New England states in the past five years and has resulted in the unprecedented decline of all 6 bat species that hibernate in caves or mines in the northeast. *Myotis* species have been most affected by this disease. Of important note: the USFWS is currently performing a status review (USFWS 2011a) in response to a petition to list eastern small-footed (*Myotis leibii*) and northern long-eared (*Myotis septentrionalis*) bats as threatened or endangered, due to rapid and dramatic population decline caused by WNS.

5.3 Potential Project Impacts to Birds and Bats

Potential impacts to birds and bats during operation of the proposed Project include indirect and direct forms of impacts. Indirect impacts may include fragmentation, habitat loss, displacement, or increased energy demands through turbine avoidance during migration or foraging. Direct impacts include turbine-associated mortality through either collision or barotrauma.

Indirect impacts, particularly habitat impacts, have largely been addressed in the siting and design phases of the Project, as previously described. As previously noted, no species of habitat fragmentation concern is known to occur; this, coupled with the compact footprint of the Project on the landscape (10 turbines arranged on approximately 60 acres of development), minimizes impacts associated with fragmentation. Likewise, displacement and turbine avoidance issues are expected to be negligible, given the small area and overall footprint of the Project. For these reasons, this ABPP focuses on the direct impact of collision and barotrauma. Direct mortality impacts to birds and bats that may potentially be expected at the Project are discussed below.

It is important to note that in advance of the submittal of AWE's application to the SEC and the development of this ABPP, AWE has secured binding letters of intent with four landowners and the Harris Center for Conservation Education to enact local land conservation agreements which will protect approximately 685 acres of land adjacent to the proposed Project. This undeveloped land encompasses forest, wetlands and streams in the immediate vicinity of the Project. Conservation of this land will permanently preserve large tracts of valuable foraging and nesting/roosting habitat for bird and bat species as well as other wildlife species.

5.3.1 *Potential Impacts to Birds*

In the past, developers have conducted extensive pre-construction risk assessments to calculate expected mortality at their proposed facilities. Recent studies have shown, however, that there is little correlation between pre-construction risk assessments and actual documented mortality of avian species at wind farms (Ferrer et al. 2011, de Lucas et al. 2008, Sharp et al. 2011). As such, it is difficult to predict expected mortality rates at a proposed facility. In response to this trend, this ABPP is designed to allow AWE to work continuously with USFWS and NHFGD in order to adapt to actual results and unknown circumstances, so that unexpected events and changes over time may be addressed.

In general, avian mortality documented during post-construction studies at ten wind facilities in New England and New York is low, with a total of 528 avian fatalities (not corrected for searcher or removal biases) documented among all ten facilities. (Costa 2011). The majority of these fatalities were passerines (n=389). The range of fatality estimates for known wind farms studies in Maine and New Hampshire was reported at 0.44 to 5.95 birds per turbine per study period. (Costa 2011).

Large, episodic avian mortality events have been documented at certain wind projects as well as at tall communication towers, lighted buildings, and other structures. (Shire et al. 2000, Gehring et al. 2009, Avery 1979). In general, the majority of avian collision at existing wind projects tends to occur during spring and fall migration, and appears to involve nocturnally migrating songbirds. As such, impacts to nocturnal migrants tend to occur exclusively at night. Nocturnal avian mortality events have been correlated with inclement weather events and certain artificial lighting scenarios. Project lighting plans, as described in this ABPP, have been designed to minimize lighting-associated mortality events.

While most avian mortality at wind farms tends to be associated with nocturnally migrating songbirds, collisions are also known to occur during the breeding season. Risk of collision for breeding birds is expected to occur primarily during evening or morning courtship behavior, daytime foraging and territory establishment, and during initial flying by juvenile birds.

Pre-construction avian studies for the Project generally found avian assemblage and use to be comparable to that of similar (in terms of topography and habitat) areas in New Hampshire and New England. Based on observations at operational wind projects in the region, bird collisions at the Antrim Wind Energy Project are expected to occur at a low frequency. Impacts are not expected to occur at a degree which would adversely affect populations.

Of note, an active bald eagle's nest was documented in 2011, approximately 3.24 miles to the southwest of proposed turbine #9, on Willard Mountain. However, a recent study shows that bald eagles exhibit a high rate of avoidance of operational wind turbines (Sharp et al. 2011). In fact, no bald eagle mortalities have been documented at wind farms in New England to date. Therefore, it is expected that any bald eagles in the Project's vicinity are likely to successfully avoid contact with turbines.

5.3.2 Potential Impacts to Bats

As previously discussed, of eight species of bats expected to occur in the state of New Hampshire, one (the eastern small-footed bat) is state-listed as endangered, and five (eastern red bat, silver-haired bat, hoary bat, northern long-eared bat, and tri-colored bat) are state species of special concern.

Furthermore, the USFWS is currently performing a status review (USFWS 2011a) in response to a petition to list two bat species (eastern small-footed and northern long-eared) as threatened or endangered, due to rapid and dramatic population decline caused by White-nose Syndrome (WNS). White-nose syndrome is an emerging disease that has spread throughout the New England states in the past five years and has resulted in the unprecedented decline of all 6 bat species that hibernate in caves or mines in the northeast. *Myotis* species have been most affected by this disease.

The total bat fatality recorded among 14 total study seasons (between 2006 and 2010) of post-construction studies at 10 wind farms in New England and New York was 1114 (not corrected for searcher or removal biases). The majority of these fatalities appear to have been recorded in New York, where the number of bat fatalities ranged from 0.7 to 40.4 bats per turbine per study period; in Maine and New Hampshire, the number of bat fatalities recorded ranged from 0.17 to 5.51 bats per turbine per study period. (Costa 2011).

Long distance migratory bat species are thought to be the most vulnerable to collision mortality at wind projects in general based on results of mortality surveys at operational projects. (Costa 2011). Long-distance migratory bats that are expected to occur within range of the Project include the eastern red bat, silver-haired bat and hoary bat. Although the majority of documented bat fatalities at existing wind projects is related to long-distance migratory species, some mortality among resident bat species is also associated with the spring and fall migration periods, and during the summer pup rearing period.

Bat fatalities at wind farms are also known to be affected by other factors, such as weather variables. It has been shown that most bat fatalities tend to occur during low wind speeds over relatively short periods of time. (Arnett et al. 2008). Operational measures which curtail turbine cut-in at low wind speeds between dusk and dawn have been shown to reduce bat mortality at some wind farms. Baerwald, et al. (2009) found that curtailment of turbines at low wind speeds reduced bat fatalities by between 57% and 60%. Studies performed at the Casselman Wind Project in Pennsylvania found that curtailment reduced bat fatalities at individual turbines at rates from 44% to 93%. (Arnett et al. 2010). Arnett et al. (2010) concluded that curtailing operations offers an effective mitigation strategy for reducing bat fatalities at wind energy facilities. For this reason, this ABPP proposes a study to assess an operational curtailment strategy to minimize bat fatality at the Project, should actual fatalities materialize and mitigation is deemed appropriate. This proposed study is described in detail in Section 8.

Based on the accumulated knowledge of bat mortality at wind farms in New England, mortality at the Project is expected to be low. In light of the WNS epidemic, however, the level of biologically significant mortality may change and therefore will be addressed during the adaptive management process as implemented by this ABPP.

5.3.3 *Cumulative Impacts and Net Benefit*

According to the USFWS Land-Based Wind Energy Guidelines (USFWS 2012), "Cumulative impacts are the comprehensive effect on the environment that results from the incremental impact of a project when added to other past, present, and reasonably foreseeable future actions." Based on the results of Tier 1, 2, and 3 assessments to date, Project impacts to birds and bats are expected to be low. Meanwhile, the Project has the potential to provide numerous benefits to anthropogenic and natural communities, including birds and bats. This balance is expected to result in an overall net benefit to these communities. Some of the Project's specific benefits are described in the following paragraphs.

AWE is providing for the permanent conservation of 685 acres of undeveloped forest land immediately adjacent to the Project area. This significant conservation amenity represents a contribution to preserving important wildlife habitat in the area, and will help sustain local wildlife populations. It also represents a direct benefit to local bird and bat species which rely on undeveloped forested areas for foraging, nesting and roosting. Further information with regard to this conservation area is provided in Section 8.1 of this ABPP.

Furthermore, the Project represents a new source of clean, renewable energy that will displace output from fossil fuel generation plants, which produce environmental pollutants that negatively affect regional air and water quality. AWE commissioned Resource Systems Group, Inc. to perform a study to evaluate air pollutants that will be avoided or displaced as a result of operation of the proposed Project. The study found that there are significant avoided air emissions that may be expected to result from the operation of the proposed Project. Among these displaced emissions are over 59,000 tons of carbon dioxide, and an additional 150 tons of sulfur dioxide, nitrogen oxides, particulate matter and other toxins on average each year. The Project is also expected to save approximately 17,500,000 gallons of fresh water each year due to the displacement of fossil fuel energy sources that use water for cooling or creating steam to power turbines.

There are specific environmental benefits to these reductions in emissions. For example, a reduction in nitrogen oxide emissions can contribute to reducing the occurrence of high ozone days in New England and eastern Canada. Reductions in sulfur dioxide emissions can reduce the impact of acid precipitation on regional forests and lakes. The expected reduction in carbon dioxide emissions represents a significant reduction in the production of greenhouse gases. Collectively, these expected reductions in the production of toxic air emissions support AWE's position that the proposed Project will provide net benefit (or a positive net impact) in terms of air quality. In turn, improved air quality will positively affect the physical environment and its fauna, including birds and bats.

In summary, direct losses of individual birds and bats as a result of Project operations are expected to be low, and are not expected to impose population level impacts; however, bird and bat populations as a whole are expected to benefit from diminished toxic air emissions. The enhancements to air and water quality discussed above, together with the conservation amenity, will constitute a net benefit to the environment and the species which depend on it, including birds and bats.