

**FINAL ENVIRONMENTAL IMPACT STATEMENT**  
**FOR THE**  
**Roaring Brook Wind Power Project**  
**Town of Martinsburg, Lewis County, New York**

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**COMMONLY USED ACRONYMS AND ABBREVIATIONS**

BBA	Breeding Bird Atlas (New York State)
BMP	Best Management Practice
Corps	U.S. Army Corps of Engineers
dBA	decibels, A-rated
DEIS	Draft Environmental Impact Statement
EAF	Environmental Assessment Form
EDR	Environmental Design & Research, Landscape Architecture, Planning, Environmental Services, Engineering and Surveying, P.C. (EDR)
FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
GIS	geographic information system
kV	kilovolt
kW	kilowatt
MW	megawatt
NYISO	New York Independent Service Operator
NYCRR	Official Compilation of Codes, Rules, and Regulations of the State of New York
NYS	New York State
NYSA&M	New York State Department of Agriculture and Markets
NYSDEC	New York State Department of Environmental Conservation
NYSERDA	New York State Energy Research and Development Authority
O&M	Operations and Maintenance
PILOT	payment in lieu of tax
SDEIS	Supplemental Draft Environmental Impact Statement
SEQRA	State Environmental Quality Review Act
SPDES	State Pollutant Discharge Elimination System
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey

## 1.0 INTRODUCTION

This Final Environmental Impact Statement (FEIS) for the Roaring Brook Wind Power Project (the Project) is prepared pursuant to the New York State Environmental Quality Review Act (SEQRA) and its implementing regulations, 6 NYCRR Part 617. This document is preceded by a Draft Environmental Impact Statement (DEIS) and a Supplement to the Draft Environmental Impact Statement (SDEIS), both of which are incorporated herein by reference. The SDEIS built upon the DEIS, providing additional information and addressing changes to the Project that occurred after the DEIS was accepted as complete and released for public comment. Since the release of the SDEIS, there have been no changes to the proposed Project, therefore the Project remains a 39 turbine/78 megawatt (MW) commercial wind power project, as described in the SDEIS. This FEIS provides responses to substantive comments received on the DEIS and SDEIS. Information presented in the SDEIS in terms of the project layout, existing conditions, and associated impacts supercedes that presented in the DEIS, and information presented in the FEIS supercedes both the DEIS and the SDEIS. However, the SDEIS and FEIS do not, in general, reiterate information that remains accurate and unchanged from the DEIS. These three documents together provide a comprehensive analysis of the potential environmental impacts of the proposed Roaring Brook Wind Power Project.

### 1.1 SUMMARY OF SEQRA PROCESS

On November 16, 2007 a Full Environmental Assessment Form (EAF) addressing the proposed Roaring Brook Wind Power Project was submitted to the Town of Martinsburg Planning Board by Atlantic Wind, LLC, a wholly owned for-profit subsidiary of Iberdrola Renewables (formerly PPM Energy). The submittal of the site plan review application initiated the SEQRA process for the subject action. On December 5, 2007, the Martinsburg Planning Board forwarded a solicitation of Lead Agency status to involved SEQRA agencies, along with a copy of the EAF document. No agency objected to the Town Planning Board assuming the role of Lead Agency. On January 10, 2008, the Town of Martinsburg Planning Board, as Lead Agency, issued a Positive Declaration, requiring the preparation of the DEIS, which was accepted as complete by the Lead Agency on February 7, 2008. Copies of the DEIS were subsequently delivered to the involved/interested agencies listed in Table 3 of the DEIS and posted to a publicly accessible website managed by Iberdrola Renewables (formerly PPM Energy) [<http://www.iberdrolarenewables.us/roaringbrook.html>] (formerly <http://www.ppmenergy.com/roaringbrook.html>). Opportunities for public review and agency comment were provided during the DEIS public comment period (February 7 – April 7, 2008). A public hearing was conducted by the Lead Agency at the Martinsburg Town Hall on March 6, 2008.

In order to address changes made to the project layout, present further support studies, and to provide additional detail to the public regarding the proposed Project, a Supplement to the Draft Environmental Impact Statement (SDEIS) was prepared. The SDEIS was accepted by the Lead Agency on January 7, 2009 and a Notice of Completion and Notice of Public Comment Period were subsequently filed. Copies of the SDEIS were subsequently delivered to the involved/interested agencies listed in Table 3 of the DEIS and posted to a publicly accessible website managed by Iberdrola Renewables (formerly PPM Energy) [<http://www.iberdrolarenewables.us/roaringbrook.html>] (formerly [www.ppmenergy.com/roaringbrook.html](http://www.ppmenergy.com/roaringbrook.html)). Comments from interested agencies and the public were accepted from January 7, 2009 through March 18, 2009.

Following closure of the public comment period, this FEIS was prepared and submitted to the Lead Agency. The FEIS includes a responsiveness summary (Section 4.0) to address all substantive comments received on the DEIS and the SDEIS during the public comment period.

The following are the next steps in the SEQRA process for the Roaring Brook Wind Power Project:

- FEIS accepted by Lead Agency (Town of Martinsburg Planning Board).
- Final notice of completion of FEIS issued by Lead Agency.
- Distribution of FEIS and a copy of the public notice to the agencies listed in Table 3 of the DEIS.
- 10-day minimum consideration period before issuing findings.
- Lead Agency issues Findings Statement, completing the SEQRA process.
- Involved agencies issue Findings Statements.

## 1.2 SUMMARY OF THE DEIS

At the time the DEIS was prepared, the Roaring Brook Wind Power Project was proposed to consist of 39 wind turbines, a meteorological tower, a system of gravel access roads, an electrical collection system, an operations and maintenance building (O&M facility), and a substation/point of interconnection facility. The wind turbine proposed was (and currently is) the Gamesa Eolica G90 with a rated capacity of 2.0 megawatts (MW), resulting in a generating capacity of 78 MW for the overall project. The Project was proposed to be developed on approximately 4,100 acres, comprised of multiple parcels with one landowner, in the Town of Martinsburg, Lewis County. Construction was anticipated to commence in the spring of 2009 and to finish in November 2009. The project was anticipated to employ approximately eight operations and maintenance personnel.

Various plans and support studies were prepared and included in the DEIS, which provided detailed information on discrete topical areas in furtherance of the SEQRA evaluation. These studies included the following:

- Phase IA Cultural Resources Investigation
- Historic Architectural Survey
- Transportation Route Evaluation
- Breeding Bird Survey
- Phase I Avian Risk Assessment
- Spring 2007 Visual Study of Nocturnal Bird and Bat Migration
- Fall 2007 Visual and Acoustic Study of Bird and Bat Migration
- Communication Interference Studies
- Visual Impact Assessment
- Noise Modeling and Analysis
- Wetland and Stream Surveys

In addition to providing a project description and summary of the regulatory process to date, the DEIS presented the purpose, need and benefit of the proposed Project (Section 2.2, pages 18-21), a discussion of potential environmental impacts and proposed mitigation measures (Section 4.0, pages 184-188), Project alternatives (Section 5.0, pages 189-200), and Project effects on the use and conservation of energy resources (Section 9.0, page 207). See the DEIS for a full discussion of these topics. A summary of the impacts and mitigation presented in the DEIS are given below.

### **Summary of Impacts and Mitigation**

DEIS Section 2.2 (pages 18-21) describes the Project purpose, need, and benefits. The proposed Project will result in positive impacts on socioeconomics (e.g., increased revenues to local municipalities and lease revenues to participating landowners), air quality (through reduction of emissions from fossil-fuel-burning power plants), and climate (reduction of greenhouse gases that contribute to global warming). By eliminating pollutants and greenhouse gases, the Project will also benefit ecological and water resources as well as human health. These benefits also serve to mitigate unavoidable adverse impacts associated with Project construction and operation.

Despite the anticipated positive effects of the Project, its construction and operation will necessarily result in certain unavoidable adverse impacts to the environment. As described in the DEIS (Section 4.0, page 184), the majority of the adverse environmental impacts associated with the Project will be

temporary, and will result from construction activities. Site preparation (e.g., clearing, grading), improvement of local roads, improvement of existing forest roads, installation of new roads, turbines, interconnects, a staging area, the O&M building, a meteorological tower, and the point of interconnection/collection station will have short-term and localized adverse impacts on the soil, water, agricultural, and ecological resources of the site. This construction will also have short-term impacts on the local transportation system, air quality, and noise levels. These impacts will largely result from the movement and operation of construction equipment and vehicles, which will occur during the anticipated seven-month construction period for the Project.

Long-term unavoidable impacts associated with operation and maintenance of the Project include a loss of successional forestland, wildlife habitat changes, some level of avian and/or bat mortality associated with bird/bat collisions with the turbines, and turbine visibility from a few locations within the town (and immediately adjacent towns). The presence of the turbines will result in some change in perceived land use from some areas, but in many areas will simply appear as an extension of the existing Maple Ridge Wind Farm. The Project also may function to keep land within the Project site in rural forestland condition, thus protecting open space and existing land use patterns (Section 4.0, page 184).

Various measures described in the DEIS are intended to avoid, minimize and/or mitigate potential environmental impacts. General mitigation measures will include adhering to requirements of various local, state, and federal ordinances and regulations. The Project Sponsor will utilize an environmental monitor to assure compliance with permit requirements and environmental protection commitments during construction. Other specific measures designed to mitigate or avoid potential adverse environmental impacts during Project construction or operation, which were outlined in the DEIS (Section 4.1, pages 186-187), include:

- Siting the Project away from population centers and areas of residential development.
- Siting turbines in compliance with all local set-back requirements to minimize noise, shadow flicker, and public safety concerns.
- Following NYSA&M Agricultural Protection Guidelines for potential impacts associated with the electrical interconnection line.
- In areas where steep slopes are traversed by the electrical interconnection line, the lines will be run overhead as opposed to underground to reduce soil disturbance in erosion-prone areas.

- Utilizing existing disturbed areas (existing forest road crossings) for stream and wetland crossings, to the maximum extent practicable.
- Using existing forest roads for turbine access whenever possible, to minimize impacts to soil, ecological, wetlands/streams, and forestland.
- Minimizing overhead electrical lines and designing any overhead electrical line in accordance with Avian Power Line Interaction Committee (APLIC) guidelines to minimize impacts on birds.
- Project design, engineering, and construction will be in compliance with various codes and industry standards to assure safety and reliability.
- Limiting turbine lighting to the minimum allowed by the FAA to reduce nighttime visual impacts, and following lighting guidelines to reduce the potential for bird collisions.
- Construction procedures will follow Best Management Practices for sediment and erosion control.
- Turbines will include grounding and automatic shutdown/braking capabilities to minimize public safety concerns.

### 1.3 SUMMARY OF THE SDEIS

The SDEIS addressed all Project modifications that occurred between the time the DEIS was prepared and the time the SDEIS was prepared (Section 2.1, pages 2-3). It also included new support studies that became available during that time frame. The SDEIS is a supplement to the DEIS, and in general did not reiterate information from the DEIS that remained accurate and unchanged. In addition, the SDEIS addressed several issues raised in the public/agency comments received on the DEIS, although it did not include a comprehensive responsiveness summary as is found in Section 4.0 of this FEIS.

The Project as described in the SDEIS still included 39 wind turbines, each with a generating capacity of 2.0 MW for a maximum generating capacity of up to 78 MW. However, subsequent to the publication of the DEIS, wind measurement data retrieved from on-site meteorological towers indicated a need to relocate certain turbines in the layout. This expanded the Project site and the area of land/landowners involved in the Project. Additionally, preliminary engineering on the generating site and further development of the proposed electrical interconnection route was completed. Therefore, the size of the Project area increased from approximately 4,100 acres to 5,280 acres of land covering 44 parcels with eight landowners. The larger Project area and revised/refined layout of Project components required revision of several support studies and re-evaluation of potential Project impacts.



Studies conducted in support of the SDEIS included the following:

- Preliminary Subsurface Investigation
- Geotechnical Evaluation
- Revised Wetland Delineation Report
- Breeding Bird Survey
- Spring 2008 Visual Study of Nocturnal Bird and Bat Migration
- Fall 2008 Visual and Acoustic Study of Bird and Bat Migration
- Supplemental Visual Impact Assessment
- Phase IB Archeological Survey
- Updated Noise Model Study
- Revised Route Evaluation Study
- Revised Licensed Microwave Search

In addition to providing an updated Project description and summary of the regulatory process to date, the SDEIS reviewed the purpose, need and benefit of the revised Project (Section 2.3, pages 4-5), updated potential environmental impacts, expanded discussion of proposed mitigation measures (Section 4.0, pages 76-81), revised analyses of Project alternatives (Section 5.0, pages 82-91), and reviewed discussion of Project effects on the use and conservation of energy resources (Section 9.0, page 96). See the SDEIS for a full discussion of these topics. A summary of the impacts and mitigation presented in the SDEIS is presented below.

### **Summary of Impacts and Mitigation**

As described in Section 4.0 of the SDEIS (page 77), the proposed Project will result in significant long-term economic benefit to participating landowners, as well as to the Town of Martinsburg, the local school districts, and Lewis County. When fully operational, the Project will provide 78 MW of electric power generation with no emissions of pollutants or greenhouse gases to the atmosphere. The development of the site is consistent with surrounding land uses and will help maintain the area in rural open space use. The majority of the adverse environmental impacts associated with the Project will be temporary, and will result from construction activities. As evaluated through site-specific expert analysis, which is presented in Section 3.0 of the DEIS and SDEIS, these impacts are not considered significant with appropriate mitigation, and are outweighed by the benefits of providing a source of clean, renewable energy and displacing some of the energy (and emitted pollutants) created by fossil fuel generators, which may result in significant environmental impacts.

Although adverse environmental impacts will occur, they will be minimized through the use of various general and site-specific avoidance and mitigation measures as described in Section 4.2 of the SDEIS, pages 77-82. With the incorporation of these mitigation measures, the Project is expected to result in positive, long-term overall impacts that will offset the adverse effects that cannot otherwise be avoided.

## 2.0 PROJECT CHANGES

### 2.1 CHANGES TO THE PROJECT LAYOUT

Since the release of the SDEIS, there have been no changes to the design/layout of the proposed Project. Therefore, the Project is as described in Section 2.2, pages 3-4 of the SDEIS.

### 2.2 ADDITIONAL INFORMATION

This section provides an overview of additional information that will further enable the Lead Agency to make the necessary findings under SEQRA.

#### 2.2.1 *Joint Application for Permit*

In December of 2008 (following the release of the SDEIS), the Project Sponsor submitted a Joint Application for Permit to the New York State Department of Environmental Conservation (NYSDEC) and the United States Army Corps of Engineers (the Corps) to request authorization to undertake project related activities that would affect wetlands as described in Section 3.2 of the SDEIS. The NYSDEC subsequently requested supplemental information/clarification of application materials, which were addressed in an application amendment submitted by the Project Sponsor in March of 2009. Materials provided in the amendment included clarified wetland and adjacent area impact drawings, along with minor adjustments to impact calculations. As a result of impact calculation adjustments, minor changes to the wetland impacts reported in the SDEIS have occurred and a revised summary of the anticipated wetland impacts is presented below. Upon receipt of the Joint Application for Permit Amendment, the NYSDEC issued a Notice of Complete Application on March 20<sup>th</sup>, 2009 (see agency correspondence in Appendix A) and initiated a 90-day technical review period.

#### Summary of Anticipated Wetland Impacts

Construction activities will result in a total of 79 individual crossings of streams/wetlands and disturbances to regulated adjacent areas. The total permanent impact (wetland loss) to wetlands/streams within the Project area is anticipated to be 0.42 acre, and primarily associated with the upgrade of existing access roads or the construction of new access roads. Additionally, upgrade of existing access roads, Flat Rock Road, and the construction of new roads will involve permanent impacts to 261 linear feet of streams. These calculations include impacts to 0.26 acres of NYSDEC mapped-regulated Freshwater Wetlands, and 237 linear feet of 9 protected streams.

Other minor impacts to wetlands will result from construction-related clearing activities (e.g. brush-hogging before installation of buried electrical interconnects) in forested wetlands that will not result in a loss of wetland acreage, but will result in the conversion of forested wetlands to systems dominated by shrub and herbaceous vegetation (scrub-shrub/wet meadow/emergent). Conversion of forested wetland vegetation is anticipated to total up to 0.38 acre, including 0.003 acre of NYSDEC Freshwater Wetlands. As described in the DEIS (Section 3.2.2.1.1, page 61) and SDEIS (Section 3.2.2.1.1, pages 23-24), wetland impact avoidance/minimization was a key consideration during the siting of wind turbines and associated infrastructure.

Approximately 2.81 acres of disturbance to wetlands, and 333 linear feet of streams will be temporary in nature. This includes approximately 1.33 acres of state regulated wetlands and 120 linear feet of protected streams. As described in the SDEIS (Section 3.2.2.1.1, pages 26-27), proposed restoration areas include portions of access roads at sensitive crossings, and electrical interconnect crossings. These areas will incur temporary impacts, as they will be restored to preexisting grade and allowed to revegetate following construction. Restoration activities in wetland areas or streams will be conducted in accordance with issued NYSDEC and/or Corps permits, as applicable. It is anticipated that restoration activities will generally involve fine grading to re-establish preconstruction contours, seeding with an appropriate wetland seed mix containing only native species, and mulching as necessary. Restoration activities will be conducted during the growing season. All erosion control devices will remain in place until seed is established. A Preliminary Stormwater Pollution Prevention Plan (SWPPP) was included in the SDEIS as Appendix D.

Finally, because avoidance of delineated wetlands and streams was a priority during Project siting, upland areas located within regulated 100' adjacent areas of NYSDEC freshwater wetlands were preferred over wetland/stream impacts. Disturbances to the 100-foot regulated adjacent areas to NYSDEC Freshwater wetlands will occur primarily as a result of preparation of turbine workspaces and upgrade of existing access roads. The above-described activities will occur within approximately 12.09 acres of regulated areas adjacent to NYSDEC Freshwater wetlands of which approximately five acres is previously disturbed/developed land consisting primarily of unpaved logging roads and previously cleared spoil pile areas.

### **2.2.2 Spring – Fall Bat Acoustic Monitoring Study**

Since the public release of the SDEIS, a spring - fall 2008 bat acoustic monitoring study was completed by ABR, Inc. at the Roaring Brook site. The purpose of this study was to supplement the 2007 acoustic monitoring study by documenting bat activity levels during nocturnal hours, especially

during the spring and fall migration seasons. Baseline information on the level of bat activity (by species) and the spatial (i.e., height and location) and temporal (e.g., nightly and seasonal) variations in that activity was collected over a 181 day study period (April 18 - October 15, 2008). These data were collected using Anabat SD1 broadband acoustic detectors deployed at two meteorological towers on the Roaring Brook site (detailed methodology described in the full report, included as Appendix B).

Although mean activity (bat passes/night) at the Roaring Brook site was lower in 2008 than in 2007, results of the 2008 acoustic monitoring study were generally consistent with those of the 2007 study (i.e., differences were not statistically significant). Peak activity for all bat species (including migratory tree-roosting species) occurred during mid-July. Mean activity for all species was highest during the fall migration period. This was also the case when only considering migratory tree bats. During all seasons, and for all species, peak activity occurred 1-2 hours after sunset, and mean activity for all bats across the entire study was higher at lower altitude monitoring stations (1.5 m above ground level [agl]) than at higher monitoring stations (44 m agl). However, this result was variable among species, with eastern red bat showing no difference in activity at different altitudes, and hoary bat displaying greater activity at the higher altitude monitoring station.

Results obtained from the 2008 acoustic monitoring study are generally consistent with results from acoustic monitoring and fatality monitoring studies at other Northeastern wind power sites. The areas of consistency include; highest level of bat activity occurring during July, during fall rather than spring migration, and 1-2 hours past sunset. Variations in bat activity at different altitudes has also been consistently observed at other sites. According to ABR, decline in overall bat activity (and the activity of certain bat species) at Roaring Brook, relative to what was observed in 2007, may be attributable to the effects of White Nose Syndrome, which has resulted in a population decline in cave-roosting bat species in excess of 75% (Bleher et al., 2008).

The results of the 2007 and 2008 acoustic monitoring studies may be useful in resolving potential adverse impacts of the Project on bat populations. Several studies have shown a positive correlation between total number of bat calls per night and estimated fatalities/turbine/year (Kunz et al., 2007). Results of this study provide baseline information on both the spatial and temporal activity patterns of bats (particularly migratory tree bats) at the Roaring Brook site. This may be useful for predicting when, where, and which bat species may be most at risk of collision with the wind turbines. However, such predictive capabilities will only be possible once an adequate number of studies comparing pre-construction activity levels with observed post-construction fatalities have been completed at varieties of habitats where wind farms are being sited.

### 3.0 CORRECTIONS TO THE DEIS AND SDEIS

During the preparation of the FEIS, a small number of errors were identified within the DEIS and SDEIS. Corrections to these errors are described below.

- The first paragraph of Section 3.3.1.2 of the DEIS was erroneously printed twice.
- The first paragraph of the migrating waterbirds discussion in Section 3.3.1.2.1 of the DEIS concludes that waterbirds using wetland habitats in the Tug Hill Plateau during migration “*will be spread throughout the landscape, not concentrated in any one area.*” This statement should be modified so that “will be” is replaced by “will likely be.”
- The list of nocturnally migrating songbirds in the first paragraph of the migrating songbirds discussion in Section 3.3.1.2.1 of the DEIS should have included warblers.
- The first paragraph of Section 3.3.2.2.1 of the DEIS erroneously refers to Table 9 as describing project impacts to vegetation. Impacts to vegetative communities were quantified in Table 10.
- Section 3.3.1.2 of the SDEIS referred to an updated wildlife species list that was to be included in Appendix H. However, the wildlife list was unintentionally omitted, and is therefore attached to this FEIS as Appendix C.
- Section 3.2.3 of the SDEIS indicates that culverts will be embedded 20 percent below grade for the full length of the culvert. However, this specification was not indicated on the detail sheets included in Appendix A, which depicted culverts placed directly on the streambed. Final drawings and plans will be updated to include all relevant mitigation measures, including the commitment to bury culverts 20 percent below grade.
- There are errors in the title blocks of several Figures in Appendix L of the SDEIS. The viewpoints in all visual simulations (Figures 10-24) were incorrectly described as occurring in the Town of Martinsburg, when six of the viewpoints are actually located in other nearby Towns. Viewpoint 35 in Figure 13 is located in the Town of Lowville. Viewpoint 38 in Figure 14, Viewpoint 59 in Figure 16, Viewpoint 62 in Figure 17, and Viewpoint 64 in Figure 18 are located in the Town of Harrisburg. Viewpoint 45 in Figure 15 is located in the Town of Montague.

## 4.0 RESPONSE TO SUBSTANTIVE COMMENTS

The Roaring Brook DEIS was accepted as complete on February 7, 2008. Copies of the DEIS were subsequently delivered to involved/interested agencies and individuals, and posted to a website managed by Atlantic Wind, LLC (currently available at: <http://www.iberdrolarenewables.us/roaringbrook.html>). Opportunities for detailed agency and public review were provided during the DEIS public comment period (February 7, 2008 through April 7, 2008). A public hearing was held March 6, 2008 at the Martinsburg Town Hall. The SDEIS was accepted as complete on January 7, 2009, with copies subsequently delivered to involved/interested agencies and individuals, and posted to the Roaring Brook website. The SDEIS public comment period extended from January 7, 2009 through March 18, 2009 (beyond the original February 24<sup>th</sup> deadline at the request of the NYSDEC), with a public hearing held February 5, 2009 at the Martinsburg Town Hall.

All substantive written comments received during the DEIS and SDEIS public comment periods are addressed below. Section 4.1 addresses all substantive comments submitted during the DEIS public comment period, while Section 4.2 addresses all substantive comments submitted during the SDEIS public comment period.

### 4.1 RESPONSE TO PUBLIC COMMENTS RECEIVED ON THE DEIS

#### 4.1.1 *Response to Written Comments on the DEIS*

##### **COMMENT A. NYS Department of Environmental Conservation, April 7, 2008**

Comment A1: NYSDEC has identified a number of specific resource areas in the DEIS where existing information is incomplete or where further investigation is warranted in order to adequately describe environmental impacts associated with this project. Therefore, NYSDEC recommends that a Supplemental DEIS (SDEIS) be prepared so that involved agencies and the public have the opportunity to comment on potential impacts to these resources.

Response A1: A Supplemental Draft Environmental Impact Statement was accepted by the Lead Agency, the Town of Martinsburg, on January 7, 2009.

Comment A2: A plan should be prepared that specifies procedures for conducting detailed subsurface investigations at turbine site locations. The plan should specify actions

to be taken if karst features are identified or suspected, including further investigations (e.g., dye testing), turbine re-location, determination of the effects of blasting, or engineering construction controls.

Response A2: Preliminary geotechnical studies have been conducted within the Project area and no evidence of karst features has been observed (see Section 3.1.1.2 and Appendix E of the SDEIS). Prior to finalizing foundation design, further geotechnical evaluation of the Project area will be performed to confirm soil and rock conditions at a greater depth. Borings will be made at foundation locations to evaluate the type, depth, strength and condition of the underlying soil and rock layers. If these investigations reveal the existence of karst features, the Project Sponsor will develop a detailed construction plan prior to Project construction that will include the practices and specifications recommended by the Project geotechnical engineer.

Comment A3: A detailed construction plan needs to be developed to incorporate stringent containment of construction materials, particularly concrete slurry, machinery fuel and oil, and other chemicals. This may include such practices as the use of watertight forms, silt-stormwater fencing, controlled concrete truck washout areas, and covered storage of equipment and construction chemicals. Engineering specifications to describe these proposed practices need to be detailed in this plan.

Response A3: The final project Stormwater Pollution Prevention Plan (SWPPP) will address best management practices and construction measures to contain construction materials such as concrete wash water and disturbed soils. A preliminary SWPPP was included in the Project SDEIS as Appendix D and will be finalized prior to construction. Additionally, as described on p. 72 of the DEIS, a Spill Prevention, Containment, and Countermeasure (SPCC) Plan that outlines procedures to be implemented to prevent the release of petroleum products and other hazardous substances into the environment will be developed and implemented prior to commencement of construction activities. This plan will include required Best Managements Practices, such as the requirements that refueling of construction equipment not be allowed within 100 feet of any stream or wetland, and that all contractors will be required to keep materials on hand to control and contain a petroleum spill. These materials will include a shovel, tank patch kit, and oil-



absorbent materials. Contractors will be responsible for ensuring responsible action on the part of construction personnel.

The SPCC will outline specific procedures for spill response, including the following steps: (1) stop the spill source; (2) contain the spill, e.g., through the use of absorbents or berms; (3) prevent the spill from entering a waterway; (4) isolate the spill area; and (5) report and clean up spill. Any spills will be reported in accordance with NYSDEC regulations. Clean up strategies will differ based on the size of the spill. For small spills, (i.e., less than five gallons), all visible traces of contaminated soil will be removed, along with a one-foot radius of adjacent clean materials. All solid surfaces will be cleaned. Contaminated soil and debris will be containerized, and clearly labeled with the contents, spill source, and spill date. Finally, arrangements will be made with a hazardous waste disposal company to transport containerized spill materials to an approved disposal facility. Larger spills (e.g., a failed substation transformer) will require the use of heavy equipment, certified clean-up and disposal contractors, and consultants to perform soil sampling to ensure clean-up meets state requirements with bills-of-lading/manifests completed for disposal at approved disposal facilities.

**Comment A4:** NYSDEC requires that the Stormwater Pollution Prevention Plan prepared for the project to comply with SPDES Stormwater General Permit for Construction Activities (GP-02-01) be reviewed by NYSDEC staff prior to implementation to ensure that plans for site characterization, project construction and construction monitoring have been included and adequately address these concerns.

**Response A4:** A Preliminary SWPPP was submitted as Appendix D to the DEIS and Appendix F of the Joint Application for Permit. The latter was accepted as complete by the NYSDEC on March 18, 2009 and is currently undergoing review by NYSDEC staff. A Final SWPPP will be prepared and implemented for the Project prior to construction, and will fully comply with the SPDES Stormwater General Permit for Construction Activities requirements.

**Comment A5:** NYSDEC recommends including the assessment of wetland/stream impacts associated with off-site public road improvements required to deliver equipment and materials to the site, as well as, impacts from construction and maintenance of the 10-mile interconnect line from the generation site to the Taylorville-Boonville

115 kilovolt (kV) electric transmission line be added to the impact assessment presented for the turbine layout and results describing total wetland/stream impacts for the project, included in the SDEIS.

Response A5: Wetlands and streams that could be impacted by off-site road improvements, the interconnection line, and the substation have been delineated and described in Section 3.2.1.1 and Appendix F of the SDEIS. Revised impact totals are summarized in Section 2.2 of this FEIS. The assessment of potential impacts to wetlands/streams summarized in Section 2.2 of the FEIS include wetlands/streams in all of the areas referenced in this comment. Additionally, a Joint Application for Permit was prepared and submitted to the Corps and the NYSDEC in December 2008 and a subsequent amendment was submitted in March of 2009. The Application, which has been accepted as complete by the NYSDEC, evaluates potential temporary and permanent impacts to all wetlands, streams and waterbodies associated with the construction and operation of the Project, including road improvements and the electrical interconnection line.

Comment A6: Projects that propose to disturb regulated wetland areas, buffer areas and protected streams require permits from NYSDEC and the Corps.

Response A6: A Joint Application for Permit was submitted to NYSDEC and the Corps on December 24, 2008 and an application amendment was submitted on March 5, 2009. The NYSDEC accepted the Application as complete on March 18, 2009. The Joint Application for Permit is available for public review on the Roaring Brook website (<http://www.iberdrolarenewables.us/roaringbrook.html>).

Comment A7: NYSDEC regulations require a stepwise approach to project review. First, the applicant must show that the project has been designed to avoid wetlands in the project development area. Second, alternative project designs must be prepared that minimize wetland impact. Third, mitigation must be proposed to offset the lost functions of unavoidable wetland impacts that remain following avoidance and minimization. The applicant must demonstrate overriding economic and social needs for the project that outweigh the environmental costs of any remaining impacts on the wetlands.

Response A7: The Joint Application for Permit submitted for the Project has been accepted as

complete by the NYSDEC. This application describes all anticipated unavoidable wetland and wetland buffer impacts in detail, along with all measures taken to avoid, minimize and mitigate for unavoidable adverse impacts to these regulated areas. Conceptual compensatory mitigation measures were included in the Application. Additionally, alternatives to the proposed action are presented and evaluated. The Application also includes a detailed description of the project purpose, need, and benefit, including the economic and social benefits of the Project.

Comment A8: The discussion of compensatory mitigation should include a more specific description of alternative locations for mitigation sites, and how the mitigation activities of those sites will conform to NYSDEC wetland mitigation guidelines. Included in this discussion should be the proposed legal mechanism to secure long-term access and management of compensatory mitigation sites.

Response A8: The Joint Application for Permit describes measures taken to avoid, minimize and mitigate for unavoidable adverse impacts to these regulated areas.

Comment A9: The discussion of minimization of wetland and stream impacts in this section needs to be expanded and more detailed. The SDEIS should include a project layout map that shows the locations of the “existing or narrow crossings” referenced in this section, the area of impact anticipated, with notes explaining how the proposed crossing resulted in minimization of impacts. For proposed upgrading of existing crossings, a comparison should be made between the existing crossing area/culvert size and proposed upgraded crossing/culvert, including any additional area of impact, typical specifications for proposed culvert and changes in hydrology anticipated from the upgrade. Similarly, for each practice referenced in this section (e.g., equipment restrictions, crossing techniques, limitations on clearing) a more detailed description of the practice or specifications for employing specialized techniques needs to be included.

Response A9: The Joint Application for Permit submitted for the Project describes all anticipated unavoidable wetland and wetland buffer impacts in detail.

Comment A10: The section describing mitigation measures to avoid or minimize impacts to vegetation needs to include discussion of how invasive species will be controlled to

minimize the spread of invasive propagules throughout the project development area, and particularly in regulated wetland and stream areas. The discussion should include measures to ensure no net increase in the areal coverage of invasive species in the project development area. Post-construction monitoring and periodic management, including invasive control and replanting of preferred indigenous species to ensure survival should also be included in the discussion.

Response A10: An Invasive Species Control Plan has been prepared and included in the SDEIS. Measures designed to control the spread of invasive species are described in Section 3.3.2.1.1 and Appendix K of the SDEIS.

Comment A11: An Invasive Species Control Plan (ISCP) is required for any permits issued by NYSDEC.

Response A11: The ISCP was submitted as Appendix H of the Joint Application for Permit.

Comment A12: NYSDEC recommends that the Project Sponsor consult with NYSDEC regional natural resources staff in the development of the long-term forest management plan. The SDEIS should include a concept plan that establishes preliminary goals, activities and timeframes for implementation. The plan should also take into consideration potential environmental assessment requirements of proposed activities.

Response A12: In the DEIS, it was anticipated that the Project Sponsor and the landowner would develop a long-term forest management plan designed to create and maintain forest interior habitat conditions on the majority of the generating site. Currently the Project includes approximately 2,350 acres of successional northern hardwood forest, with the majority of the generating site under ownership of a single landowner. As indicated in the SDEIS (Section 3.3.3.1, page 44), the *“landowner has subsequently decided that he will undertake forest management activities in consultation with a local forester of his choosing, and he will not enter into a joint management plan with the Project Sponsor.”* Some of the landowners with suitably sized parcels and forested lands have indicated a willingness to undertake these voluntary forest management plans with a third party forestry group or forester.

Although the Applicant supports the development and implementation of a forest

management plan to promote long term development of forest interior habitat conditions, it is important to note that the Applicant only leases relatively small portions of land from private landowners for the development of the wind generation facility. Land areas located beyond the easement/leased land area are not under any management control by the Project Sponsor. However, the Project Sponsor will limit the amount of vegetation clearing within the leased area to the minimal amount required to maintain and operate the facility.

See also Response J5.

Comment A13: The first paragraph in section 3.3.1.2 is printed twice, and one should be eliminated.

Response A13: The commenter is correct that this paragraph was accidentally printed twice. This comment is addressed in Section 3.0 of this FEIS.

Comment A14: The fifth paragraph of the breeding birds discussion in Section 3.3.1.2.1 of the DEIS mentions that, “several species of forest interior nesting species” were also documented. In addition to the brush/forest edge species observed, the forest interior species should also be identified here.

Response A14: Forest interior species observed nesting in the Project area have been identified in Section 3.3.1.2.1 of the SDEIS.

Comment A15: When discussing the forested wetland habitats in the Project area and entire Tug Hill Plateau, the statement “*waterbirds that use these habitats during migration will be spread throughout the landscape, not concentrated in any one area*” should replace “will be” with “will likely be.” There is no data provided to support the conclusion that all waterbird species will utilize the entire region’s wetland habitats, as opposed to concentrating in preferred areas during migration.

Response A15: This comment is addressed in Section 3.0 of this FEIS. The suggested wording change is considered appropriate.

Comment A16: The list of nocturnally migrating songbirds in the first paragraph of the migrating songbirds discussion in Section 3.3.1.2.1 of the DEIS should include warblers.

Response A16: Warblers are indeed nocturnally migrating songbirds, and should have been included in the list in Section 3.3.1.2.1 of the DEIS. This comment is addressed in Section 3.0 of this FEIS.

Comment A17: Several paragraphs on page 86 mention the presence of a portion of the 79,600 acre Tug Hill Important Bird Area (IBA) within the project site, the 5,100 acre Tug Hill Wildlife management Area (WMA) to the west, and 15,000 acres of Nature Conservancy land to the south of the project. Beyond listing the bird species found in the area, there is no discussion of the potential impact a wind project may have on the unfragmented, 90% forested, ecologically distinct habitat that the IBA, WMA, and TNC land make up within the Tug Hill region. These preserves indicate the ecological importance of the Tug Hill region to birds and wildlife and the effect of wind turbines amongst this quality habitat should be addressed more fully in the SDEIS.

Response A17: No direct impacts to the unfragmented forest land located in the adjacent WMA or TNC lands are anticipated or proposed. However, on the Project site, the Project Sponsor acknowledges that some forest habitat loss and conversion resulting from Project construction is an unavoidable adverse impact. Section 3.3.2.2.2 of the DEIS acknowledges that the Project will cause forest fragmentation, and preclude future development of forest interior conditions in the Project area for the foreseeable future. However, it is important to note that the significantly fragmented condition of the forest that is presently found in much of the Project area predates the Project. The Project site has been historically used for timber harvest activities, and currently includes an extensive network of well-maintained forest roads.

It is also important to note that the majority of the Project area is currently under private landownership. Many parcels have seasonal residential camps. One of the major landowners that will lease the land for 30 of the proposed turbines has indicated that he plans to develop and utilize the site for recreational purposes and/or further timber harvest or other land use practices if the proposed wind power Project is not built.

Disturbance is proposed within a portion of the designated IBA, since it overlaps

the entire Generating Site, which is privately held land. According to the Audubon IBA website (<http://www.audubon.org/bird/iba>), "IBAs may include public or private lands, or both, and they may be protected or unprotected;" and "Private lands may be conserved through public-private partnerships such as easements." The portion of the IBA that falls within the Project area is unprotected, with no conservation easements in place.

Development of the Project as proposed will not have a significant adverse effect on the wildlife habitat value or ongoing habitat management activities on adjacent lands owned by TNC or NYSDEC.

Comment A18: The statement in the emergent marsh and open water habitat discussion in Section 3.3.1.2.5 of the DEIS that "3,200 acres of the WMA are managed... through commercial forestry practices" is not entirely valid. Tree-cutting on the WMA has not occurred since early 2006. Currently, Region 6 NYSDEC wildlife staff are in the process of re-evaluating the priority species for the area and plan to update the 1970 management plan in the near future.

Response A18: The information about management of the Tug Hill Wildlife Management Area was obtained from the NYSDEC website (<http://www.dec.ny.gov/outdoor/30370html>). The website was re-accessed during preparation of this FEIS and as of April 21, 2009, states, "Northern hardwood forest stands occupy approximately 3,200 acres of the WMA and are actively being managed through commercial forest product sales."

Comment A19: The numbers presented in Table 10 do not correspond to the numbers in the text of this section (3.3.2.1.1, pg. 89). Table 10 indicates that 176 acres of forest land will be disturbed (cleared). With 21 acres permanently developed and 132 converted to other habitat types, 153 acres should be listed under "temporary disturbance", whereas the table shows 155 acres. The text mentions 21 of the 176 acres will be permanently developed, and 24 acres will be allowed to naturally regenerate. It is unclear if these 24 acres are included in the 132 acres of cleared forest land expected to be converted to other habitat types, or is an additional area, which would total 156 acres of "temporary disturbance." These inconsistencies should be rectified and the fate of disturbed forest land should be more clearly explained and the total acreage accounted for in both the table and text.

Response A19: In light of the Project design changes described in the SDEIS, updated information pertaining to potential temporary and permanent impacts to vegetative communities associated with the construction and operation of the Project are described in Section 3.3.2.1.1 and Table 5 in the SDEIS. No further Project design changes have occurred since the publication of the SDEIS.

Comment A20: The first paragraph of this section (3.3.2.2.1, pg. 92) references Table 9 as describing project impacts to vegetation. Table 9 (page 87) shows state listed bird species documented in the vicinity of the project site.

Response A20: This comment is addressed in Section 3.0 of this FEIS.

Comment A21: There is no support given to the statement that “the total acreage of wildlife habitat that will be lost due to Project development is not significant from a local or regional perspective” (pg. 93). The project site, though consisting of previously disturbed forest habitat, is surrounded by an IBA, WMA and TNC forever-wild land, and has forest-interior dependent bird species documented as breeding on site. The potential for impacting the quality of habitat, marking it more untenable to this suite of species due to fragmentation and conversion should be discussed in the SDEIS.

Response A21: The statement regarding the significance of the wildlife habitat that will be lost due to Project development is supported by the following facts:

1. The total acreage of habitat loss (i.e., conversion of natural communities to built facilities) is approximately 46.5 acres. This represents 0.03 % of the 150,000 acres of intact core forest on the Tug Hill Plateau, as defined by The Nature Conservancy ([http://www.nature.org/wherewework/northamerica/states/new\\_york/preserves/art11834.html](http://www.nature.org/wherewework/northamerica/states/new_york/preserves/art11834.html)).
2. The area being impacted is already disturbed/fragmented due to intensive logging in the recent past and on-going road building by the major landowner. Many areas where access roads and turbines are proposed are already characterized by abundant edge and a lack of overstory vegetation. In fact, the Project access road system (which accounts for the majority of the Project's permanent built features) was specifically designed to utilize the existing on-site road system to the maximum extent practicable. The areas that will be



disturbed by Project development are for the most part already fragmented, and of marginal habitat for forest interior wildlife species.

3. The area of successional/second growth forest that will be permanently lost or converted to early successional vegetation due to Project construction and operation does not represent unique or uncommon wildlife habitat. The successional northern hardwood community being impacted is common within the Project area and in the surrounding region. Sensitive and less common communities and prime habitat for listed or otherwise uncommon wildlife species (e.g., wetlands and old growth forest) are largely being avoided.

In addition, development of the Project as proposed will not have a significant adverse effect on the wildlife habitat value or ongoing habitat management activities on adjacent lands owned by TNC or NYSDEC.

Comment A22: The first paragraph of this section (3.3.2.2.2, pg. 94) mentions the second year of post-construction study at Maple Ridge, however no reference is given. Even if preliminary, if information for the 2007 Maple Ridge study is going to be referred to, a report reference should be provided to support statements made in the Roaring Brook DEIS.

Response A22: Section 3.3.2.2.2 of SDEIS provides more information about the 2007 Maple Ridge study, including a reference to the now publicly available report.

Comment A23: The second paragraph of the collision discussion in Section 3.3.2.2.2 states that no biologically significant impacts have occurred to bird populations from wind development. However, the species composition and timing of mortalities are two important factors to consider in addition to just looking at the overall numbers of individual birds killed. Maple Ridge has one of the highest bird mortality rates reported for any wind project anywhere (9.59 birds per turbine from June 17 to November 15, 2006). The “biological significance” of the impacts from Maple Ridge has not been fully evaluated yet. Roaring Brook will have taller turbines and a location in more forested habitat that could potentially provide more critical stopover habitat for migrating birds, and may impart a greater impact than does Maple Ridge.

Response A23: This comment inaccurately summarizes the second paragraph of the collision

discussion in Section 3.3.2.2.2 of the DEIS, which did provide analysis of species composition of birds killed by turbines. The DEIS did not categorically conclude that no biologically significant mortality have occurred from wind development, but instead stated that documented levels of fatalities have not been suggestive of biologically significant impact to species. Additional post-construction studies, like those that will be conducted at the Roaring Brook site, will provide data to bolster such evaluations. The entire paragraph from page 95 of the DEIS is provided here for clarity: *“In summary, studies conducted at other sites have shown avian fatalities to be relatively infrequent events at wind farms. No federally-listed endangered or threatened species have been recorded, and only occasional raptor, waterfowl, or shorebird fatalities have been documented in collision mortality studies. In the Midwestern and Eastern United States, night migrating songbirds have accounted for a majority of the fatalities at wind turbines. In general, the documented level of fatalities has not been large in comparison with the source populations of these species, nor have the fatalities been suggestive of biologically significant impacts to species (Kerlinger & Guarnaccia, 2007). The observed level of mortality is also minor when compared to other potential sources of avian mortality (Erickson, et al. 2001).”*

The comment that “9.59 birds per turbine” were killed is an incomplete statement of the Maple Ridge data, since that statistic came from only 10 of the 50 turbines studied in 2006. For the other 40 turbines, which the NYSDEC did not include in its comments, the fatality rate was 3.47 birds per turbine, and the overall rate for all 50 turbines was 4.69 birds/turbine (Jain et al., 2007). The NYSDEC also did not cite the findings of the 2007 study at Maple Ridge in which 5.62 birds per turbine (for 64 turbines) were found (Jain et al., 2008), or the 2008 study for which the fatality rate was 3.42 birds per turbine for 64 turbines (Jain et al, 2009). Furthermore, the 2006 study was the first year of post-construction monitoring, and was considered a “pilot” study to identify the best methodologies for studying post-construction fatalities at a wind power site. Once the biases were understood, a revised methodology was developed for use in future studies. This method was accepted by the U.S. Fish and Wildlife Service, New York State Audubon, and NYSDEC, and used at Maple Ridge in 2007 and 2008, yielding fatality estimates much lower than the 9.59 number cited by NYSDEC.

A recent NYSERDA report compares the risk to wildlife from six different electricity

generation types: coal, oil, natural gas, hydro, nuclear, and wind. For each generation method, a relative level of risk (lower, lowest, moderate, higher, and highest) was assigned for each of six different phases (resource extraction, fuel transportation, facility construction, generation, transmission and delivery, and decommissioning). While each of these generation methods pose risks to wildlife individuals and/or populations, the degree and extent of the risks depend on the energy generation source. The report concluded that non-renewable electricity generation sources, such as coal and oil, typically pose higher risks to wildlife than renewable sources, such as hydro and wind. *“Coal as an electricity generation source is by far the largest contributor to risks to wildlife found in the NY/NE region.”* Overall, the greatest risks to wildlife occur during the resource extraction and generation phases of power production. Since wind powered electricity does not entail a resources extraction phase, threats from fuel extraction and transportation do not apply. For the other four phases, relative risk levels for wind ranged from “lowest” to “moderate.” In contrast, each of the other five electricity generation types had at least one phase with a risk level of “higher” or “highest” (Newman et al., 2009).

Comment A24: The pre-construction bat surveys at Maple Ridge indicated a fairly low level of bat use at the site and predicted low levels of impact. The “quality bat habitat” at the Roaring Brook site, couple with the close proximity to the Maple Ridge site, may be cause for concern about bat-turbine collisions at the Project area. The relatively few bat detections during the pre-construction visual and acoustic surveys at Roaring Brook may not be an accurate predictor of the actual collision impacts that could occur post-construction.

Response A24: Pre-construction bat surveys were conducted in accordance with NYSDEC Albany staff-approved work plan. Although based on limited studies that need to be replicated across more sites, there is evidence that preconstruction bat acoustic monitoring does in fact correlate with post-construction fatality estimates (Kunz et al., 2007). Post-construction studies planned for the Roaring Brook Project will collect the type of additional data required to confirm or disprove those preliminary studies suggesting correlation. As described in Section 4.2 of the SDEIS, *“Despite the fact that significant impacts to birds and bats are not anticipated, a post-construction avian and bat fatality monitoring program will be implemented for the purpose of gaining more knowledge regarding the relationship between wind*

*projects and wildlife mortality. Although not considered a mitigation measure, post-construction studies may serve as a mechanism to gain additional information during project operation.”* Specific details of the post-construction monitoring plan (i.e., duration, timing, and methodologies) will be developed in consultation with the NYSDEC and USFWS prior to commencement of Project operation.

Comment A25: This section mentions a management plan that will be developed between PPM and the landowner to create and maintain interior forest habitat conditions on the project site. The management plan should be prepared in consultation with the NYSDEC, USFWS, and other interested agencies and organization. Included within the management plan should be a discussion of management for species of concern in this Project area.

Response A25: See Response to Comment A12.

Comment A26: The fourth bullet under Section 4.2 of the DEIS lists post-construction monitoring studies for bird and bats as a mitigation measure. NYSDEC does not consider monitoring to be a mitigation measure, but rather a mechanism to determine if mitigation is needed once the project is operational.

Response A26: The comment has been addressed in Section 4.2 of the SDEIS. The fourth bullet of the biological, terrestrial, and aquatic resources discussion states, *“Despite the fact that significant impacts to birds and bats are not anticipated, a post-construction avian and bat fatality monitoring program will be implemented for the purpose of gaining more knowledge regarding the relationship between wind projects and wildlife mortality. Although not considered a mitigation measure, post-construction studies may serve as a mechanism to gain additional information during project operation.”*

Comment A27: Although there are no proposed or existing wind projects currently in Lewis County other than Maple Ridge, neighboring Jefferson County has three proposed projects that should be considered in the cumulative analysis of the Roaring Brook project. The St. Lawrence Wind, Cape Vincent Wind, and Horse Creek Wind projects all have publicly available information on project size, layout, and status.

Response A27: This comment is addressed in Section 8.2 of the SDEIS.

Comment A28: Cumulative impacts sustained by wildlife directly through collisions with project components and indirectly through habitat fragmentation should be evaluated in a landscape context with respect to all projects in the region. The effects of habitat fragmentation as a result of multiple wind energy developments in New York and the northeast have not yet been quantified for birds or bats.

Response A28: This sort of cumulative impact proposed by this comment is more appropriate for a local, state, or regional planning agency and analysis and is beyond the requirements of SEQRA. It is important to note that the majority of wind projects in the state are located within more open agricultural landscapes. Further, the proposed Project site is primarily comprised of fragmented previously disturbed successional habitat. Further, the birds that were found at the logged over forests at the Roaring Brook site are common species that are found throughout the northeastern United States and southeastern Canada. Impacts to these species are not likely to be significant because they are so numerous, and because the habitat that will be disturbed is not pristine or suitable for rarer forest nesting birds. See also Sections 3.3.2.2.2 and 8.0 of the DEIS.

Comment A29: It is stated that the cumulative impacts to birds and bats from both the Maple Ridge and Roaring Brook wind projects are “not anticipated to be biologically significant for any of the affected species.” The potential for bat collision impacts, though low for Indiana bats, and apparently moderate for other species, may be exacerbated by the presence of White Nose Syndrome (WNS) amongst New York’s bat populations. What may previously have been considered a moderate or unknown impact may now be a large impact. WNS notwithstanding, the bat impacts at Roaring Brook have the potential to be much higher than at Maple Ridge because of the fragmented forest and numerous wetlands that provide more favorable habitat than the agricultural community Maple Ridge is located in. This cumulative analysis for bat impacts does not mention the attractant issue; bats are known to be attracted to turbines, either visually, acoustically, or otherwise, thus increasing their exposure and chances of collisions over that of birds.

Response A29: There are no studies to date documenting that bats are attracted to wind turbines. There are many “attractant” hypotheses, but this is still an open issue in the research community.

Comment A30: Throughout the Executive Summary section of the Avian Risk Assessment (DEIS Appendix G) many statements are made to the effect that, “significant displacement effects are not anticipated,” “resident raptors generally habituate to wind farms after construction is complete,” “forest-edge species will likely habituate (sic) to the presence of turbines,” “few nesting birds would likely collide with turbines with the possible rare exception of raptors,” and yet, “fatality numbers and species impacted at the Roaring Brook Project are likely to be somewhat greater, on a per turbine per year basis, than found at other Eastern and Midwestern projects that have been studied.” There are no data or references provided to support any of these assumptions. With turbines almost 30m taller than at the Maple Ridge project, where one of the highest bird mortalities (9.59 per turbine per sampling season) has been reported, it is premature to conclude that the impacts will be minimal and not “biologically significant” at the Roaring Brook site.

Response A30: The Executive Summary is a 3-page abstract of the entire 86-page Avian Risk Assessment. As such, it provides a synopsis of the material contained within the report, but for purposes of brevity, contains no citations. Dozens of references are provided throughout the main text of the report in support of discussions and conclusions.

The Roaring Brook Avian Risk Assessment was prepared by Curry & Kerlinger, LLC. One of the conclusions contained therein, that fatality rates at Roaring Brook would likely be slightly greater than at other wind projects, was based on the fact that the turbines extend slightly higher into the airspace used by migrating birds, and on the findings at Maple Ridge that fewer than 5 birds per turbine were killed. Curry & Kerlinger also prepared the pre-construction avian risk assessment and breeding bird risk assessment for the Maple Ridge project. The mortality data that has been collected in the first three years of post-construction monitoring at Maple Ridge has been consistent with those predictions, and impacts do not appear to be biologically significant. During the 5,000 searches conducted at individual turbines at Maple Ridge over the three-year study period, not a single endangered or threatened species was killed. Moreover, the birds that were killed have relatively large populations, and were killed in relatively small numbers. See Response A23 for additional discussion of mortality rates at Maple Ridge.

Comment A31: NYSDEC suggests conducting post-construction nesting bird displacement surveys to estimate the effect the turbines and habitat fragmentation has on bird avoidance/habituation of the wind project in the forested habitat.

Response A31: As stated in Section 3.3.2.2.2 of the DEIS, post-construction monitoring requirements will be developed in consultation with the NYSDEC and USFWS prior to commencement of Project operation.

Comment A32: Section 4.1.1 suggests that the relatively high number of species found within the four BBA blocks that cover portions of the Project area were a result of a high level of effort in covering the blocks. This is somewhat unclear and misleading, and there is no evidence given to support the statement. No comparison is made that show the 2000-2005 BBA numbers of species in this area are high relative to the 1980-1985 BBA, other BBA blocks in the state, or other proposed wind projects that have conducted similar analyses. Although the high numbers may be a result of greater survey effort, they could also be attributed to a higher number of birds in the vicinity of the Project area.

Response A32: Comment noted. Section 4.1.1 in the Avian Risk Assessment was simply discussing the number of species and species diversity at the Project site and surrounding area.

Comment A33: The last several paragraphs of Section 4.2.1 discuss passage rates, flight height and percentages of targets flying below the maximum turbine height for nocturnal migrants, as estimated by radar surveys. Between 4% and 12% of targets are reported to be flying below turbine height in spring. Data collected at proposed wind projects in New York show a range of 4% to 25% in spring. It should be noted that not all studies used 125m as a maximum turbine height.

Response A33: The Applicant acknowledges that not all studies cited in the Avian Risk Assessment used 125m as a maximum turbine height. However, publicly available studies with the exact same rotor swept zone are fairly limited, so additional studies with a range of similar turbine heights were included. Although some of these studies had slightly different turbine heights, radar data can still be roughly compared, since the percentage of birds flying within the rotor swept area is only an approximation and not a precise measurement.

Although the NYSDEC Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects provide guidance on radar study methodology, it does not provide information about how such data can be analyzed to provide precise risk predictions for migrating birds (NYSDEC, 2009). To date, more than 50 radar studies that have been conducted for North American wind projects, and no studies have made quantitative predictions regarding the numbers of birds that will likely be killed.

Comment A34: Table 6.1.2-1 should include information from the Maple Ridge wind project in Lewis County, NY. Bird mortalities at that site were estimated to be 9.59 birds per turbine per survey season in 2006, based on daily searches. Comparisons of post-construction studies should be done with great caution, as methods, intensity, timing, duration, bias correction, and other factors affect the results. These parameters differ vastly between studies, confounding comparability.

Response A34: See Responses A23 and A30. While the NYSDEC cautions against comparing post-construction studies conducted with different methodologies, the results for bird fatalities are nevertheless quite similar between these different sites. The fact that the results are similar despite different methods suggests that the results are very robust. The NYSDEC does not provide information showing that avian fatalities have been significant at wind power sites in the United States. The vast weight of evidence, including the work at Maple Ridge, shows that impacts are not significant.

Comment A35: There are several statements throughout Section 6.2.1 that are made without any supporting data or references regarding the ability of birds to habituate and/or relocate in response to the construction and operation of turbines in the forested habitat within the project site. There have been few, if any, substantial studies conducted on the impact of turbines on the displacement/habituation and collision risk to forest birds. Without such information, it cannot be determined what the effect the Roaring Brook project will have on nesting and migration birds in the Tug Hill region.

Response A35: The Applicant respectfully disagrees. For example, the post-construction study at Searsburg, a forested site in Vermont, demonstrated that there is minimum



displacement of forest nesting birds. In addition to surveying in the first year post-construction in 1997, Curry & Kerlinger, LLC surveyed the turbine sites in 2003 as part of the field studies for the Deerfield Wind project (Kerlinger, 2002; Kerlinger & Dowdell, 2003). Both studies are publicly available.

Comment A36: NYSDEC also recommends a multi-year post-construction displacement study be conducted at the project site to estimate the effects of the project on nesting birds.

Response A36: See Response A31.

Comment A37: It is noted in the first paragraph of the BBS Executive Summary that the site is an IBA for forest interior birds, and habitat is intact enough to support many forest interior species. The last paragraph state that, "biologically significant collision fatalities of nesting birds at the Roaring Brook project are not likely if turbines are constructed." This is unsupported by any data or references and is contradicted by a sentence at the end of the same paragraph stating that, "impacts to forest interior nesting species cannot be predicted accurately" at this time. This is the first project in New York proposed in an area with extensive forested habitat and very little agricultural use. The level of impact from an array of turbines in this type of habitat cannot be known because no data is available from comparable sites.

Response A37: The Executive Summary is simply an abstract, and is not meant to contain citations. Appropriate references supporting conclusions are contained within the text of the report, along with methods and discussions. For example, the Breeding Bird Survey referenced two post-construction studies at wind power facilities located in forested habitats in the eastern United States: Searsburg, VT (Kerlinger, 2002) and Mountaineer, WV (Kerns & Kerlinger, 2004). Forests at both these sites are dominated by mixed northern hardwoods, and birds at both these sites are similar in taxonomic composition to the birds that nest at Roaring Brook. According to the cited studies, at neither site were many nesting birds found dead beneath turbines, despite numerous searches. Furthermore, according to Paul Kerlinger, the Project breeding bird consultant, most forest nesting birds do not generally fly above the canopy. Thus, they rarely fly high enough to collide with rotors.

Although there are not many wind projects sited in forested habitats in New York State, it is incorrect that Roaring Brook would be the first. For example, the Noble

Altona Windpark in Clinton County is sited in extensive forest habitat. It is also important to note that the majority of the forests at the Roaring Brook site are currently significantly fragmented. The Project site has been historically used for timber harvest activities, and includes an extensive network of well-maintained forest roads. For additional discussion of the IBA, see Response A17.

Comment A38: The second paragraph of the methods section states that most species could easily be heard out to 150 meters or more. NYSDEC questions the ability of any observer to detect the song or call note of a bird at that distance and reliably identify the bird in a mostly wooded habitat with successional growth.

Response A38: Paul Kerlinger, who authored the Roaring Brook Breeding Bird Surveys, expressed confidence in the ability of the survey technician to hear bird songs at a distance of 150 m. This distance is conservative compared to the methodology used by the USGS North American Breeding Bird Survey, in which participants record all birds seen or heard within a 0.25 mile radius (<http://www.pwrc.usgs.gov/bbs>).

Comment A39: The Risk of Habitat Disturbance and Displacement of Nesting Birds section states that birds will be displaced 100 meters or more during construction, but will return as habitats revert back to forest, and that this will “likely take decades.” The lifespan of the turbines is 20-30 years. By the time the habitat is appropriate for these birds to use again, the Project area is likely to be disturbed with equipment and workers for decommissioning or replacement of the turbines, resulting in an additional episode of displacement before complete reversion to forest habitat has taken place. For this reason, NYSDEC believes that the fragmentation impacts to forest interior birds identified in this analysis should be considered permanent.

Response A39: If the habitat were converted into a farm field or a housing development, that would constitute “permanent” displacement. However, the forests beyond the area cleared around turbines will remain intact unless the landowners manage the property otherwise, and the habitat in the areas cleared will commence growing in the year following construction. These trees will grow to heights that will support brush nesting species and serve as foraging habitat for species nesting in the adjacent forests. This can be observed at the Searsburg Wind project site in Vermont, where trees have been growing for a decade since construction. Even in the first year post-construction at Searsburg, when the ground was devoid of trees,

birds were using the forest edge to forage. According to Paul Kerlinger, consultant to Deerfield Wind, LLC, many of these species were using that same edge six years later, along with the areas where small trees were growing (Kerlinger, pers. comm.).

Comment A40: The Risk of Habitat Disturbance and Displacement of Nesting Birds section of the BBS mentions that the bird community cannot be maintained without forest management practices, and that the wind project will provide an avenue for managing and preserving the forest habitat. NYSDEC disagrees with the statement that birds will not remain with or without turbines. There has been no clear management plan at the site for years, and based on the BBS and other on-site surveys, birds are making extensive use of the site.

Response A40: The BBS did not state, “the bird community cannot be maintained without forest management practices.” Page 11 of the BBS stated, *“The key to preserving the forest bird community of the Project site in the long-term is related to the future health of the vegetative components of the forests at Roaring Brook. Without some sort of long-term forest management plan, the forest interior and other forest community bird species will not be maintained at Roaring Brook whether turbines are constructed or not.”* Forest management practices and a forest management plan are two very different things. The discussion originated based on the primary landowner’s intent to continue to develop the site for recreational or other purposes should the turbines not be built, and lead into a recommendation to develop a forest management plan for the Roaring Brook site. The BBS suggested that this plan be developed in coordination with the plan for nearby Nature Conservancy lands, in order to maximize the benefits to forest interior habitats.

The Applicant supports the development and implementation of a forest management plan to promote long term development of forest interior habitat conditions, and these plans were discussed in the DEIS. Unfortunately, as indicated in the SDEIS (Section 3.3.3.1, page 44), the *“landowner has subsequently decided that he will undertake forest management activities in consultation with a local forester of his choosing, and he will not enter into a joint management plan with the Project Sponsor.”* See also Response A12.

Comment A41: Each survey point should have a general habitat description provided along with

the GPS points and turbine numbers. Table 3 should also include the number of each species seen at each point.

Response A41: Comment noted.

Comment A42: The presentation of data in Appendices I and J appears to present conflicting results with regards to the percentages of birds and bats observed flying within and below the Rotor Swept Area (RSA). It is unclear why there would be a difference between the number of birds or bats seen, whether from night to night or by hours after sunset each night. If not all hours samples were included in the “among hours of the night” calculations, this should be made explicit in the report to account for the varying totals.

Response A42: Figure 7 displays the percent of flight altitudes by RSA, while Figure 8 displays the percent of flight altitudes by hours after sunset for nights with 8 hours of consecutive data. According to ABR (the firm that conducted the Roaring Brook nocturnal migration studies), sample sizes of birds and bats between Figure 7 and Figure 8 are different because all data was used for Figure 7, but only a subset of data were used in Figure 8 (i.e., only those nights with the first 8 consecutive hours of data).

Comment A43: It is mentioned in Appendix J that “one unknown size passerine” was “observed colliding with the guy wires” of the met tower. Information should be provided on whether the bird continued flying, was destroyed by the impact, fell to the ground, was found dead or alive, or that no determination could be made after the collision.

Response A43: According to ABR, the fate of the bird was not reported because it was unknown.

Comment A44: NYSDEC considers it noteworthy that the results of the Roaring Brook visual study indicate that 68% of 44 identifiable bats were tree bats in the spring and 54% of 177 identifiable bats in the fall. These percentages are higher than any of the other locations with which data was compared.

Response A44: ABR agrees that high number of tree bats observed at the Project site is noteworthy. The matrix of wetlands and forest at Roaring Brook is good foraging habitat for bats in general. It is also important to note, however, that the rates of

bat movement at Roaring Brook during spring were nearly the lowest recorded at any of ABR's sites in the Eastern US (see Appendix 1 in DEIS Appendix I). Spring bat fatalities are uncommon at wind projects throughout North America (Arnett et al., 2008). The fall movement rates recorded at Roaring Brook were within the range of those recorded elsewhere in New York, and were lower than those recorded at Maple Ridge (see Appendix 1 in DEIS Appendix J). When interpreting the results of bats observed during visual studies, it is important to understand and describe both species composition and movement rate.

Comment A45: The higher relative percentage of tree bats observed at Roaring Brook may be attributable to the heavily forested habitat interspersed with myriad wetlands, providing ample food and roost sites for migratory bats. Rigorous post-construction studies including ground searches and acoustical monitoring will need to be conducted at this site to adequately estimate the impact large turbines in a forested wetland area will have on migratory tree-roosting bats.

Response A45: Comment noted. The Applicant agrees with the NYSDEC that the higher relative percentage of tree bats observed at the Project site may be due to the on-site habitat conditions (interspersed forest and wetlands).

Comment A46: Although the format of these graphs is straightforward, the presentation of the information is rather tedious to interpret. Providing a more clearly defined association between marked dates and the graph bars would be helpful in accurately evaluating these figures.

Response A46: Comment noted. ABR agrees that providing tick marks to link dates with histograms is a good idea and will do so for future reports.

Comment A47: The total number of birds and bats observed during the spring visual sampling period is reported differently in various parts of the document (DEIS Appendix I). The following inconsistencies should be corrected or explained:

- On page 6 (Results-Flight Direction), 653 birds and 45 bats are reported for a total of 698 observations.
- On page 11 (Results – Composition of Low-Altitude Observations), in Appendix 1, and in Appendix 3, a total of 695 birds and bats are reports.

- On page 12-13, Table 1 shows 648 birds and 47 bats for a total of 695, yet the sum of the total observations from each location equals 699 (86 at Cabin, 113 at Fox, 178 at Joe's, 142 at Birch, and 180 at Fairbanks).
- On page 14 (Results – Flight Behavior), 620 birds and 44 bats are recorded, for a total of 664 observations. If the flight paths of all animals observed was not recorded, that should be made clear in the text.
- Appendix 4 shows different total values for the number of birds and bats observed under Flight Path and Tower Reaction. If some animals were observed long enough to record a flight path, but were not in the vicinity of the tower or were otherwise deemed to not fly close enough to the tower to warrant a reaction note, this should be made evident in the report to account for the difference in reported totals.

Response A47: The following response has been provided by ABR:

*“Sample sizes varied slightly between results for flight directions (n=698) and composition of low-altitude observations (n=695) because 3 targets that were identified as birds OR bats were included in the flight direction data, but not in the mentioned Tables or Appendices.*

*Sample size discrepancy in Table 1: This was a mistake in Table 1 that has been corrected in a revised final report.*

*It is not possible to always obtain flight paths of birds (e.g., you just catch a glimpse of the bird or bat passing through and record it as “unknown”), hence the reduced sample size. This will be clarified in future methods.*

*Appendix 4: Sample sizes between flight paths and tower reactions will generally be different, with greater sample sizes for flight paths. Flight path information was recorded for any bird or bat observed within the field of view of the night-vision goggles, whereas tower reactions were only recorded if a bird or bat approached a met tower.”*

Comment A48: The total number of birds and bats observed during the fall visual sampling period is reported differently in various parts of the document (DEIS Appendix J). The

following inconsistencies should be corrected or explained:

- On page 9 (Results-Visual Observations, Flight Direction), 947 birds and 193 bats are reported for a total of 1140 observations.
- On page 12 (Results-Composition of Low-Altitude Observations), in Appendix 1, and in Appendix 3, a total of 1015 birds and bats are reported.
- On page 15 (Results-Flight Behavior), 794 birds and 187 bats are recorded, for a total of 981 observations. If the flight paths of all animals observed was not recorded, that should be made clear in the text.
- On page 16, Table 1 shows 811 birds and 204 bats for a total of 1015, yet the sum of the total observations from each location equals 1009 (273 at Fox, 223 at Joe's, 235 at Birch, and 278 at Fairbanks).
- Appendix 4 shows different total values for the number of birds and bats observed under Flight Path and Tower Reaction. If some animals were observed long enough to record a flight path, but were not in the vicinity of the tower or were otherwise deemed to not fly close enough to the tower to warrant a reaction note, this should be made evident in the report to account for the difference in reported totals.

Response A48: According to ABR, sample size differences between flight directions (n=1140) and composition of low-altitude observations (n=1015) are described in the methods (data analyses, visual data, 3<sup>rd</sup> paragraph). The rate data came from observations where visibility was greater than or equal to 100 m above ground level. In contrast flight direction data were used for all observations, hence the higher number for flight directions than visual observation rates. As stated previously, ABR also notes that it was not always possible to determine the flight paths of birds (e.g., a bird or bat was just glimpsed passing through and recorded as "unknown"), hence the reduced sample size. The sample size discrepancy in Table 1 was a mistake and was corrected in a revised final report. In regard to Appendix 4, sample sizes between flight paths and tower reactions will generally be different, with greater sample sizes for flight paths. Flight path information was recorded for any bird or bat observed within the field of view of the night-vision goggles, whereas tower reactions were only recorded if a bird or bat approached a met tower.

Comment A49: A work plan for conducting post-construction surveys to estimate the impact of the

operational project on birds and bats should be developed, with an initial draft provided in the SDEIS. The work plan should be developed in consultation with NYSDEC and USFWS.

Response A49: As described in Response A31, post-construction monitoring requirements will be developed in consultation with the NYSDEC and USFWS. In an April 27, 2009 on-site meeting with the NYSDEC, the Project Sponsor committed to developing the Post-Construction Monitoring Plan before the start of construction.

Comment A50: NYSDEC recommends additional pre-construction spring, summer and fall bat acoustical monitoring consistent with the 2007 dates, methods and locations take place at the project site in 2008 to further quantify the use of the area by bats, particularly large migratory tree-roosting bats. Another year of pre-construction bat acoustical data will also provide a stronger data set for comparison with post-construction information to be collected at Roaring Brook.

Response A50: Additional bat acoustic monitoring was conducted in the Project area during the spring, summer, and fall of 2008. Section 3.3.1.2.2 and Appendix J of the SDEIS presented the preliminary results from the spring 2008 season. The final report for 2008 bat acoustic monitoring is summarized in Section 2.2 of this FEIS, with the entire report attached as Appendix B.

Comment A51: NYSDEC recommends another breeding bird survey take place at the Roaring Brook site. The presence of mixed forested wetland and forest edge habitat on the site provide nesting areas for a suite of species that are not often recorded at BBS surveys from other proposed wind projects. To produce comparable data, the methods, locations, and timing of the 2008 survey should be similar to the survey conducted in 2007.

Response A51: A second BBS was conducted in the Project area in 2008. Results were presented in Section 3.3.1.2.1 and Appendix I of the SDEIS.

Comment A52: NYSDEC recommends that in addition to the responsibilities outlined in DEIS Section 4.3 (planning, training, pre-construction, coordination, and construction/restoration inspection), the environmental monitor should be empowered to order correction of acts that violate environmental regulations and



permit requirements, and order the cessation of construction activities until such corrective action has occurred. The monitor should also provide regular reports to appropriate involved and interested agencies, including NYSDEC staff responsible for permitting and technical review of agency permits. The DEIS states that the program will employ one on-site environmental monitor. Because seasonal conditions often allow for extension of the construction schedule to include nighttime hours or weekends, the monitoring plan should include assurance that a staff of monitors is available to provide coverage at all times construction activities occur. These provisions will be requirements of any NYSDEC permits that may be necessary for project construction.

Response A52: The Applicant will comply with the general and special terms and conditions of all permits issued to the project, including requirements of the environmental monitoring program.

Comment A53: NYSDEC guidance provides that a specific alternative or alternatives should be included in the alternatives analysis that largely avoids or reduces adverse impacts identified in the environmental review of the proposed action.

Response A53: Section 5 of the SDEIS provides a description of Project alternatives that avoid or reduce adverse environmental impacts associated with the Project, including the No Action Alternative.

**COMMENT B. The Nature Conservancy, April 4, 2008**

Comment B1: PPM Energy downplays the significance of habitat conversion and loss during construction and operation of the Project on the grounds that there is abundant forest and wetland habitat on Tug Hill. In fact, it is the amount of contiguous forest that makes Tug Hill so unique and important for conservation. Tug Hill is one of the few remaining places in New York where it is still feasible to maintain and restore a functional forest ecosystem that supports a full diversity of native plants and animals and contains high quality wetlands and streams. Even though the Project site has already been heavily disturbed and is dominated by a very young forest, it is still an integral and relatively unfragmented piece of the core forest that, over time, will recover and re-grow. Building wind towers on the property will permanently fragment and alter the forest, with more lasting impacts than previous disturbances. While other types of land use, such as conversion to residences or

second homes, would have a greater negative impact on the site and surrounding area, building wind towers will make temporary fragmentation from past logging permanent. Allowing the forest to re-grow and be utilized for sustainable forestry practices in combination with compatible recreational use would have less of an impact.

Response B1: The Project Sponsor acknowledges that habitat conversion resulting from project construction is an unavoidable adverse impact associated with the proposed action. See also Responses A17, A21, and J5.

Section 3.3.2.2.2 of the DEIS acknowledges that the Project will cause forest fragmentation, and preclude full restoration of forest interior conditions in the Project area for the foreseeable future. With respect to the potential for this successional forest to recover and re-grow, the DEIS and the SDEIS describe that the majority of the Project area is currently under private landownership, with ongoing logging and agricultural practices. Many parcels have seasonal residential camps. One of the major landowners that will lease the land for 30 of the proposed turbines has developed an extensive network of well-maintained roads on his property, and has indicated that he plans to develop and utilize the site for recreational purposes and/or further timber harvest or other land use practices if the wind power project is not built. Thus it is unlikely that unfragmented mature forest will be re-established within the Project area.

The SDEIS evaluates impacts to vegetative communities by community type (northern hardwood forest, spruce-fir forest, conifer plantation, successional northern hardwood forest, agricultural land, old field, and shrubland). This evaluation concludes that approximately 60% of the anticipated permanent loss of forested areas occurs within successional northern hardwood communities which have been heavily logged in the recent past. This evaluation also concludes that approximately 106 acres of primarily successional forested vegetative communities will be converted to other successional communities. The quantity of habitat conversion or loss has been minimized through careful site planning, collocating facilities with existing roadways, culverts and clearings, and minimizing disturbance through project design criteria. These are as described in Sections 3.3.3 and 4.0 of the SDEIS.

No direct impacts to the quality or availability of wildlife habitats within the adjacent WMA or TNC lands are anticipated or proposed.

Comment B2: PPM Energy has indicated that they will be working with the landowner to develop a long-term forest management plan designed to create and maintain forest interior habitat conditions on the majority of the generating site (p. 101). TNC recommends that this forest management plan be a condition of approval of the Environmental Impact Statement and that the plan be developed in conjunction with a certified professional forester.

Response B2: Refer to Response A12.

Comment B3: TNC requests post-construction monitoring to ensure that the affected forests naturally return to original levels of native species diversity and ecology function. If they do not, PPM Energy could take a more active restoration approach.

Response B3: Impacts to successional forestland are discussed in the DEIS and the SDEIS. The majority of impacts to vegetative communities are of forested covertypes. Of the 147.5 acres of cleared forest land, approximately 103 acres is recently heavily logged successional forestland. Of the 147.5 acres of forest land impacts, 41.5 acres will be permanently converted to built facilities (wind turbines, access roads, met tower), and 106 acres will be allowed to regenerate or will be maintained as a shrubland/successional community for the life of the Project. As part of the in the Environmental Monitoring and Compliance Program (DEIS Section 4.3), *“[Iberdrola] or an environmental monitor will maintain a monitoring presence following completion of site restoration to evaluate areas disturbed during construction and assure that ecological and land use functions and values are restored and maintained over the long term.”* However, no long term monitoring of the surrounding private forest land is proposed. As stated in the Response J5, the Project Sponsor has no ability to monitor or manage private land outside the area under lease for operation of the wind farm. Even within this leased area, Iberdrola’s activities are restricted to those necessary to assure safe and efficient operation and maintenance of the Project.

Comment B4: Concerns about cumulative fatalities for the eastern red bat and all other bat species are particularly relevant at this time in light of the emerging white nose

syndrome. Any additional sources of mortality, including the Roaring Brook project, deserve close scrutiny given that bat populations are already under such dire threat.

Response B4: See Response A28.

Comment B5: TNC does not believe that the direct and cumulative impacts of bird and bat mortality have been adequately considered in the DEIS. TNC request that the studies and information referenced here, as well as data collected from the Maple Ridge Wind Farm, are evaluated and estimates of predicted direct bird and bat mortality are provided in the DEIS so that economic, environmental and social considerations can be appropriately balanced based on these sources. In addition, TNC requests that an analysis of the cumulative impacts of state-wide and regional direct mortality, including that predicted for Roaring Brook, on bird and bat populations be required as part of the DEIS.

Response B5: See Response A28.

Comment B6: TNC is concerned that birds and other species avoiding the towers may not only be displaced from the Project site but also from the EBFC Conservation Area and the Tug Hill WMA, citing Stewart et al. (2007). Scientists hypothesize that the full displacement effect may take years to measure and understand because many species of birds exhibit high site fidelity. That is, the older birds that were already using the site before the wind towers were constructed will continue to do so. New birds and their offspring, however, will choose to avoid the wind towers (Drewitt & Langston, 2006). In light of the uncertainty about the displacement impacts in forested landscapes and the close proximity of the generating site to two properties that are intentionally being managed for wildlife and conservation purposes, TNC requests a conservation buffer of 1 km from the edge of the EBFC Conservation Area and Tug Hill WMA to the nearest tower.

Response B6: A 1 km buffer around the adjacent East Branch of Fish Creek (EBFC) Conservation Area and Tug Hill WMA is not justified. Stewart et al. (2007) documents avian avoidance of wind turbines by seabirds in offshore developments and shorebirds in coastal environments in Europe. This inference can not be applied to inland, forest locations in the US. More appropriate references on displacement include

information from the Searsburg, Vermont site, one of the few sites with post-construction data on avian abundance in a forested setting. Kerlinger (2002) documented that Swainson's thrush moved farther into the forest after construction, but American robin and blue jays became more numerous after construction. Kerlinger (2003) returned to the Searsburg site and documented Swainson's thrush and several other forest interior species within 30-40 m of the turbines (including blackpoll warbler, white-throated sparrow, dark-eyed junco, magnolia warbler). These results suggest that some or many forest nesting birds habituate to turbines. Recent post-construction results from the Maple Ridge project development indicate that displacement to grassland species was limited to a distance of 75-100 m from the turbines, likely because the habitat near the turbines had not had time to return to pre-disturbance conditions (Kerlinger & Dowdell, 2008).

Drewitt and Langston (2006) state that few displacement studies are conclusive because of a lack of proper experimental design (e.g., BACI design). Furthermore, they do not say old birds return because of site fidelity but new birds and their offspring will choose to avoid wind towers. The actual quotation is "*Studies of breeding birds are also largely inconclusive or suggest lower disturbance distances (Winkelman, 1992d; Ketzenberg et al., 2002), though this apparent lack of effect may be due to the high site fidelity and long life-span of the breeding species studied.*" These two statements have different implications and it is important to note that both cited studies occurred in Europe, and thus may not represent a valid comparison with the Roaring Brook Project.

Other examples of displacement effects include grassland birds in Minnesota (Leddy et al., 1999), where several species showed a displacement effect out to <180 m from turbines; mountain plovers in Wyoming (Johnson et al., 2000), where birds weren't observed nesting within ~200 m of turbines; grasshopper sparrow in Oregon (Erickson et al., 2003), where differences in breeding densities occurred to within 50 m of turbines; and grasshopper sparrow in SD (Erickson, 2008), where differences in breeding densities occurred within ~150 m of turbines. However, as the Roaring Brook Generating Site does not provide habitat for grassland birds, no displacement of such species is anticipated.

In summary, no rationale and justification for the 1 km buffer is provided. Only small scale (i.e., < 200 m) avian displacement has been recorded in all terrestrial

habitats. Suggested buffer width should be based on known displacement distances.

Comment B7: TNC is also concerned that wind turbine placement close to the EBFC Conservation Area and the Tug Hill WMA could decrease the availability and suitability of these conservation areas as stopover habitat for migratory birds, citing Moore et al., 1995.

Response B7: If the Moore et al. 1995 citation refers to *Habitat Requirements During Migration: Important Link in Conservation* in the book Ecology and Management of Neotropical Migratory Birds, ABR does not believe this reference supports TNC's statement. Moore et al. (1995) discuss a variety of issues, including the scale of habitat selection and the factors that influence how and when birds select habitat. They do not, however, make any statement about how nearby development could decrease the availability and suitability of adjacent habitats.

Comment B8: The DEIS does not include a map of the locations of exemplary wetlands (identified by NYNHP and TNC), which makes it impossible to evaluate the impacts to those particular wetlands.

Response B8: The locations/mapping of rare species and ecological communities provided by the New York Natural Heritage Program (NYNHP) is considered sensitive information and, therefore, as per the request of NYSDEC, has not been provided to the public in the form of site specific mapping of these areas. However, the wetland communities identified by NYNHP (marsh headwater stream, rocky headwater stream, shallow emergent marsh, and shrub swamp) have been discussed in the DEIS and SDEIS and in the wetland delineation report (DEIS Appendix E and SDEIS Appendix F). As described in Section 4.1 of the Wetland Delineation Report, wetland delineations were performed only in areas that occur within the vicinity or footprint of proposed Project components. There are numerous large, complex wetland systems within the Project Site that were not delineated, or had just a tiny periphery of the entire system delineated. As described in Section 3.2 of the Wetland Delineation Report, many of these large wetland systems are protected by the NYSDEC. The wetland mapping presented in the report is the most detailed, accurate, and current wetland mapping available for the Project area as it is the result of an extensive on-site delineation effort, which has been

reviewed by the NYSDEC. The classifications of all NYSDEC Freshwater Wetlands are noted in the SDEIS, Table 3.

With respect to evaluating wetland impacts, detailed descriptions of potential impacts to wetlands and streams (both temporary and permanent) are described in Section 3.2 of the DEIS and SDEIS, and in a Joint Application for Permit submitted to the Corps and NYSDEC in December 2008. An amendment to the Joint Application for Permit was submitted in March of 2009 and the application was subsequently accepted as complete by the NYSDEC (see agency correspondence in Appendix A). A summary of revised anticipated impacts to wetlands and streams (as reported in the application amendment) is presented in Section 2.2 of this FEIS. It should be noted that permanent impacts resulting from fill and grading activities have been primarily restricted to areas where existing wetland road crossings are present to reduce wetland loss to the maximum extent practicable. Total permanent loss of wetlands is estimated at 0.42 acre.

**Comment B9:** TNC does not believe that the hydrologic impacts of constructing the Project have been sufficiently evaluated. In addition to creating wet areas, disruption of the subsurface drainage could drain other wetland areas and alter flows within streams. These impacts could carry over to adjacent properties, such as the EBFC Conservation Area to the south and the Tug Hill Wildlife Management Area to the west. The use of blasting to loosen bedrock for tower foundations would have the most significant and unpredictable impact on subsurface and surface hydrology. After blasting, it would be impossible to determine if the bedrock had been fractured and if it was, restoring the natural hydrology would not be feasible. TNC strongly recommends that blasting be prohibited on this site.

**Response B9:** An extensive evaluation of potential adverse impacts to wetlands, streams, and waterbodies has been conducted (see Response A7). It should be noted that on-site and adjacent surface waters are generally part of large, interconnected systems of streams, ponds, and wetlands. These systems have large watersheds and receive water from a variety of surface and subsurface sources. Minor, temporary, and localized impacts to surface and groundwater sources may occur, but would be mitigated through the implementation of Best Management Practices during construction. As part of the Project, existing surface hydrologic connections obstructed by forest road crossings would be repaired increasing flow through

these systems and correcting any impounded areas. With regard to the potential for subsurface drainage, DEIS Section 3.1.3 states that *“low permeability breakers will be installed along buried electrical interconnect trench-lines to inhibit the migration of subsurface water.”* With respect to blasting, as indicated in the DEIS, blasting is not currently anticipated. In the event that blasting is necessary for the excavation of tower foundations, offset measures will include the development of a blasting plan that limits offsite impacts. This plan will address blast size, timing, and sequencing to focus force within the area of excavation. Therefore, impacts beyond the immediate turbine sites are not anticipated.

Comment B10: PPM should strive to eliminate impacts to all wetlands wherever possible. Disturbed areas are hotspots for invasive species establishment. If native vegetation and full functionality do not naturally return (within wetlands), then TNC recommends that more active restoration efforts, such as plantings, invasive species control, re-grading and/or adding topographic heterogeneity be implemented.

Response B10: See Responses A7 and A10.

Comment B11: TNC requests that as a condition of approval of the Environmental Impact Statement, PPM Energy develop and implement an invasive species monitoring and control plan that will be in effect from the beginning of construction throughout the life of the project.

Response B11: See Appendix K of the SDEIS and Response A10.

Comment B12: The Roaring Brook wind project cannot claim the displacement of energy at existing conventional power plants or the reduction of the adverse environmental impact of burning fossil fuels unless it can be demonstrated that overall electrical demand has been reduced by 79.9 MW through the construction of this project. The rate of increase in the supply of renewable energy is significantly lower than the rate of increasing electrical demand. A larger impact on power generating emissions would have been accomplished had PPM sought to decrease electricity demand by 79.9 MW through public education.

Response B12: Although the increasing demand for electricity and need for conservation is an



important issue, it is beyond the scope of this EIS and is not in line with the purpose of this project as presented in Section 2.2 of the DEIS and Section 2.3 of the SDEIS. Regardless of changes in the demand for energy, electricity generated by this Project will directly displace the generation of energy at existing conventional power plants, and thereby will displace pollutants emitted by these facilities as indicated in the DEIS Section 3.4. This conclusion is supported by a 2008 U.S. Department of Energy, National Renewable Energy Laboratory report that states, *“Wind energy generation results in reductions in air emissions because of the way the electric power system works. Wind energy is a preferred power source on an economic basis, because the operating costs to run the turbines are very low and there are no fuel costs. Thus, when the wind turbines produce power, this power source will displace generation at fossil fueled plants, which have higher operating and fuel costs.”* Air quality benefits occur when wind generated power reduces the combustion of fossil fuels at existing power plants. On the long-term basis, wind generated power also reduces the need to construct and operate new fossil fueled power plants (USDOE NREL, 2008). See also Response J32.

Comment B13: It is a requirement of SEQRA that all reasonable alternatives be evaluated in compliance with 6 NYCRR Part 617.11 (d). TNC does not believe that sufficient information was provided in the DEIS to allow for the evaluation of alternative project size. In several locations throughout the document, references are made to a lesser number of towers impacting project viability for different reasons, but no data are given to evaluate the viability cut-off point. Without an understanding of the cost-benefit analysis based on different numbers of turbines, turbine locations, and turbine capacities, it is not possible to incorporate and balance the social, economic and environmental factors in the planning and decision-making processes.

Response B13: SEQRA does not require that project applications must include a financial justification for the Project size or a cost benefit analysis demonstrating that the project will be sized to be just over the threshold of economic viability. Rather, under SEQRA, an EIS must contain “a description and evaluation of the range of reasonable alternatives to the action.” (6 NYCRR § 617.14[f][5]). And the courts have confirmed that SEQRA “requires consideration of such alternatives to various aspects of the project as might result in amelioration of environmental problems caused thereby.” (Rye, Town/King Civic Ass’n v. Town of Rye, 82 AD2d [2d Dept.

1981] [emphasis supplied]). In this context the alternatives analysis can assist the Lead Agency in weighing project benefits against identified Project impacts of concern in order to certify that “consistent with social, economic and other essential considerations from among the reasonable alternatives available, the action is one that avoids or minimizes adverse impacts to the maximum extent practicable.”

Moreover, the SEQRA regulations state that the project sponsor’s objectives must be taken into consideration when determining whether a particular alternative is reasonable. (6 NYCRR § 617.9[b][5][v]). As explained in Section 2.2 of the DEIS, in developing the Project, the objectives of the Project Sponsor are to develop a for-profit wind-powered energy facility that will provide a significant source of clean renewable energy by maximizing energy production from the distinctive wind resource, in order to deliver clean, renewable, low cost electricity to the New York State Bulk Power System (“the Grid”), provide economic benefits to the local economy, and provide a fair investment return. Additional information on the wind resource in the Project area can be found in response to comment J28, below.

As a general matter, wind project developers in New York that have secured a site, which is favorable for wind energy development will generally aim to maximize the size of the project in order take maximum benefit of the site’s wind resource. This approach is generally consistent with NY State Policy which favors taking maximum advantage of NY’s relatively limited wind resources in order to secure the benefits of this clean, renewable source of energy (New York State Renewable Energy Task Force, 2008). This is also a prudent approach as economies of scale generally lower costs and the concomitant price a project operator must charge for energy produced, making a project more competitive and capable of delivering lower cost energy to the grid, as well as potentially maximizing the return on investment. As stated in Section 2.3 of the DEIS, the Project sponsor will expend approximately \$200 million to develop, permit and construct the 39-turbine (and associated facilities) Project. Regardless of the size of a given wind power project, approximately 20% of the \$200 million development costs are fixed and will remain essentially unchanged. These fixed costs include, but are not limited to: transmission system upgrades, a collection substation, transformer, 3 ring bus, operations and maintenance building, access roads, electrical circuits, construction mobilization, environmental monitoring and post construction monitoring, as well as all the development, consulting, and legal costs associated with permitting efforts.

The cost of these actions/facilities is more-or-less the same, regardless of the number of turbines built since these facilities and services are common to all, the options regardless of size, turbine choice or other variables.

The comment appears to assume that a smaller project would somehow be more desirable but does not provide any specific adverse impacts that would be minimized by selecting some identified smaller project or otherwise favor such selection. In the summary of this comment letter dated April 4, 2008, The Nature Conservancy has suggested that the Town of Martinsburg impose a 1 kilometer conservation buffer from the edge of the East Branch of Fish Creek Conservation Area and the Tug Hill Wildlife Management Area. In consideration of this suggestion, Atlantic Wind determined this 'no build area' on privately owned property would result in a 10 turbine project. While this alternative would have the potential incremental effect of reduction of natural resource based impacts (vegetation clearing, culvert installation for road improvements, soil disturbance, etc.), it would have a directly proportional reduction to project benefits such as lease and easement payments to landowners, local taxing jurisdiction payments, and annual quantity of renewable energy generation. Further, as described above, there would not be a corresponding proportional reduction in the development, permitting and construction costs associated with a 10-turbine alternative. In essence, this alternative proposed by the Nature Conservancy would not balance impacts with project benefits, as required by SEQRA, and essentially imposes a no-build zone within private land.

As noted in sections 4.0 of the DEIS and SDEIS, the identified unavoidable adverse impacts of the Project are primarily temporary (related to construction) and relatively localized. Impacts have been significantly reduced through a balance between construction of new access roads and new forest clearings, with the reuse and upgrade of existing wetland and stream crossings, resulting in the minimization of new crossings and clearing impacts. Over the long term, Project development will also result in a loss of successional forest land, wildlife habitat changes, and some level of avian and/or bat mortality associated with bird/bat collisions with the turbines. However, significant long term Project benefits (energy production, financial benefits to host community, county and school district) or similar benefits are balanced with the proposed project impacts. Although some adverse environmental impacts will occur, they will be minimized through the use of various

general and site-specific avoidance and mitigation measures. With the incorporation of these mitigation measures, the Project is expected to result in positive, long-term overall benefits that will offset the adverse effects that cannot otherwise be avoided. The commentator fails to identify impacts that could be meaningfully avoided or mitigated by reducing the size of the Project. As such a smaller project would simply minimize the benefits for no stated purpose.

Comment B14: Given the unique wetlands located on and adjacent to the project site, TNC respectfully requests that PPM Energy incorporate two elements into the SWPPP. First, TNC feels it would be beneficial for the on-site environmental monitor to conduct site inspections of all construction activities at a frequency greater than that specified in the SPDES General Permit, and daily if possible. Further, TNC feels that the inspector should have the ability to halt construction or any other activities that he/she judges to be negatively impacting the environment without consequence and without the need for permission from the contractor or his agents. Secondly, TNC would like to request that PPM Energy use planting mixes for erosion and sediment control that contain only species native to the Tug Hill region or non-native annuals that have been proven to be easily replaced by naturally regenerating native species; erosion and sediment control vegetation should not cause a significant change in the plant ecology on the site.

Response B14: See discussion in Section 4.3 of the DEIS (page 187), which discusses the proposed environmental compliance and monitoring program designed to ensure compliance with all environmental commitments and permit requirements, including SPDES. As described in the DEIS, components of this plan include planning, training, preconstruction coordination, and construction and restoration inspection.

The Applicant has also developed an Invasive Species Control Plan, as described in Response A10. In addition, the Project will use seed mixes native to this region of NY and non-invasive annual grasses for stabilization.

Comment B15: While the nameplate capacity of the turbines adds up to approximately 78 MW (p. 10), the expected annual generation rate of the wind project is only about 23.3 MW, or 30% of nameplate. The environmental impacts should be evaluated based on a generation rate which is achievable, not one that is unrealistic, and the actual expected generation rate should be more prominently mentioned.

Response B15: The 30% capacity factor is stated in Sections 2.2, 3.4, and 9.0 of the DEIS. This capacity factor was considered in calculating Project benefits such as the displacement of conventional energy sources discussed in DEIS Section 3.4 and the calculation that the Project will generate enough electricity to meet the average annual consumption of approximately 40,000 average NYS households (DEIS Sections 2.2 and 9.0). The evaluation of other physical project impacts are discussed in terms of project footprint/disturbance area, not generation rates.

Comment B16: On page 86, Section 3.3.1.2.5, the paragraph describing TNC's management of the EBFC Conservation Area is incorrect. In partnership with the East Branch of Fish Creek Working Group, NYS NYSDEC, the Tug Hill commission, and other local partners, TNC acquired 45,000 acres immediately south of the Project site. The goals of this cooperative effort were to maintain working forestland, protect aquatic resources, and provide opportunities for traditional recreation uses. The majority of that land is now owned by a timber investment management organization and restricted by a conservation easement held by NYS NYSDEC that limits subdivision and requires sustainable forestry. TNC retained ownership of 15,000 acres directly to the south and south-east of the Project site; these lands are being managed to protect high quality wetlands and streams and restore mature forest conditions.

Response B16: The DEIS is not necessarily incorrect but may not have provided the level of detail preferred by the commenter. Further detail is available on the NYSDEC, NYS Tug Hill Commission, and The Nature Conservancy websites. As described on The Nature Conservancy website, the original 45,000-acre (44,650-acre) acquisition had the following three components:

*"First, The Nature Conservancy retained 13,000 acres of the most ecologically valuable portions of the property as our new Tug Hill Conservation Area. Our goal for this core reserve is to see it restored to mature forest, a successional stage that is virtually absent on Tug Hill. We also have ensured that this reserve is off-limits to motorized vehicles. New acquisitions have expanded this reserve to 15,000 acres, making it the largest privately owned conservation area in the state.*

*Second, the New York State Department of Environmental Conservation assumed ownership of an eight-mile-long by quarter-mile-wide corridor of land centered on the East Branch of Fish Creek. This 1,350-acre corridor protects the water quality, fish and wildlife, and scenic values of one of Tug Hill's largest rivers. This river provides drinking water for the City of Rome and other upstate communities.*

*Third, the remaining 30,300 acres of the property were protected by a permanent conservation easement and sold to a private timber company. The conservation easement, which is now held by the NYS NYSDEC, prevents subdivision and development, requires sustainable forestry, and provides access for compatible public recreational opportunities such as hunting, fishing, snowmobiling, mountain biking, cross-country skiing, and canoeing and kayaking."*

Comment B17: On page 107, Section 3.5.1.1.1, the last part of last sentence in reference to TNC's management of the EBFC Conservation Area would be more accurate if it said, "managed to restore mature forest habitat." In addition there are 30,000 acres of land owned by Molpus south of TNC's property that also allow public access and recreation.

Response B17: It is noted that the property is "managed to restore mature forest habitat" rather than "managed as sustainable forest habitat", as stated in the DEIS. It is also noted that Molpus Woodlands Group owns the 30,300 acres of property mentioned in Comment/Response B16, which provides access for compatible public recreational opportunities.

**COMMENT C. Audubon New York, April 7, 2008**

Comment C1: This DEIS states that the loss of habitat through conversion and construction and operation at the Project is not significant because there is abundant forest and wetland habitat on Tug Hill. Tug Hill is one of the few remaining places in New York where it is still feasible to maintain and restore a functional forest ecosystem that supports a full diversity of birds and wildlife. This is because it is a large tract of unfragmented forest. TNC encourages the town to direct this project so that it reduces the amount of the habitat loss and degree of habitat fragmentation and avoid sensitive areas such as wetlands and state significant habitats (i.e., "high

quality examples of a more common community type”).

Response C1: See Response B1. Minimizing or avoiding impacts to sensitive areas such as wetlands has played a large role in guiding Project siting and design. All but one wetland crossing associated with the Project occur in areas of existing wetland road crossings.

Comment C2: PPM Energy has indicated its desire to work with the landowner to develop a long-term forest management plan designed to create and maintain forest habitat conditions on the majority of the project site. Audubon recommends that the requirement of a forest management plan be a condition of approval of the Environmental Impact Statement.

Response C2: See Response A12.

Comment C3: Audubon strongly encourages the town to require post-construction monitoring and mitigation measures to ensure that if this project moves forward any unforeseen, unacceptable impacts to birds and other wildlife are addressed. Although the DEIS states that there will be no bird displacement, this statement is based on a single study and the degree of displacement cannot be predicted because detailed studies have not yet been conducted in similar habitat in New York State. Post-construction surveys should be reviewed and guided by a panel of experts and the results should be used to determine whether or not mitigation measures are needed. Mitigation measures could include modifications to the timing of turbine operation and/or providing biologically comparable/equivalent habitat to that impact. In addition, Audubon encourages wind developers and permitting agencies to consult with wildlife experts, including state agency staff and Audubon representatives, to help inform study and siting decisions.

Response C3: See responses A26, A31, and B6.

**COMMENT D. Tug Hill Tomorrow, April 7, 2008**

Comment D1: Placing towers in the core forests of Tug Hill is not appropriate.

Response D1: See Responses A17, A21, B1, and J5.

Comment D2: Consider requiring the landowner, as part of an environmental mitigation package, to place a conservation easement on the property to prohibit any future seasonal or residential development on this property which would further impact the forests, wetlands, and streams of Tug Hill.

Response D2: See Response B2.

**COMMENT E. Frank and Debra Kogut, March 14, 2008**

Comment E1: The PILOT program from the Maple Ridge Wind Project is the town's main source of income, which has provided money for significant town improvements and 10% tax reductions. The existing windmills are the town's main source of income over the taxpayers and adding the Roaring Brook Project can only be a win, win situation.

Response E1: Comment noted.

**4.1.2 Response to DEIS Public Hearing Comments**

**COMMENT F. Ernie Csizsmar**

Comment F1: Wind turbines are a terrible eyesore, especially the flashing lights at night. The twelve miles of transmission line is another scar on the countryside.

Response F1: Potential visual impacts associated with Project operation are evaluated and presented in a Visual Impact Analysis and a Supplement to the Visual Impact Analysis (the latter of which evaluates the current Project layout). Refer to the DEIS (Section 3.5 and Appendix K), and the SDEIS (Section 3.5 and Appendix L). Due to the abundance of forest vegetation in the surrounding area, foreground views of the wind turbine generators are limited. In more distant views, the proposed turbines are partially screened and appear to be a minor extension of the existing Maple Ridge Project. Additionally, the electrical interconnection route is approximately 8.5 miles long, of which 5.0 miles are buried and 3.5 miles are proposed to be mounted overhead on single wood poles. The Supplemental Visual Impact Analysis for the Project addresses potential visual impacts and visibility of the proposed overhead section of the electrical interconnection route, including vegetation clearing associated with the route.



Comment F2: Where are the towers/generators manufactured?

Response F2: The turbines proposed for use on this Project are manufactured by a company based in Spain (Gamesa). However, the turbines and associated Project components are actually manufactured and assembled in various places, including both international and domestic locations such as Fairless Hills, PA and Ebensburg, PA, as well as locations in Wisconsin, North Dakota, and Arkansas.

Comment F3: Turbines make a lot of noise, especially when it is snowing, windy, or raining out.

Response F3: Potential sound related impacts associated with Project operation are evaluated and presented in a Sound Survey. Refer to the DEIS (Section 3.7 and Appendix N) and the SDEIS (Section 3.7 and Appendix N).

Comment F4: The newer turbines are going to be bigger, uglier, and noisier (than the Maple Ridge Wind Power Project turbines). For what? I don't understand it.

Response F4: Wind speeds at the Roaring Brook Project are proven to be less than those at the nearby Maple Ridge Project and therefore taller turbines have been selected for this Project. See Section 5.2.1 of the DEIS for a discussion of the factors considered in selecting the wind turbine model. This section states that, *"Higher hub heights generally equate to higher wind speeds while larger rotor diameters capture more of the available wind energy. The site specific wind resource characteristics are the drivers in selecting the optimal hub height, rotor diameter, as well as the turbine design to maximize wind energy capture and electricity generation."* This section further states that, *"if the Project specified the use of smaller (lower hub height/smaller rotor diameter/smaller rated capacity) the number of turbines required to meet the Project's stated purpose, need and benefits would have to increase."*

Section 3.5.3 of the DEIS and Section 3.5.2 of the SDEIS evaluated visual impacts from the proposed Roaring Brook Project. Simulations of the proposed Project indicate that the visibility and visual impact of the wind turbines will generally be limited due to the extent of natural screening, the presence of existing wind turbines in the view, and/or distance of the viewer from the Project. Evaluation by an EDR landscape architect suggests that the Project's overall contrast with the

visual/aesthetic character of the area will be very low. In most cases the Project was barely perceptible due to forest screening and distance. The simulated views typically included only turbine blades, a few distant turbines, and/or appeared compatible due to the presence of the existing Maple Ridge Wind Farm. Due to its distance and degree of screening from most viewers, the Project is unlikely to receive a negative reaction from the public, regardless of landscape setting or viewer characteristics.

Anticipated noise impacts from the Roaring Brook Project were evaluated in Section 3.7.2 and Appendix N of the DEIS and SDEIS. The nearest permanent residence is nearly 1 mile beyond the nominal impact threshold of 35 dBA. Project sound levels should be essentially negligible at this location (<30 dBA) under almost all normal conditions and are unlikely to be significant even during unusual conditions, such as temperature inversions or sudden periods of high winds. There are several seasonal cabins in the Project vicinity, most of which are fairly primitive structures (without electricity or running water) that are only intermittently occupied for short periods during the summer and/or hunting season. The predicted sound levels of more than 40 dBA mean that turbine noise will be clearly audible above any natural background level at several seasonal cabins.

In summary, visual and sound impacts from the Roaring Brook Project are anticipated to be similar in type to those from the existing Maple Ridge Windfarm, but will likely affect fewer people because of the distance from permanent residences and public vantage points.

Comment F5: The assessment of my land has really gone up over the last six years. I don't think it is fair for the eyesore. My assessment should be going down. It's like having a landfill next to your house.

Response F5: As indicated in the VIA (DEIS Appendix K) and SVIA (SDEIS Appendix L), visual impacts associated with the proposed Roaring Brook Project should be minimal. Section 3.9.2.2.1 of the DEIS discusses studies that have show that wind power projects do not have a depreciating affect on property values. See also Appendix P of the DEIS.

Comment F6: What's the longevity of these towers?

Response F6: As stated in Section 2.8 of the DEIS, *“Megawatt-scale wind turbine generators typically have a life expectancy of 20 to 25 years. The current trend in the wind energy industry has been to replace or “re-power” older wind energy projects by upgrading older equipment with more efficient turbines. However, if not upgraded or if the turbines are non-operational for an extended period of time (such that there is no expectation of their returning to operation), they will be decommissioned, in accordance with the Decommissioning Plan.”*

**COMMENT G. Anne Britton**

Comment G1: The DEIS is far from complete. There are no comments from U.S. Fish and Wildlife Service provided in the DEIS. There are wetlands on the property, but no comments from Army Corps of Engineers are provided in the DEIS.

Response G1: All agencies, in addition to the general public, were given the opportunity to comment on the Project during the DEIS and SDEIS public comment periods. Substantive comments and associated responses are presented in this FEIS. Refer to Comment J for comments received from the U.S. Fish and Wildlife Service. Additionally, although the U.S. Army Corps of Engineers did not provide comments on the DEIS or SDEIS, the Project Sponsor submitted an application to the Corps for impacts associated with jurisdictional wetlands and waterbodies, which is currently under review.

Comment G2: There are no post-construction numbers from the Maple Ridge project done by Curry and Kerlinger (who was hired by Horizon/Iberdrola), 6,000 bats and 2,000 birds, many of them raptors. There's nothing about that in the DEIS.

Response G2: The commenter is incorrect. The DEIS discusses the preliminary results from the collision mortality study (2006) at the Maple Ridge site and the SDEIS discusses results from the second year (2007). From the DEIS, Section 3.3.2.2.2:

- *“In the first year of study at Maple Ridge (June through November 2006) the fatality rates ranged between about 2 and 9 birds per turbine for the study period. The weighted average for that period was about 4 bird fatalities per turbine. Most impacts were to night migrating songbirds (in particular, Kinglets). There were very few raptors, waterfowl, or shorebirds killed, and no*

*species listed as endangered or threatened (Jain, et al., 2007)."*

- *"Jain et al. (2007) documented a mortality rates in the range of 15.2 - 24.5 bats per turbine per year at Maple Ridge during the first year of post-construction monitoring. The proximity of this site and the presence of quality bat habitat (mix of forest, wetland and open areas) on site suggests that similar rates of collision mortality could be anticipated on the Roaring Brook site."*

And from the SDEIS, Section 3.3.2.2.2:

- *"Since the release of the DEIS, the results of the second year of post-construction bird and bat fatality study at Maple Ridge have been published. Post-construction fatality study results between the two study years are similar. In the second year of study at Maple Ridge (April through November 2007) the fatality rate estimate for birds is between 5.67 and 6.31 birds per turbine for the study period (Jain et al. 2008). Most impacts were to night migrant songbirds, however it cannot be determined if the birds were in the process of migration at the time of the collision. There were very few raptors, waterfowl, and shorebirds killed, and no species listed as endangered or threatened (Jain et al., 2008)."*

Comment G3: In regards to the sound map in the DEIS, what's the decibel rating? Where does the sound map come from? What about sound effects for the Tug Hill wildlife preservation land?

Response G3: Noise impacts are evaluated in the DEIS in Section 3.7 and Appendix N, as well as in SDEIS Section 3.7 and Appendix N. The Noise Modeling Study and Environmental Impact Assessment and associated sound mapping were prepared by Hessler Associates, Inc., consultants in engineering acoustics and a member of the National Council of Acoustical Consultants Noise Control Services since 1976. The study includes a table of sound power level as a function of wind speed for the Gamesa G90 wind turbine as well as the sound power level spectrum used for modeling purposes. The report also explains the assumptions that went into the model to produce the resulting contour map and presents discussions of model results and subsequent conclusions.

With respect to noise impacts on wildlife, DEIS Section 3.3.2.1 states that, “*Some wildlife displacement will occur due to increased noise and human activity as a result of Project construction. The significance of this impact will vary by species, and the seasonal timing of construction activities. However, species most likely to be disturbed/displaced by Project construction include reclusive species or those requiring undisturbed forest interior conditions (e.g., black bear, bobcats).*” Anticipated operational noise impacts to the adjacent Tug Hill Wildlife Management Area are displayed in Plot 1 of SDEIS Appendix N. Operational Project sound levels are not expected to exceed 47 dBA in this area under worst-case conditions.

**COMMENT H. Carl Morrison**

Comment H1: I’ve lived on the West Road my entire life and in my home right now of 35 years, my living room window has a full view of the west horizon. I love seeing that string of windmills across there. I don’t believe they are hurting a thing. My wife and I disagreed on that when this project started. She even likes them now. It’s in the eye of the beholder. I think this Roaring Brook Project fits nicely with the existing wind farm. It doesn’t bother me and I think there are a lot of people that it doesn’t bother. I think there’s a place for these projects and to me, Tug Hill is the place for it.

Response H1: Comment noted.

## **4.2 RESPONSE TO PUBLIC COMMENTS RECEIVED ON THE SDEIS**

### **4.2.1 Response to Written Comments on the SDEIS**

**COMMENT I. NYS Department of Environmental Conservation, March 18, 2009**

Comment I1: To minimize the potential for minor leaks, mechanical failures, and other accidents, a Preventative Maintenance Checks and Services (PMCS) system and form could be established similar to the US Army’s DA 2404 (Equipment Inspection and Maintenance Worksheet). Used in conjunction with the manufacturer’s recommended inspection procedures, utilizing such a form would also reduce the number of potential repair calls and repeated movement of heavy maintenance equipment within the Project area.

Response I1: Refer to response to Comment A3.

Comment I2: The preliminary subsurface/geotechnical investigation recommended that further evaluation of the potential for karst formations should consist of supplemental soil boring to evaluate the type, depth, and condition of the underlying bedrock. NYSDEC continues to recommend that should further investigation reveal the existence of karst features in the project development area, a detailed construction plan needs to be developed to incorporate stringent containment of construction materials, particularly concrete slurry, machinery fuel and oils, and other chemicals. This may include such practices as the use of watertight forms, silt/stormwater fencing, controlled concrete truck washout areas, and covered storage of equipment and construction chemicals. Engineering specifications to describe these practices need to be detailed in this plan.

Response I2: Refer to response to Comment A2.

Comment I3: Section 3.1.1.3 of the SDEIS states that based on the fines content, the site soils are considered moisture sensitive and frost susceptible, and may become unstable when exposed to repetitive construction traffic and excessive moisture. NYSDEC recommends that in-depth subsurface analysis results should be used to determine what mitigation measures are necessary to ameliorate the potential for the project location soils to become unstable due to repetitive construction traffic and/or excessive moisture. This could include, but not be limited to, halting or stopping construction during rain events or precluding working during certain times of the year or other weather related events.

Response I3: Refer to Response to Comment A2. Additionally, its important to note that an existing network of forest roads already occurs throughout much of the Project site. In addition, where necessary, these roads will be substantially improved to accommodate proposed construction vehicle traffic, as noted in the DEIS Sections 2.5.4 and 2.6.5, and in SDEIS Section 2.6.4. Project access roads will be maintained for the life of the Project, to accommodate the maintenance vehicle access required for Project operation.

Comment I4: Section 3.1.2.2 of the SDEIS states that the Project will result in permanent conversion of approximately 46 acres of previously undisturbed/ undeveloped land into built facilities, an increase from the 27 acres described in the DEIS. NYSDEC recommends that in order to offset this increase in proposed soil disturbance,

individual roadways into tower sites be restored back to a 16 ft. permanent width. This would help reduce the Project's overall impact to the natural landscape, could lessen the amount of wildlife habitat fragmentation, reduce wind generated dust, and lower the potential for sediment runoff issues.

Response I4: The Project Sponsor has proposed both 38 foot wide access roads, and 16 foot wide access roads, depending upon where crane access is anticipated for construction. Figure 6 in the SDEIS illustrates proposed access road improvement, and for ease in differentiation, depicts 16 foot wide and 38 foot wide road sections in contrasting colors. The existing road system on much of the site already has a travel surface of approximately 16 feet wide and greater in many locations, with cleared shoulders up to 10 feet wide on either side of the road in most locations. In these areas, a wider travel surface (i.e., 38 feet) will only impact areas that have already been cleared and graded. No roads in excess of 16 feet wide will be built if movement of erection cranes in the area is not anticipated during construction.

Comment I5: NYSDEC recommends that a plan for the replacement of culverts should be developed that describes proposed culvert replacement activities on an individual basis at each of the 16 replacement locations. This plan should include elements for "stream-simulation" crossings recommended by the USDA, U.S. Forest Service, as referenced in Section 3.2.3. The premise of stream simulation is that since the simulation has very similar physical characteristics to the natural channel, aquatic species should experience no greater difficulty moving through it.

Response I5: Culvert improvements are addressed in the Joint Application for Permit in coordination with the NYSDEC and US Army Corp of Engineers. Additional detail will be provided in the Final SWPPP. The natural condition of wetlands and waterbodies adjacent to existing culvert crossings will be considered in the design of permanent and temporary crossings.

Comment I6: NYSDEC will require that existing inadequate stream crossings that will be utilized by the Project be upgraded to meet agency standards as part of Project development. For example, it was noted during an on-site inspection by NYSDEC that a number of stream and wetland crossing sites within the existing road network were accomplished with the use of multiple culverts. A preferred method for stream crossings is that utilized by the Wagner Forest Management Company

(operating in the Tug Hill area), which has converted all culvert crossings to bridge crossings, suitable for tractor-trailer logging trucks. This practice has significantly improved stream quality by eliminating washouts and reducing in-stream maintenance issues.

Response I6: The Project Sponsor agrees to upgrade existing stream crossings that will be utilized by the Project to meet the typical standards for fish and aquatic biota passage. Site specific recommendations from a April 27, 2009 on-site meeting with NYSDEC personnel will be considered in the further design of the Project. However, no bridges are proposed.

Comment I7: SDEIS Section 3.2.1.1 states that there are 12 protected streams and tributaries within the Project area, however Table 2 only lists 9 protected streams. This should be rectified.

Response I7: Three sources of stream mapping (NYSDEC, Lewis County, and USGS) have been consulted in response to this comment to determine which protected streams are named and which are unnamed tributaries, as that is the likely cause of confusion in the number of protected streams present within the Project area. There are minor discrepancies in stream names among these sources, primarily in which streams are named and unnamed. Pulling all stream names from all three sources consulted reveals five named protected streams within the Project area: Atwater Creek, Roaring Brook, North Branch Fish Creek, Dunton Creek, and Edick Creek. Each of these named streams has one or more protected unnamed tributaries that also occur within the Project area. In addition, an unnamed tributary to Mulligan Creek also occurs within the Project area.

Comment I8: The absence of streams regulated by Section 10 of the Rivers and Harbors Act within the Project area does not preclude the potential that state-designated navigable waters may exist in the Project development area. Navigable streams are protected pursuant to Article 15 of the Environmental Conservation Law and its regulations at 6 NYCRR Part 608, Use and Protection of Waters. In 6 NYCRR Part 608.1 Definitions, (1) "*Navigable waters of the state* means all lakes, rivers, streams, and other bodies of water in the state that are navigable in fact or upon which vessels with a capacity of one or more persons can be operated notwithstanding interruptions to navigation by artificial structures, shallows, rapid or



other obstructions, or by seasonal variations in capacity to support navigation.” NYSDEC recommends that an assessment of streams be conducted within the Project development area to determine if any stream segments potentially affected by Project components meet this definition and are thus subject to Article 15 jurisdiction.

Response I8: As described in the SDEIS, Section 3.2.1.1, the Project area does contain streams subject to Article 15 regulations. See also response to Comment A5.

Comment I9: De-watering of the tower foundation excavations can potentially carry sediments to streams or wetlands. NYSDEC recommends that for all de-watering activities associated with construction, appropriately engineered pump-out detention basins, or other Best Management Practice (BMP) measures be employed, and specifications for this activity described in the Stormwater Pollution Prevention Plan prepared for this project.

Response I9: As indicated in Section 2.6.6 of the DEIS, *“If necessary, dewatering of foundation holes will involve pumping the water to a discharge point, which will include measures/devices to slow water velocities and trap any suspended sediment. Dewatering activities will not result in the direct discharge of water into any streams or wetlands.”* The Final SWPPP prepared for the Project will incorporate de-watering BMP specifications as part of the SPDES General Permit.

For example, all pumping of sediment laden water will be through a sediment control BMP, such as a pumped water filter bag or equivalent removal facility, over undisturbed vegetated areas. The contractor will have the responsibility of choosing the size and type of drainage hoses, clamps, and water pumps. Pumping rates will vary depending on the size of the filter bag, and the type and amount of sediment discharged to the bag. The pumping rate will be no greater than 750 gallons per minute, or half the maximum specified by the manufacturer, whichever is less. Pump intakes will be floating and screened. Filter bags will be made from non-woven geotextile material sewn with high strength, double stitched “J” type seams, and will be capable of trapping particles larger than 150 microns. Bags will be located in well vegetated areas, and discharge onto stable, erosion resistant areas. Where this is not possible, a geotextile flow path will be provided. Bags will not be placed on slopes greater than 5%, and will be replaced when half full.

Comment I10: NYSDEC staff has identified a number of discrepancies in the amount of linear or aerial disturbance in Appendix G. NYSDEC is currently reviewing a Joint Application for Permit for anticipated wetland and stream impacts associated with the proposed Project. As details regarding total anticipated impact to streams and wetlands are clarified through this process, they should be incorporated into the FEIS for the Project.

Response I10: A revised summary of anticipated wetland impacts is presented in Section 2.2 of this FEIS. Upon receipt of this information in the form of an amendment to the Joint Application for Permit, in addition to other requested materials, the NYSDEC accepted the application as complete (agency correspondence provided in Appendix A).

Comment I11: Activities identified as Mitigation Measures #1-3 in the SDEIS (pages 28-30) are BMPs and are not considered "mitigation" for purposes of offsetting impact anticipated to be created by the Project. The water resources mitigation measures listed in Section 4.2 are BMPs as well. Mitigation measure #4, implementation of trout habitat restoration and enhancement at Sears Pond, is included as a mitigation measure in the Joint Application for Permit currently under review by NYSDEC.

Response I11: Mitigation can be thought of in terms of impact minimization, avoidance, and compensation. Best Management Practices serve to minimize and avoid indirect wetland impacts and can be considered a form of mitigation in those terms. The trout habitat restoration and enhancement at Sears Pond is intended to compensate for unavoidable impacts.

Comment I12: NYSDEC continues to recommend that the Project Sponsor continue to pursue cooperative forest and/or resource management arrangements with all landowners now associated with the Project.

Response I12: Refer to Response A12.

Comment I13: Appendix H of the SDEIS is a plant list only, and it does not list any animal species. An actual listing of the potential fish and wildlife species that could be found in the

Project area should be provided.

Response I13: The updated wildlife species list was accidentally omitted from the Appendix H of the SDEIS. This comment is addressed in Section 3.0 and Appendix C of this FEIS.

Comment I14: SDEIS Section 3.3.1.2 states, “These study results suggest that nocturnal songbird migration above the Roaring Brook Project site is comparable to what has been observed at other Northeastern sites.” A reference should be provided as to what other studies were used to make this comparison.

Response I14: This comment was taken out of context. The previous sentence in the SDEIS stated, “*See the DEIS, Section 3.3.1.2.1, for a discussion on the existing habitat and concentrations of migrating raptors, migrating waterbirds, migrating songbirds, wintering birds, and discussions of radar studies and other studies of bird migration presented in the results of the 2007 Breeding Bird Survey conducted by Curry and Kerlinger (Kerlinger, 2007).*” Appropriate references were provided in DEIS section 3.3.1.2.1 and the 2007 Breeding Bird Survey (DEIS Appendix H) as indicated.

Comment I15: SDEIS Section 3.3.1.2.2 states that 8 mammal species were observed (or a sign of their occurrence was observed) in the area and up to 41 species of mammal could occur in the area. An actual listing of these species should be provided. It is mentioned that 8 species were observed but only 6 were actually listed (whitetail deer, raccoon, northern red squirrel, chipmunk, black bear, and beaver).

Response I15: The eight mammal species observed on-site consist of whitetail deer, raccoon, northern red squirrel, chipmunk, black bear, beaver, eastern gray squirrel, and coyote. These species were all identified in Appendix F of the DEIS.

Comment I16: NYSDEC recommends that actual listings of the reptile, amphibian and fish species that could be found and/or potentially impacted in the Project area be provided. Field verified data is extremely important for an accurate assessment of potential impacts.

Response I16: As indicated in Section 3.3.1.2.3 of the DEIS, eight species of reptiles and amphibians were observed in the Project area. These species consist of ribbon

snake, pickerel frog, eastern garter snake, red-backed salamander, red-spotted newt, American toad, bullfrog, and green frog. Furthermore, 30 additional species were identified as likely to occur on-site, based on documented species range, existing habitat conditions, and/or review of New York State Herp Atlas data. All 38 species with the potential to occur in the Project area are identified in Appendix F of the DEIS.

Comment I17: SDEIS Section 3.3.1.3 states, “According to the data obtained from the NYS Herp Atlas, no state-or federally-listed reptile or amphibian species have been documented in the vicinity of the Project site, and none were observed during the course of field surveys.” The information contained in the NYS Herp Atlas is not a complete record and is being updated frequently. The SDEIS does not elaborate on the “field surveys” that were conducted to reach this conclusion. Were there actual herpetological field surveys conducted for the Project area? It should be clarified as to what field surveys were conducted and the methodologies that were used to make an evaluation of reptile and amphibian species occurrences. Field verified data is extremely important for an accurate assessment of potential impacts especially to endangered, threatened, or sensitive species.

Response I17: The presence of reptiles and amphibians in the Project area was documented through systematic searches of wooded areas, wetlands, ponds, and streams during the summer and fall of 2007 by an experienced wildlife biologist. During these surveys, the edges of open water areas were searched for the presence of frogs, turtles, and aquatic salamanders. All observations of adults and larvae were recorded. In streams, searches for aquatic salamanders included turning over rocks and capturing individuals by hand. In upland areas, rocks, logs, and other debris were turned over and examined during searches for snakes and terrestrial salamanders. All observed species were identified in the field (or photographed for later identification in the office) and recorded in field notes. See Appendix C of this FEIS for a complete list of all wildlife species observed on-site, including reptiles and amphibians.

Comment I18: Because the revised project layout now includes additional properties, and the total number of acres impacted has increased since the time the DEIS was prepared, further elaboration of the potential for construction-related impacts to threatened and endangered species and unique habitats should be provided for those portions

of the project development area that were not identified in the DEIS.

Response I18: This comment is addressed in Section 3.3.1.3 of the SDEIS. In addition, correspondence dated November 3, 2008 from the New York Natural Heritage Program is included in Appendix B of the SDEIS. As indicated in this letter, the NHP database review was conducted for the updated Project area, and included all areas not evaluated in the DEIS.

Comment I19: In the Breeding Bird Survey it is unclear whether the “point turbine arrays” are the actual turbine locations or the point count locations or whether the point count locations overlap the turbine locations. While the text seems to indicate that the point counts are approximately where turbines would be located, this should be clarified.

Response I19: Table 1 in the breeding bird study makes it clear that the turbines and point counts are at approximately the same location.

Comment I20: On page 7 of the Methods section of the Breeding Bird Survey, “Point count survey research was conducted on four days (June 19-22, 2008) during the peak nesting season for birds in this portion of New York State (Andrle and Carroll 1988).” This is inadequate for both number of total surveys and timing (dates) of surveys. Surveys should be conducted at a minimum once in late May, twice in June (at least 7 days apart), and once in early July. The timing of surveys (day, hours) should also be based on target species. Both morning and evening surveys should be conducted.

Response I20: According to Paul Kerlinger, who prepared the BBS, conducting two rounds of surveys at the same point count locations during the peak of the nesting season is sufficient to determine the type and number of birds present in a given location. As this methodology has been accepted for decades, the basis of the comment is unclear. It is important to understand that the surveys at Roaring Brook were conducted in 2007 and 2008, utilizing the same methodology at the request of NYSDEC so that the data would be directly comparable.

Comment I21: The methods section of the Breeding Bird Survey states that, “Observations that were conducted after 1100 hours EDT were done only when weather was cool

and/or overcast and rainy.” From Table 2 on page 17 it is also noted that breeding bird observations were made on predominately rain event days. Three out of four days in the table recorded rain events. Point counts should not be conducted during inclement weather (i.e. rain) or on days when there are strong winds (i.e. greater than 10-12 mph).

Response I21: This comment inaccurately describes what was stated in the report. Table 2 of the breeding bird report shows that there was light rain to no rain on two of the days, no rain on another day, and light rain-mist on the fourth day. The report never uses the phrase “rain event.” The light rain encountered during portions of the mornings of the field surveys did not stop birds from singing nor did it preclude hearing such birds. According to Paul Kerlinger (the Project breeding bird consultant), overcast weather conditions promote birds to sing later in the morning, making it easier for them to be heard. In contrast, birds are less active during hot, sunny weather making it more difficult to hear them singing (Kerlinger, pers. comm.).

Comment I22: Along with having insufficient number of surveys conducted, the surveys that were conducted were done during less than ideal conditions. Based on the limitations identified in this study, NYSDEC recommends that an additional Breeding Bird Survey be conducted during the 2009 breeding season that incorporates these recommendations. NYSDEC further recommends that the Project Sponsor consult with NYSDEC Fish & Wildlife staff in the preparation of a workplan prior to implementation of this study.

Response I22: The avian and bat studies conducted at the Roaring Brook site were performed in accordance with NYSDEC Albany staff recommendations. It is also important to realize that the 2008 survey was the second year of breeding bird surveys. A full breeding bird survey was conducted on-site during 2007.

**COMMENT J. US Fish and Wildlife Service, March 18, 2009**

Comment J1: Table 1 provides the projected impacts and the data indicates that fewer areas are proposed to be restored than under the original project layout (148 acres vs. 114 acres). The report should explain the reasons why fewer areas will be restored than previously proposed.

Response J1: As indicated in Section 2.6.4 of the SDEIS, *“Access roads will be gravel surfaced*

*and typically are 38 feet wide (rather than the 34 feet described in the DEIS) to accommodate crane travel. In the DEIS, it was anticipated that following construction, roads widths would be restored for use as permanent access roads. However, it is now anticipated that roads will only be restored to a 16 foot width at selected locations as illustrated in Figure 6.”* This decision to keep some roads at the full 38-foot width was made in part to eliminate future disturbances to on-site wetlands and waterbodies. Turbine maintenance and/or repair activities may require occasional access by heavy equipment such as cranes. If all access roads were initially restored to 16-foot widths, future access by heavy equipment would require the re-widening of access roads. Maintaining roads at a width able to accommodate such equipment will allow O&M procedures to be conducted without causing additional erosion or sedimentation into wetlands, streams, or waterbodies. This Project change likely had the most significant effect on the acreage of land to be restored between the DEIS impact calculations and the SDEIS impact calculations.

Impact acreages were also affected by changes to the Project layout itself, as well as a difference in the way impacts were calculated for the DEIS and the SDEIS. In the DEIS, a set of impact assumptions (Table 1 of the DEIS) was applied to each project component. For example, it was assumed that new access roads would require a uniform 75 feet of clearing and 40 feet of soil disturbance in all areas. However, at the time the SDEIS was prepared, project engineering design had advanced to the point where this type of broad assumption could be replaced by a more accurate limit of clearing provided by Creighton Manning Engineering that accounted for site specific cut and fill, etc.

Comment J2: On Page 23 of the SDEIS, it is disclosed that groundwater was observed close to the surface in soil test pits. Turbines 10, 12, and 18 are located in areas where groundwater will have to be pumped from the construction area in order to excavate for the foundations. USFWS did not find information in the SDEIS which describes where and how this discharge would be handled. Considering the numerous wetlands in the Project area, it seems likely that the discharge will ultimately be into a stream or wetland. USFWS is concerned about potential impacts to habitat and water quality from this activity. Moreover, it seems probable that this situation would occur at many more than three turbine sites identified and the potential for cumulative impacts is plausible. The report acknowledges that

construction will be taking place in close proximity to “significant areas of wetland and stream resources” but denies that impacts will be great. USFWS is not convinced that the impacts to aquatic habitat are accurately reported in the document given the site conditions.

Response J2: As indicated in Section 3.2.2.1.2 of the DEIS, groundwater that infiltrates into the excavation may require removal by pumping. This water will be pumped to the surface and allowed to infiltrate back into the water table with negligible loss of volume due to evaporation. The preliminary SWPPP (submitted as Appendix D of the SDEIS) identifies sediment traps as one method that will be used to filter sediments prior to discharge. A Final SWPPP will be prepared and implemented for the Project prior to construction that will comply with the SPDES Stormwater General Permit for Construction Activities requirements, and adequately protect on-site streams and wetlands. The Final SWPP will include de-watering provisions and BMP practices. See Appendix E of this FEIS, which contains sample erosion and sediment control details. Site-specific details for the Roaring Brook site will be developed with final engineering plans. See also Response I9, which describes de-watering procedures in detail.

Comment J3: In SDEIS Section 3.3.1.1.1, descriptions of the Project area include various forest types, successional old field and shrub land, agriculture land, and developed areas. This description does not include wetland habitat. However, it was previously reported that of the 5,280 acre project site, over 1,600 acres (30 percent) are wetlands and streams. It should be clarified in this section where these wetlands occur in relation to other cover types (such as was mentioned for spruce-fir forests).

Response J3: The most accurate description of wetland community types is presented in Section 3.2.1.2.3 of the DEIS and SDEIS as well as in the Wetland Delineation Report (DEIS Appendix E and SDEIS Appendix F). To the extent that delineated or approximated wetland areas overlap the vegetative communities described in Section 3.3.1.1.1 and mapped in Figure 10 of the SDEIS, roughly 670 acres occur within spruce-fir forest, another 670 acres occur within areas mapped as water/wetland, 260 acres occur within successional northern hardwood forest, 110 acres occur within northern hardwood forest, 40 acres occur within shrubland, and approximately 10 acres occur within disturbed/developed areas, active agricultural



areas, and old field communities, combined.

Comment J4: While USFWS understands that the Project Sponsor worked diligently to avoid aquatic impacts, we are concerned that the report understates the ultimate wetland disturbance, considering the abundance of wetlands in the area. It appears the presence of additional roads, power line corridors, and turbines may permanently alter the drainage patterns of the area. Further, the continual maintenance and operation of the turbines will increase human disturbance in the area. USFWS believes there will be a permanent impact on the area wildlife as a result. Some forested wetlands will be cut for power line construction; we consider these impacts to permanently affect the function of the resource and should be mitigated with restored or created wetlands of equal or greater value.

Response J4: It is acknowledged in Section 3.2.2.2.1 of the SDEIS that, *“installation of permanent project components could result in localized changes to runoff/drainage patterns.”* It is also acknowledged that human disturbances during Project construction may have a disturbance/displacement impact on local wildlife. However, as stated in this section, these impacts will be minor and/or short-term impacts associated with Project construction. During Project operation, no significant alterations to drainage patterns are proposed, and human disturbance within the Project area is not anticipated to be significantly above present levels.

Clearing of forested wetlands is included as a permanent community conversion impact and is anticipated to total up to 0.38 acre (see Section 2.2 of this FEIS). As indicated in Section 3.2.3 of the SDEIS, *“The Project Sponsor proposes to partner with Lewis County Soil and Water Conservation District to provide technical and financial assistance towards the Sears Pond Trout Habitat Restoration and Enhancement Project.”* The Corps has requested that this Project include compensation for impacts to forested wetlands at a ratio of 2:1 and an area for such compensatory mitigation has since been identified. This area of forested wetland creation/restoration will be incorporated into the project design as part of the Joint Application for Permit process.

Comment J5: Although the area has been previously logged, the activity has been mostly intermittent and the landscape should recover. The construction of turbines and ancillary facilities will result in permanent impacts to the landscape. The area now

functions as a high quality, core forest where very little development is present (it is the third largest contiguous forest in the State, besides the Catskill and Adirondack Mountain areas). Millions of public and private dollars have been spent preserving the ecological integrity of the area (The Nature Conservancy land and the nearby Tug Hill Wildlife Management Area are two examples), and development of this project may adversely affect previous land stewardship efforts. Due to the importance of this area, USFWS suggests a land management plan be developed to identify measures which could reduce development pressures, restore disturbed area, and provide for future forest restoration.

Response J5: With the prohibition of further logging activity, or development of/adherence to a forest management plan that promotes development and maintenance of mature forest, the land within the Project area would recover from recent logging activity. However, this land is privately owned and, to the best of the Project Sponsor's knowledge, it is not the intention of the landowners to cease logging activity or to adopt such a management plan. The description of the area as a high quality core forest with very little development and extensive ecological preservation efforts, describes the larger Tug Hill area, and adjacent sites such as The Nature Conservancy land and the NYSDEC's Tug Hill Wildlife Management Area. Geographically, the Project area is at the edge of the core Tug Hill forest, and as acknowledged by the commenter, has been subjected to significant disturbance (logging and road development), when compared to the adjacent conservation lands. Therefore, from a functional perspective it is questionable whether this area should be considered part of the core forest. The defined Project area includes approximately 5,280 acres of land. However, this land is privately owned, and the Project Sponsor only has limited rights to manage the land within defined easement areas. These areas include turbine sites, access roads, and buried interconnection lines, and cumulatively account for only a small fraction of the Project area. The Project Sponsor has no authority over how the remainder of the Project area is managed. Within easement areas, disturbed soils and vegetation will be restored as indicated in Sections 3.1.3 and 3.3.3 of the DEIS and SDEIS. It is also worth noting that development of the proposed wind power project will serve to preclude more intensive development within the Project area (e.g., seasonal homes) and will not adversely impact the management or use of adjacent Nature Conservancy and NYSDEC lands.

Comment J6: An inventory of existing culverts in the Project area was completed along with a plan to replace deteriorated structures. The report identifies over 2,500 heavy vehicle trips through the Project area and many of the roads currently are not equipped to handle equipment such as cranes, tractor trailers, dump trucks, and cement trucks. Some loads will exceed 200,000 pounds. USFWS is concerned that some culverts and roads will not be able to handle these loads and could result in failure. Accidents and spills could degrade or destroy aquatic habitat and water quality. The applicant should be required to develop an emergency response plan to deal with such situations.

Response J6: Inadequate roads and culverts have been identified and will be upgraded to accommodate Project construction equipment and component delivery. In any location where culvert failure is even a remote possibility, reinforcement actions, such as the use of steel plates, will be taken to prevent failure. In addition, as indicated in DEIS Section 3.11.3, the Project Sponsor will implement a coordinated emergency response plan, which will be developed in consultation with local emergency service personnel prior to Project construction to assure adequate/appropriate response to any vehicle accidents or spills. As stated in Section 3.2.3 of the DEIS, *“a Spill Prevention, Containment, and Countermeasure (SPCC) Plan that outlines procedures to be implemented to prevent the release of hazardous substances into the environment will be developed and implemented.”* See Response A3 for a description of the SPCC.

Comment J7: The buried cables east of Carey Road cross a large wetland complex. A 25 foot wide trench will be excavated in this wetland to lay the cables. USFWS is concerned that the route of the line traverses a wide portion of the wetland and not a more narrow area, such as the one that occurs to the south. There are also additional roads to the south which should be examined as potential routes. Open cuts across streams and wetlands can impact aquatic habitat and degrade water quality. Therefore, we recommend that water body crossings be accomplished by directional drilling under aquatic areas, if feasible.

Response J7: The wetland crossing east of Carey Road is a drained beaver meadow and does not currently contain standing or flowing water. The Project Sponsor explored numerous alternatives to the currently proposed interconnection route in effort to minimize wetland and forest impacts and to minimize the length of the

interconnection line. See the discussion of alternative interconnection routes presented in Section 5.3.2 of the SDEIS for a discussion of two routes that were examined as alternatives to the currently proposed route. These routes are depicted in Figure 16 of the SDEIS. As discussed in this section, potential interconnection routes to the south were not feasible due to the presence of Lesser Wilderness State Forest. As stated in the SDEIS, the Project Sponsor was advised they would be unable to obtain an easement to cross State Forest land without an amendment to the New York State Constitution. In addition, the interconnection route was limited to areas where private landowners were willing to grant an easement.

**Comment J8:** Mitigation measures for stream impacts are described on page 28 and include the parameters for culvert replacement. While we agree with the notion to bury culverts at least 20 percent of the total width below the natural stream bottom to facilitate aquatic life movement, this specification is not indicated on project plans or detail sheets. Current drawings indicate culverts to be placed on the streambed. Therefore, a contractor may not be aware of this mitigation requirement. The culvert detail for the final plans should reflect this commitment.

**Response J8:** This comment has been addressed in Section 3.0 of this FEIS. Culvert details in the final plans and drawings will reflect all relevant mitigation measures at each crossing, including the commitment that culverts are to be buried at least 20 percent below grade.

**Comment J9:** Another mitigation commitment is to re-grade and stabilize construction access roads. This section of the report does not indicate if topsoil will be placed on eroded areas or which seed mixtures will be used to stabilize soils. During our site visit, we noted many areas of road cuts where no vegetation was present because of the lack of an adequate growing medium. Only native seed mixtures should be used and applied immediately after disturbance to limit erosion potential.

**Response J9:** Topsoil will be placed on eroded areas along existing roads that are being upgraded for Project use as part of the restoration/stabilization process. Although a seed mixture has not yet been chosen, the Project Sponsor agrees to the use of a native seed mixture, which will be applied immediately following re-grading of disturbed areas. It should be noted that the Project Sponsor cannot dictate

restoration and seeding requirements to the landowners outside of the area under lease that will accommodate Project components.

Comment J10: Stream buffer zones are proposed within 50 feet of a water body to prevent construction debris, petroleum products, chemicals, and sediment from entering the water. We recommend a buffer of at least 100 feet to ensure that these materials do not impact water quality.

Response J10: The stream buffer will be extended to 100 feet as per the recommendation of the USFWS. In addition to the 100-foot stream buffer zone, *“a Spill Prevention, Containment and Counter Measures (SPCC) Plan will be developed and implemented to minimize the potential for unintended releases of petroleum and other hazardous chemicals during Project construction and operation”* (see DEIS Section 3.3.3.2). See Response A3 for a description of the SPCC. Furthermore, the Project Sponsor will adhere to all special conditions of issued permits. In conjunction, these measures are anticipated to adequately protect water quality.

Comment J11: To ensure wetland restoration in construction areas, we recommend preconstruction contours be surveyed prior to and after disturbance. Any topsoil removed from wetlands should be stockpiled separately from subsoil and placed back onto disturbed areas.

Response J11: TVGA conducted an aerial survey, which produced 2-foot interval topographical contours throughout the entire generation portion of the Project area. This information represents the preconstruction contours and will be consulted during wetland restoration efforts. Topsoil removed from wetlands will be stockpiled separately from subsoil and placed back onto disturbed areas as part of the wetland restoration effort. Additionally, wetland restoration will comply with the conditions of all issued permits.

Comment J12: USFWS notes that a stream mitigation plan has been contemplated but not finalized and requests a copy of the mitigation plan for review. In addition, USFWS recommends that the applicant prepare a compensatory mitigation plan for wetland loss. This plan should provide for lost wetland functions and values.

Response J12: Section 3.2.3 of the SDEIS (pages 27-31) describes proposed mitigation measures

for the Roaring Brook Project. Four specific mitigation measures are outlined to mitigate for unavoidable adverse environmental impacts to state regulated freshwater wetlands, protected streams, and regulated 100' adjacent areas; and federal jurisdictional activities within waters of the U.S. resulting in the loss of wetlands. One of the proposed mitigation measures specifically addresses streams, and will provide significant improvements to onsite water quality, fisheries habitat, and fish passage through installation of appropriately sized culverts at elevations that improve flows. As indicated in Response J4, other proposed mitigation will include compensation for impacts to streams, and scrub shrub, emergent, and forested wetlands at a ratio of at a least 2:1. These proposed mitigation measures have been submitted to the Corps for review as part of the Joint Application for Permit.

Comment J13: Page 36 of the breeding bird survey indicates that the number of individuals changed by 95 between the years 2007 and 2008, but the report does not indicate whether the total number increased or decreased. This should be clarified.

Response J13: The data showing the numbers of species and individuals are provided in Table 3 in each the 2007 and 2008 breeding bird reports. A total of 1,761 individual birds were observed in 2007 and a total of 1,666 individual birds were observed in 2008.

Comment J14: Several forest interior birds were recorded in the breeding bird survey and the National Audubon Society has indicated that several interior forest bird species occur in the area such as chestnut-sided warbler, Canada warbler, and wood thrush. These species are identified by the USFWS as Species of Conservation Concern. Efforts to protect these species, among others, should be incorporated into project plans, when feasible. For this project, that would include not placing turbines within forest habitat.

Response J14: As described in Section 5.4 of the SDEIS, Alternatives That Avoid Significant Impacts (pages 90-91), total avoidance of impacts to forest resources is not feasible while still meeting the objectives of the Project sponsor. Total avoidance of forest clearing from wind turbine construction and operation would result in a one-turbine project. Since a one-turbine project would be non-constructible from an economic viability perspective, this would essentially be equivalent to the no action alternative. To minimize forest clearing impacts, turbines have been

preferentially sited in previously disturbed areas wherever possible, i.e., in successional forest habitat rather than in mature forest habitat. See also response to comment A21.

Comment J15: The USFWS typically recommends against developing wind power projects within IBAs due to their importance to many avian species. Besides providing habitat on a large scale, the area is relatively free of human development and is an area of State-wide importance. The Project area is also bordered by the Tug Hill Wildlife Management Area, which provides habitat for a variety of wildlife. In general, the area is conducive to thriving wildlife populations and we believe industrial development is not compatible.

Response J15: It is important to recognize that IBAs are not regulatory in nature, and that the Project site is located entirely on private land. With respect to the ecological importance of the land at the site, it is important to remember that it has already been cut over more than once, and the habitat is degraded. Because the land is privately owned, the landowner could choose to develop the property for homes, or to clear it for use as grazing land or hay fields, either of which would permanently change habitat on site. By erecting wind turbines, most of the land can still function as a forest, especially if the forests are encouraged to re-grow in the small portion of the site that will be cleared. See also Response A17.

Furthermore, describing the proposed Project as “industrial development” is really not accurate. As USFWS personnel have observed, the Project area is not free of human development (based on the existing road networks constructed in the main portion of the Generating Site). Furthermore, if a wind energy facility is not developed, it is likely that more intrusive development will occur in this area in place of what is currently being proposed. Of the 5,280-acre Project area, only approximately 46.5 acres will be converted into developed facilities (turbines and associated roads, O&M facility, substation, meteorological tower, and overhead interconnection poles). In addition, studies conducted to date at operating wind power projects, including the adjacent Maple Ridge Project, have not documented significant mortality or displacement of avian species (Kerlinger & Guarnaccia, 2007; Jain et al., 2008; Jain et al., 2009). Beyond collision mortality to bats, the causes of which are still not well understood, the construction and operation of commercial wind power projects have not proven to adversely affect other non-

avian wildlife species.

Comment J16: Overhead lines can cause substantial avian and bat mortality due to collisions with lines and poles (Avery 1978). Avian electrocutions can occur if these structures are not properly designed. An important resource for planning power line corridors was produced by the Avian Power Line Interaction Committee (1996) and should be referenced.

Response J16: This comment is addressed in Section 3.3.3.2 of the DEIS, which referenced the Avian Power Line Interaction Committee (APLIC) guidelines. The aboveground electrical line will follow APLIC guidelines for insulation and spacing.

Comment J17: The first half of the overhead transmission route (29 poles) is through forest habitat. USFWS recommends that the transmission line be routed around larger tracts of forests to protect existing habitat value, reduce fragmentation, and maintain interior core areas. An alternative route which follows Fykes Road to Corrigan Hill Road around the forested portion of the route should be examined.

Response J17: The Project Sponsor agrees with this recommendation and, as previously indicated, explored a number of alternate routes for the line. However, as mentioned in Response J7, the interconnection route was limited to areas where private landowners were willing to grant an easement. See Response J7 and Section 5.3.2 of the SDEIS.

Comment J18: Recent data from the nearby Maple Ridge wind project indicates that as many as 10 birds were killed per turbine annually. If this number is applied to 39 turbines over a 30 year project life, that equates to almost 12,000 birds killed over the life of the project (in addition to approximately 60,000 birds that may be killed at Maple Ridge). The mortality numbers are substantially higher for bats. In sum, the negative effects on wildlife cannot be discounted.

Response J18: Avian and bat risk anticipated to result from construction and operation of the Project is not discounted, and is described in Section 3.2 of the DEIS and SDEIS. Cumulative impacts to birds and bats as a result of the Roaring Brook Wind Power Project in conjunction with the Maple Ridge Wind Power Project are discussed in Section 8 of the DEIS. It should also be noted that, as stated in Section 2.8 of the



DEIS, “*Megawatt-scale wind turbine generators typically have a life expectancy of 20 to 25 years.*” See Response A23 for further discussion of mortality rates at Maple Ridge.

It should be acknowledged that wildlife species are subject to negative effects from other forms of electricity generation as well. In fact, the environmental impacts that result from more traditional power generating facilities (i.e., fossil fuel, hydroelectric, nuclear) are often much more significant than the impacts caused by wind power projects. As described in Section 3.3.3 of the DEIS, traditional sources of electric energy generation result in more direct habitat loss due to the greater size of these facilities and extraction of the fuel required to run them; require the use of surface waters for generation and/or thermal regulation (with resulting thermal discharge, fish entrainment, and impingement and habitat disturbance); and generate air pollution from the fuel combination required for power generation and the extraction and transportation of raw materials. Emissions and/or waste disposal requirements of other forms of generation also contribute to impacts, including acid precipitation and global warming, which have secondary effects on ecological (and human/cultural) resources worldwide.

A recent peer-reviewed article presented a contextual assessment of avian mortality caused by various sources of electricity generation. Although results are considered preliminary, initial estimates suggest that wind farms and nuclear power stations are responsible each for between 0.3 and 0.4 avian fatalities per gigawatt-hour (GWh) of electricity, while fossil-fueled power stations are responsible for approximately 5.2 avian fatalities per GWh (Sovacool, 2009).

Comment J19: Migratory tree bats, which seem to be unusually susceptible to collision mortality with wind turbines) were recorded on this site as well as the nearby Maple Ridge wind project. Large numbers of bats have been killed by wind turbines in the East, and the potential cumulative impact on populations could be significant (Arnett 2005). Based on the forest and wetland habitat found in the Project area, we would expect an elevated risk to bats at this site. If the project is built, USFWS requests an intensive monitoring program to determine mortality. If mortality is substantial, USFWS would request an adaptive management plan be developed and implemented to reduce mortality.

Response J19: According to ABR, the expectation that bats may have an elevated risk at Roaring Brook is reasonable (because of the high proportion of wetlands interspersed in the forest). However, the results are mixed from Maple Ridge on this issue. Monitoring at this site suggested increased bat fatalities with turbines closer to wetlands in 2006 (although this year was considered a “pilot” study) and in 2007, but not in 2008. Increased bat fatalities in wooded sites were observed in 2007 but not in 2008 (Jain et al., 2009). Additionally, night vision data collected by ABR did not show higher movement rates at Roaring Brook (0.6 bats/h) compared to Maple Ridge (0.9 bats/h) during different fall seasons. A similar relationship was found for birds (5.9 birds/hour at Maple Ridge versus 2.0 birds/hour at Roaring Brook during different fall seasons (Mabee & Schwab, 2008; Hein et al., 2009). At this time it is unknown whether preconstruction movement rates will correlate to post-construction fatality rates. As stated previously, post-construction monitoring plans will be developed in consultation with USFWS and NYSDEC.

Comment J20: USFWS recommends that the project not be approved until an adequate post-construction mortality monitoring protocol is provided to the NYSDEC and USFWS for review. USFWS typically recommends that these studies be conducted over 3 years of project operation and be conducted at all times of the year and under varied weather conditions.

Response J20: Post-construction monitoring will be coordinated with the USFWS and NYSDEC pursuant to the Iberdrola's Avian and Bat Protection Plan and the conditions assigned to this project in its required state permits. See also Response A31.

Comment J21: To mitigate potential impacts to bats, turbines should not have a cut-in speed of less than 6 meters per second, and operation should be curtailed between July 15 and September 15 for 5 hours after sunset. Recent research in West Virginia and Pennsylvania showed that mortality can be reduced when the blades are feathered during low wind periods (Arnett, 2005 and pers. comm.).

Response J21: According to ABR, it is still uncertain whether that raising the turbine cut-in speed can reduce fatalities of bats in various types of habitats. More testing is required to determine the appropriate cut-in speed, time of night, and time of season with various habitat areas. Because Roaring Brook is in a different landscape than most operating windfarms, additional information is necessary to determine if a

mitigative response is required and which mitigative measures if any would be appropriate. This will be determined based on the results of site-specific post-construction monitoring.

Comment J22: Project approval should also be conditioned upon an adaptive management plan to address wildlife mortality as a result of turbine operations.

Response J22: While this comment does not pertain to SEQRA issues, the Applicant will comply with the general and special terms and conditions of all permits issued to the project, including requirements of the environmental monitoring program.

Comment J23: A construction environmental monitoring program should be implemented for this project. We suggest that the program include a training component for workers on how to identify and handle injured or dead wildlife.

Response J23: Details of the proposed Environmental Monitoring and Compliance Program are provided in Section 4.3 of the DEIS. The Project sponsor is in the process of developing and implementing a compliance program, in accordance with Iberdrola Renewable's Avian and Bat Protection Plan, at all operating sites that would include a level of mortality monitoring following any required post-construction monitoring conditions. Training on the identification and handling of injured or dead wildlife would be included as a component of the program. Atlantic Wind, LLC would be willing to work with the USFWS or NYSDEC if they are willing to assist with such training.

Comment J24: The NYS Amphibian and Reptile Atlas was referenced for existing information, but these surveys would not necessarily cover the proposed locations of the wind turbines. No surveys were conducted by the Project Sponsor. The impact analysis indicates that the effect of the project on more common species will be minimal, but without surveys, it is unclear how this conclusion can be supported.

Response J24: See Response I17.

Comment J25: An invasive species management plan should be developed and implemented by the Project Sponsor. Monitoring should take place for at least 2 years after construction to address any invasive plant outbreaks.

Response J25: The management of invasive species was addressed in SDEIS Section 3.3.2.1.1 and an invasive species management plan was presented in Appendix K of the SDEIS. See also Response A10.

Comment J26: USFWS concurs with the Corps's determination that the project "may affect, but is not likely to adversely affect" the Federally-listed endangered Indiana bat. USFWS agrees with the Corps that effects to the Indiana bat are anticipated to be either insignificant (effects which are unable to be meaningfully measured, detected, or evaluated) or discountable (effects extremely unlikely to occur).

Response J26: Comment noted.

Comment J27: A compensatory wetland mitigation plan should be developed for unavoidable wetland loss. At least 1 acre of wetland should be created or restored. Unavoidable impacts to stream habitat will be partially mitigated through a stream restoration project, but the details have not been provided at this time and, therefore, USFWS cannot determine if the plan will be adequate to compensate for stream impacts.

Response J27: See Response J12.

Comment J28: While the document indicates that wind data resulted in a change in the project configuration, USFWS was informed that landowners primarily influenced the location of turbines. Wind data were not provided for the Project area and, therefore, we are unable to determine if alternative turbine locations are available.

Response J28: This comment is not entirely accurate. As described in Section 2.1 of the SDEIS (page 2), the collection of additional site-specific meteorological data revealed that southeasterly winds were more prominent than initially observed. This finding necessitated modifications to the array design to minimize the power loss due to increased wake effect and turbulence, as well as turbulence induced component wear. Final siting of Project components balances various different siting criteria (including turbine spacing and wind optimization), as described in SDEIS Section 5.3, Alternative Project Design/Layout (page 83). Wind resource data, turbine operational requirements, landowner preferences, environmental constraints, and a

number of additional factors all influence wind turbine siting. Optimization of wind energy capture is a primary criteria used in siting turbines and required the shifting of several turbines to adjacent landowner properties. Project component siting criteria are described in Section 2.5.1 of the DEIS and 2.6.1 of the SDEIS, and the alternatives analysis approach to determining the final location of project components are described in Section 5.3 of the SDEIS.

Publicly available wind resource data covering the proposed Project site can be found in an online wind navigator provided by AWS Truewind. According to the online navigator, winds speeds in the vicinity of the proposed Project are approximately 7 m/s at a hub height of 100 meters (<http://navigator.awstruewind.com/>). Additional precise site specific meteorological measurements beyond the information available from AWS Truewind are business confidential.

Comment J29: No financial justification for the project size was provided. Some data should be supplied to indicate that 39 turbines are needed to make the project viable.

Response J29: See response to comment B13.

Comment J30: It is noted in the SDEIS that six turbines were moved from the southwest portion of the Project area due to the presence of wetlands. The USFWS commends the Project Sponsor for reducing wetland disturbance. However, we suggest that the core forest along the southern and western boundary of the Project area is a resource which should also be avoided. We recommend the project design be moved away from this important resource. Such a design change could reduce forest habitat loss and fragmentation as well as reduce avian and bat mortality of species which use these areas. It appears that the number of turbines could be reduced.

Response J30: See Response B6.

Comment J31: The SDEIS does not include a cumulative impact analysis for wildlife. The report indicates that these impacts are unknown or not possible to calculate. However, there is one project operating adjacent to the Roaring Brook site and at least four projects being proposed in adjacent areas. Over 300 turbines may be built in this

area in the near future. We believe it is possible to estimate the avian and bat mortality on a per turbine basis and apply this to existing and potential projects over a specified time period. We recommend that this information be provided prior to project approval. The SEQRA process requires this analysis.

Response J31: The sort of additional cumulative impact analysis proposed by this comment is more applicable for a local, state or regional planning agency and analysis and is beyond the requirements of SEQRA for this individual project. However, the SDEIS refers the reader to the DEIS for a discussion of cumulative impacts associated with the operation of the Maple Ridge Wind Farm and the Roaring Brook Wind Power Project with respect to visual, avian/bat, and socioeconomic impacts. Section 8.0 of the DEIS provides the requested calculations of cumulative avian and bat mortality based on per turbine estimates. There are currently no additional wind power projects in Lewis County listed as being under review with the NYISO (NYISO, queue updated 4/8/2009), and the development status of proposed wind power projects in adjacent counties is uncertain. See also Response A28.

Comment J32: The DEIS indicates that the project will improve air quality through the reduction of emissions at fossil fuel-burning power facilities. No data were provided to support this statement. The report also indicates that the project will reduce sulfur dioxide, nitrogen oxide, and other pollutants and displace the use of fossil fuels. A recent report by the National Research Council (NRC 2007) found that wind energy projects do not deliver the environmental benefits typically described by Project Sponsors. For example, turbines generally produce 30 percent of the rated capacity due to lack of wind (EIA 2004). The amount of electricity produced during hot summer months, the time of peak demand, will probably be less because of lower wind speeds. The intermittent nature of wind results in electricity being generated only periodically and, therefore, other types of generating facilities must be operating to meet demand. Therefore, it seems inaccurate to state that this project will displace the use of fossil fuels at existing power plants.

Response J32: Section 3.4.2.2 of the DEIS states that, *“The operation of this Project is anticipated to have a positive impact on air quality by annually producing 203,853 Megawatt hours (MWh) of electricity with zero emissions (assuming 39 2.0 MW turbines operating at 30% annually). Power delivered to the grid from this Project will directly displace the generation of energy at existing conventional power plants.*

*Based on emissions rates for the average U.S. average fuel mix (AWEA, 2007a), this 203,853 MWh wind farm is estimated to annually displace:*

- 502 tons of NO<sub>x</sub>
- 820 tons of SO<sub>2</sub>
- 155,788 tons of CO<sub>2</sub>”

Please note that the calculations quoted above from the DEIS use the same 30% capacity factor that the commenter cited. With respect to wind energy not displacing the use of fossil fuels, Charles Komanoff offers the following response in a 2006 article in Orion:

*“This notion is mistaken. It is true that since wind is variable, individual wind turbines can’t be counted on to produce on demand, so the power grid can’t necessarily retire fossil fuel generators at the same rate as it takes on windmills. The coal- and oil-fired generators will still need to be there, waiting for a windless day. But when the wind blows, those generators can spin down. That’s how the grid works: it allocates electrons. Supply more electrons from one source, and other sources can supply fewer. And since system operators program the grid to draw from the lowest-cost generators first, and wind power’s “fuel”, moving air, is free, wind-generated electrons are given priority. It follows that more electrons from wind power mean proportionately fewer from fossil fuel burning.*

*What about the need to keep a few power stations burning fuel so they can instantaneously ramp up and counterbalance fluctuations in wind energy output? The grid requires this ballast, known as spinning reserve, in any event both because demand is always changing and because power plants of any type are subject to unforeseen breakdowns. The additional variability due to wind generation is slight – wind speeds don’t suddenly drop from strong to calm, at least not for every turbine in a wind farm and certainly not for every wind farm on the grid. The clear verdict of the engineers responsible for grid reliability – a most conservative lot – is that the current level of wind power development will not require additional spinning reserve, while even much larger supplies of wind-generated electricity could be accommodated through a*

*combination of energy storage technologies and improved models for predicting wind speeds.*

*With very few exceptions, then, wind output can be counted on to displace fossil fuel burning one for one. No less than other nonpolluting technologies like bicycles or photovoltaic solar cells, wind power is truly an anti-fossil fuel.”*

The following discussion regarding the Madison and Fenner Wind Power projects was also included in the on-line publication Orion, and helps puts the Project benefits into context:

*“The Madison County turbines have an average capacity factor, or annual output rate, of 34 percent, meaning that over the course of a year they generate about a third of the electricity they would produce if they always ran at full capacity. But that still means an average three thousand hours a year of full output for each turbine. Multiply those hours by the twenty-seven turbines at Fenner and Madison, and a good 200,000 barrels of oil or 50,000 tons of coal were being kept underground by the two wind farms each year”.*

See also Response B12, which provides additional documentation about wind energy displacing fossil fuel combustion. As described in DEIS Section 2.2, state and federal policy has recognized the need for increased supply of energy to the U.S., and for new renewable energy resources. The Project fulfills a need for the production and transmission of renewable energy, which would serve the public interest.

**Comment J33:** USFWS recommendation for wildlife studies at wind projects generally specify that data be collected over multiple seasons and years to determine average annual conditions. Because of variability in migration and weather, collecting data for 1 year likely does not reflect typical wildlife use in the Project area. Therefore, USFWS finds that insufficient data currently exists to adequately conduct a risk assessment and predict wildlife mortality for this project.

**Response J33:** ABR conducted two years of studies at Roaring Brook. These included a spring 2007 visual study of bird and bat migration (Mabee et al., 2008), a fall 2007 visual and bat acoustic monitoring study (Mabee & Schwab, 2008) and a bat acoustic



monitoring study conducted during the spring, summer, and fall of 2008 (Hein et al., 2009). Two years of breeding bird studies were also conducted by Curry and Kerlinger, LLC at the Roaring Brook Project site.

**COMMENT K. The Nature Conservancy, February 5, 2009**

Comment K1: The Nature Conservancy (TNC) believes that the negative impacts of the Roaring Brook Wind Power Project as currently presented in the EIS outweigh the benefits, and that, at a minimum changes in the wind tower layout are required if the Project is to balance economic, environmental and social considerations.

Response K1: As stated in the DEIS, through an analysis of site developability, wind resource assessment, environmental resource factors, and review of the site's zoning constraints, a proposed project layout was developed by Atlantic Wind, LLC. The layout of 39 turbine sites as proposed is satisfactory to the participating landowner and results in a carefully achieved balance of energy production and environmental protection. Significant relocation of any of the turbines to a site other than one of the identified 39 sites would have a ripple effect, in that the location of other turbines would have to be reexamined and possibly changed to maintain an efficient/workable Project design. Therefore, reduction of environmental impacts in one location could result in increased impact in another location and/or reduced power generation. In the case of visual impact, removal or relocation of one or two individual turbines from a 39-turbine array is unlikely to result in a significant change in Project visibility and visual impact from most locations.

Comment K2: Iberdrola downplays the significance of habitat conversion and loss from Roaring Brook because they feel there is abundant forest and wetland habitat on Tug Hill. Tug Hill is significant not for any particular forest stand, wetland, stream, or rare species, but because it is a large connected forest. Even though the project site has already been heavily logged and is dominated by a very young forest, it is still a connected piece of the core forest that, over time, could recover and re-grow. Building wind towers on the property will permanently fragment and alter the forest, with more lasting impacts than previous disturbances.

Response K2: See Responses B1, J5, and J15.

Comment K3: Migratory birds are particularly at risk from wind towers since they likely have to navigate through multiple wind developments on each trip. Researchers have recorded tens to hundreds of bird deaths annually for a single communication tower, and they estimate that there are currently between 4 and 40 million total migratory bird fatalities per year from tower collisions. As the number of wind towers increases the number of resulting bird fatalities will also increase, impacting both threatened and common bird species.

Response K3: By presenting numbers of fatalities for communication towers, The Nature Conservancy alludes to similar numbers being killed by wind turbines. Every communication tower that is constructed has been reviewed under the NEPA process. To date, there has been no conclusion by the federal and state agencies that permit the towers that there will be significant impacts to birds. Furthermore, guyed communication towers kill many times more birds than wind turbines of the same height (Gehring et al., 2009).

Comment K4: In NY State there are 6 existing wind developments, 5 additional projects under construction, and 36 proposed projects. If all of the projects are constructed there will be over 2,200 turbines across the state. While an individual tower or project may not have a biologically significant impact on wildlife populations, the cumulative impacts of all of these projects (existing and proposed) could be substantial. No project can be evaluated solely on the basis of its on-site direct mortality. Impacts need to be considered in light of all the other direct mortality already occurring as a result of wind and other forms of development.

Response K4: The sort of cumulative impact analysis proposed in this comment is more appropriate for a local, state or regional planning agency and analysis, and is beyond the requirements of SEQR for this individual project. However, if we assume that 2,200 turbines are constructed in New York State and the rate of fatalities is approximately 5 per turbine per year, about 11,000 birds would be killed per year. A quick examination of hunting statistics for New York State shows that the relatively small number of birds killed by wind turbines is not likely to be biologically significant. Each year, the NYSDEC and USFWS permit the shooting of 320,000 ducks and geese (as of 2007) and tens of thousands of other game birds within the state. For individual waterfowl species, the fatality rates can exceed 5,000 birds per year. These rates are far greater than the per species

rates for birds typically killed at wind plants, which are also far more common than most waterfowl. Because the NYSDEC and USFWS have concluded that these harvests are not significant, it is highly improbable that the bird fatalities at wind turbines will be significant.

The cumulative level of avian fatalities from wind turbines is quite minor when compared to other sources of mortality, with bird deaths caused by turbines accounted for just 0.003% of the total anthropogenic bird deaths in 2003 (NRC, 2007; Erickson et al, 2005). Other sources of avian mortality that each greatly exceed that caused by wind turbines include collision with buildings/windows, collision with power lines, predation by housecats, collision with vehicles, use of agricultural pesticides, collision with communication towers, and poisoning in oil pits. Estimated annual avian mortality in the United States from each those causes is listed below, along with that from wind turbines.

- Collisions with Buildings: 97-976 million (Klem, 1990).
- Collisions with Power Lines: 130-174 million (Koops, 1987).
- Predation by Domestic/Feral Cats: 100 million (Coleman & Temple, 1996).
- Collisions with Automobiles: 80 million (Banks, 1979; Hodson & Snow, 1965).
- Pesticides: 67 million (Pimentel et al., 1991).
- Collisions with Communication Towers: 4-50 million (USFWS, 2002).
- Oil Pits: 1.5 – 2 million (USFWS, 2002).
- Collision with Wind Turbines: 20,000 – 37,000 (Erickson et al., 2005).

Comment K5: Wind towers displace birds from suitable habitat because birds avoid them. The effective area of lost bird habitat may be much greater than the developed and converted area immediately surrounding the wind towers since available evidence suggests that birds avoid wind towers. TNC reviewed 19 wind farm studies in a variety of habitats, including forests, found not only that there is a definite displacement effect, but also that the longer a wind farm has been in operation, the greater the decline in bird abundance. Scientists hypothesize that the full displacement effect may take years to measure and understand because many species of birds exhibit high site fidelity. That is, older birds already using the site before the wind towers were constructed will continue to do so. New birds and their offspring, however, will choose to avoid the wind towers. In Europe, bird

displacement is considered to be a much greater impact than direct fatalities. One study found that displacement of birds depends on the species and probably ranges from 100 meters to 3 kilometers. TNC is concerned that birds avoiding the towers may not only be displaced from the project site but also from the 15,000-acre TNC Conservation Area and nearby state lands like the Tug Hill WMA where millions of dollars have been invested in conservation.

Response K5: The commenter did not provide the source of any studies mentioned in this comment. However, TNC provided a very similar comment on the DEIS that did include appropriate citations. See Response B6.

Comment K6: In the Appalachians, researchers estimate a range of 33,000 – 111,000 annual bat fatalities related to wind turbines, which could have a substantial impact on both migratory and local bat populations. They suggest that the eastern red bat may not survive cumulative fatality rates associated with wind energy development. Mortality studies at the existing Maple Ridge wind project show that the eastern red bat is present on Tug Hill and susceptible to collision mortality.

Response K6: According to ABR, it is not appropriate or comparable to use data regarding fatality rates in the Mid-Atlantic Highlands (Maryland, Pennsylvania, Virginia, and West Virginia) and to apply those to New York. The estimates from Kunz et al. (2007) include sites such as the Buffalo Mountain Wind Energy Center which reported fatalities ranging from 38.7 bats/MW/year (from 15 1.8 MW Vestas V80 turbines) to 53.3 bats/MW/year (from 3 0.66 MW Vestas V47 turbines; Fiedler et al. 2007). These estimates are among the highest in the country and are much greater than those estimated from the adjacent Maple Ridge Wind Power Project (9.42-11.23 bats/MW/year in 2007 and 4.96-5.41 bats/MW/yr in 2008; Jain et al. 2009). Comparisons among facilities are also difficult because of difference in region, landscape conditions, turbine design and layout, and sampling methodology. Although bat fatalities at Maple Ridge are not low, they are much lower than those found in the Mid-Atlantic Highlands and would be a better example of what might be expected at Roaring Brook. See also Response A28.

Comment K7: Concerns about bats are particularly valid in light of the emerging “white nose syndrome” that is affecting bats throughout the Northeast. Any additional sources of mortality, including the Roaring Brook project, deserve close scrutiny given that

bat populations are already under such dire threat.

Response K7: See Response B4.

Comment K8: The Roaring Brook project site contains a significant amount of state-delineated wetlands, more than 30% of the area is wetland. The abundance of high quality wetlands on Tug Hill is one of the characteristics that makes Tug Hill so ecologically unique and valuable. TNC believes that Iberdrola should strive to eliminate impacts to wetlands on-site wherever possible, even if it requires moving a turbine as much as several hundred feet, redirecting a road, or constructing an expensive road-stream crossing.

Response K8: Section 3.2.3 of the SDEIS addresses the minimization of wetland and stream impacts. Various alternatives have been evaluated in an effort to avoid and minimize wetland and stream impacts. Based upon wetland delineations and stream surveys, Project components and construction limits were altered to avoid impacts to the maximum extent practicable. The currently proposed Project configuration will result in permanent loss of only 0.42 acre of wetland. With one exception, the areas of impact occur adjacent to previously disturbed, existing wetland road crossings. Furthermore, to assure impacts are minimized to the maximum extent practicable, sediment and erosion control measures will be implemented wherever project construction occurs within, or adjacent to, wetlands and/or streams (see Appendix A of the DEIS for Typical Details).

See Response K1 above, in reference to relocating turbines or redirecting a road.

Comment K9: Tug Hill has relatively few problems with invasive species compared to other parts of the state, likely due to the relative lack of roads and low traffic volume in the region. TNC is very concerned about the potential introduction of invasive species due to the Project. The project will result in an additional 5 miles of road, 13 miles of buried cable, and widening 11 miles of existing roads on the generating site. Nearly 200 acres of soil will be disturbed. The project will involve over 2,500 heavy vehicle trips to the site during construction, not counting those to bring gravel, with vehicles and supplies arriving from around the country and world that could easily introduce non-native plant material. Upon completion, maintenance vehicles will travel the roads on-site routinely. Should an invasive plant become established, it

could quickly move from the Roaring Brook site to the Tug Hill core forest. PPM proposes two years of monitoring after the completion of the project. This is inadequate. Monitoring and control of invasive species needs to occur throughout the life of any wind farm within the Tug Hill core forest.

Response K9: See Appendix K of the SDEIS and Response B10.

Comment K10: TNC does not believe that sufficient information was provided in the EIS to allow for the evaluation of alternative project size. Without an understanding of the cost-benefit analysis based on different numbers of turbines, turbine locations, and turbine capacities, it is not possible to incorporate and balance social, economic, and environmental factors in the planning and decision-making processes. TNC requests that this information be provided so that the alternatives can be adequately evaluated.

Response K10: See Responses B13 and J29.

**COMMENT L. Audubon New York, February 25, 2009**

Comment L1: The Tug Hill Important Bird Areas (IBA) was identified as an IBA because it supports a priority assemblage of forest nesting species in a relatively unfragmented landscape. Tug Hill's unfragmented forest landscape consists of forest in various stages of succession, including the early successional forest types. Tug Hill is one of the few remaining places in New York where it is still feasible to maintain and restore a functional forest ecosystem that supports a full diversity of birds and wildlife. In fact, Tug Hill is the third largest intact tract of habitat in New York. During the DEIS comment period Audubon New York recommended that the town guide the project in a way that reduces the amount of habitat loss and fragmentation. The current project layout for the SDEIS increases the amount of habitat loss and fragmentation.

Response L1: See Responses A17, B1, and K1.

Comment L2: As the project is currently being proposed in the SDEIS, Audubon New York cannot support the project because of concerns over potential impacts. Audubon New York suggests that the town carefully consider all aspects of this project and ensure that the positives outweigh the negatives before moving forward with it.

Response L2: As stated in the DEIS, through an analysis of site developability, wind resource assessment, environmental resource factors, and review of the site's zoning constraints, a proposed Project layout was developed by Atlantic Wind, LLC. The layout of 39 turbine sites as proposed is satisfactory to the participating landowners and results in a carefully achieved balance of energy production and environmental protection. Detailed analyses based on computer modeling, GIS data, and on-site investigations and data gathering were conducted to assess impacts on a variety of resources/environmental conditions such as wetlands/streams, water quality, noise, shadow flicker, visual/aesthetics, birds, and bats, and cultural resources. Site specific preliminary engineering, construction planning, and project development were also provided in the DEIS and SDEIS. The DEIS and the SDEIS evaluated impacts on a site-specific basis and included all necessary information to enable the Lead Agency to properly evaluate potential Project benefits and impacts and make a defensible SEQRA findings. See also Response K1.

**COMMENT M. Tug Hill Tomorrow, February 20, 2009**

Comment M1: Tug Hill Tomorrow Land Trust (THTLT) has concern regarding the proper siting of towers, and feels that placing towers in the core forests of Tug Hill is not appropriate. Their place is not in an area where great efforts are under way to retain the intact condition of the forest to meet other valid goals such as protecting the health of a working forest, preserving traditional recreational uses including hunting and fishing camps and snowmobiling and maintaining natural landscape qualities. The core area of Tug Hill is one of THTLT's focus areas because of its unfragmented condition, the abundance of high quality wetlands and streams and the importance to local economy and culture.

Response M1: See Responses B1, J5, and J15.

Comment M2: THTLT opposes the proposed projects. The impacts of this development on the region far outweigh the benefits. Evidence suggest that this type of development, because of the large area it affects with the network of roads and utility corridors, and the height of the structures, will create pathways for invasive species, interfere with movements of birds and mammals, and diminish the wild character of the landscape to the detriment of long term ecosystem health and economic vitality.

Response M2: See Responses L2 and K1.

**COMMENT N. Frank and Debra Kogut, February 13, 2009**

Comment N1: At the February 5, 2009 public hearing for the Roaring Brook Wind Project, two Town of Martinsburg residents spoke of having no or very little TV reception since the Maple Ridge Wind project inception. There are no provisions pertaining to the TV and radio reception in writing for the Maple Ridge Wind Project. Our TV and radio reception may be impacted by the Roaring Brook Wind Project. May it be noted the channels we receive are 3, 5, 7, 9 and 16. A provision must be included for TV and radio reception on the Roaring Brook Wind Project.

Response N1: This comment is addressed in Section 3.12.3.2.2 of the DEIS. The Maple Ridge Project is operated by a separate entity that address these types of issues. The Roaring Brook Wind Project will be operated by the Project Sponsor. As indicated in the DEIS (Section 4.2, page 187), a complaint resolution procedure will be implemented to address landowner concerns throughout Project construction and operation. The Project Sponsor is committed to resolving issues of this type in coordination with both participating and non-participating landowners.

It is worth noting that some of the degradation effects seen on analog television will likely improve when the transition to all digital broadcasting is complete. Digital television will not have the shimmering, ghosting, or poor picture quality; the video will either be present and excellent, or not there at all. Since the television signal will still be subject to attenuation caused by the wind turbines, the signals for some stations may be weakened to the point where they will not produce video. The reception of the digital television signal will be a function of the quality of the receiver. Poor receiving systems may prevent the reception of the digital signal (Polisky, pers. comm.).

**COMMENT O. Onondaga Audubon Society, March 17, 2009**

Comment O1: To suggest that the efforts conducted over a condensed four day period during the third week of June are adequate to describe the avifauna of a 4000-acre area, let alone assess the risks of this project to sensitive species, is unsupportable. A detailed assessment that would detect species at risk requires at least two or three years of fieldwork throughout the nesting season. In our area this season extends



from at least late February through mid-July.

Response O1: The methodology used was more intensive than the primary method used by the U.S. Fish and Wildlife Service for their Breeding Bird Survey program and by the NYS NYSDEC for their New York State Breeding Bird Atlas. Also note that the survey methods used for the breeding bird survey at Roaring Brook far exceeds nesting bird survey requirements according to the NYS NYSDEC's latest wind turbine guidance document, which call for point counts conducted on only a single day.

Comment O2: The author of the Avian Risk Assessment indicates few raptors were detected during the survey. This is not surprising as woodland raptors are extremely secretive and hard to detect in mid-summer. Since northern goshawk, red-shouldered hawk, and Coopers hawk as well as bald eagle are species of NYS concern, this study is not valid regarding raptor presence.

Response O2: Please note that a breeding bird survey was conducted during the spring of both 2007 and 2008 at the Roaring Brook site. Thus, the site was visited on at least 10 days during May/June 2007 and June 2008. These dates were not in mid-summer as stated in the comments. These dates include the nesting seasons for the raptors listed in the comments. Also, the habitat present was not suitable for nesting by bald eagle, because the trees are too small. It is possible that red-shouldered hawk, northern goshawk, and/or Cooper's hawk could nest in the area. However, all of these species become vocal and agitated, and often visible when humans approach their nests or are in close proximity to their nests. These raptors would have been observed or heard if they were present.

Comment O3: The sampling method for songbirds while of adequate design was not conducted enough times to provide worthwhile information. In my experience, the 54 species recorded seem insufficient for the Tug Hill core area in question. Species such as Blackburnian Warbler, Pine Warbler and Swainson's Thrush are regularly present in the sampled area but were missed in this study. The commenter suspects this is because of inadequate field time.

Response O3: Mr. Smith's comment that Blackburnian Warbler, Pine Warbler, and Swainson's Thrush were missed is simply incorrect. The vegetation where turbines will be

located and where point counts were taken is not suitable for these species. The turbine areas are mostly brushy and logged over areas where there are almost no conifers, which is what these species require for nesting. It is quite likely that these birds are present at other sites within the larger Project area, but not near enough to turbine locations to be seen or heard during breeding bird studies, and likely not subject to impact from the turbines.

It should be noted that the person who conducted the field surveys, Dave Tetlow, has been employed by the NYS NYSDEC for the New York State Breeding Bird Survey. His role was as a block buster, which means that the NYS NYSDEC trusts Tetlow as a field surveyor for breeding birds (including Blackburnian Warbler, Pine Warbler, and Swainson's Warbler). Just as importantly, Mr. Tetlow has surveyed several breeding bird blocks within the Tug Hill area. With regard to the adequacy of field time, see Response O1.

Comment O4: In addition to insufficient time afield in this area weather obviously impacted sampling, an effect magnified by the limited effort. The weather on two of the four sampling days had temperatures below 16 degrees C and some precipitation. In our area many species, including Swainson's Thrush, sing little under cold wet conditions even at peak breeding season. This problem further reduces the value of these data.

Response O4: See Response I21.

Comment O5: The author of the Avian Risk Assessment refers to past data collection for the Maple Ridge Wind Complex as partial justification for limited efforts here. The amount of pre-construction studies conducted for that effort was totally inadequate. This was due to the relative newness of industrial wind complexes in North America and little knowledge of their potential impacts on wildlife. This mistake should not be repeated ever again for any wind project and indeed we all need to be aware of the cumulative effects of turbine concentrations in areas.

Response O5: The avian and other wildlife studies conducted at Maple Ridge were conducted in accordance with work plans developed in consultation with the NYSDEC and USFWS. The studies were prepared in support of Draft and Final Environmental Impact Statements accepted as complete by the Lead Agency, the Town of

Martinsburg. Furthermore, at the time that Maple Ridge was proposed, there were three operating windfarms in New York State.

Comment O6: In addition to the paltry efforts conducted during an insufficiently narrow time window in the nesting season there are clearly needs for assessment efforts not only during the breeding season but at other seasons. Bald Eagles have wintered along the West Road within the Maple Ridge footprint. The presence of this species is of concern as recent information from Europe suggests that a species closely related to our bald eagle (the White-tailed Eagle) may be vulnerable to turbine mortality and other impacts.

Response O6: It is possible that Bald Eagles winter near the site. What the commenter failed to state was that after 5,000 individual turbine searches at more than 60 of the turbines at Maple Ridge, not a single eagle has been found dead. Moreover, after 50,000 individual turbine searches at turbine facilities across the United States, not a single Bald Eagle has been found dead or injured, suggesting that Bald Eagles are not “vulnerable to turbine mortality” as Mr. Smith contends. Furthermore, Mr. Smith’s reference to White-tailed Sea Eagle comes from a population of these birds that nest on an island off the coast of Norway, which is rather different from the situation at Maple Ridge.

#### **4.2.2 Response to SDEIS Public Hearing Comments**

##### **COMMENT P. Joe Beyer**

Comment P1: The commenter has trouble with his TV reception, and would like help resolving this problem. It has been approximately four years since Maple Ridge was constructed. He believes issues from Maple Ridge should be resolved before the Town approves another wind farm.

Response P1: See Response to Comment N1.

Comment P2: Landowners in the vicinity of the proposed turbines and transmission line should be notified. The transmission line will be pretty large and people might want to know that.

Response P2: There were many opportunities for public education and input into the Project,

including public notices, the placement of DEIS and SDEIS in public repositories, public comment periods, and public hearings.

Comment P3: The commenter indicated that he intends to harness some wind energy on his property in West Martinsburg, with 90-120 foot towers.

Response P3: Comment noted.

**COMMENT Q. Tim Yancey**

Comment Q1: It was a poor decision to have the public meeting at this time (4 pm) when many people are still at work.

Response Q1: Comment noted.

Comment Q2: The commenter is concerned about snowmobiling on Flat Rock Road, which he describes as a major corridor. He is concerned the Project will reduce tourism in the area.

Response Q2: This comment is addressed in Sections 3.5.2.2 of the DEIS, which discusses anticipated visual impacts to tourists/recreational users, and in Section 3.9.2.2.2 of the DEIS, which discusses potential economic impacts to tourism. To our knowledge, the adjacent Maple Ridge project, which is also close to snowmobile trails, has had no adverse impact on snowmobile use or business in the area.

Comment Q3: We should look at the problems that are being dealt with at the existing towers. Why incorporate more turbines when the existing problems at Maple Ridge haven't been solved yet? We should be concerned about what has happened so far. Maple Ridge has not resolved many issues, including shadow flicker, noise, and low frequency vibration, which is a health hazard. Maybe a moratorium on additional wind projects for the time being? I feel that all concerns about Maple Ridge should be resolved before proceeding with any new proposed wind farms.

Response Q3: The commenter reports undocumented issues relative to near by Maple Ridge Project. The Project Sponsor is not aware of these unresolved issues and would ask that the commenter additional detailed information from specific participating and non-participating landowners. The Project Sponsor can only speak to the

Roaring Brook Project, but will make sure that future specific details provided by the commenter are provided to the Operators of the Maple Ridge project.

**COMMENT R. Anne Britton**

Comment R1: The commenter indicated that the pictures in the SDEIS are flawed. Several road names used in that section do not exist in the Town of Martinsburg (e.g., Number Three Road and Salmon River Road).

Response R1: The commenter is correct that the specified roads do not occur in the Town of Martinsburg. The photo in Figure 13 (Viewpoint 35) of Appendix L of the SDEIS was taken from Number Three Road in the Town of Lowville. The photo in Figure 15 (Viewpoint 45) of Appendix L of the SDEIS was taken from Salmon River Road in the Town of Montague. Figure 9 of Appendix L of the SDEIS depicts all viewpoints documented during the DEIS and SDEIS evaluations, and correctly labels both road and Town names. This error is addressed in Section 3.0 of this FEIS.

Comment R2: The commenter is concerned about costs of road improvements, and who is paying for them. The highway department has already put a lot of gravel onto Flat Rock Road, which is not justified since it is a trail and not a road. She stated that Maple Ridge has not adequately paid for road improvements. She thinks the roads will have to be widened beyond what is shown in the DEIS/SDEIS, that the trucks and trailers will not be able to access the site with all the equipment.

Response R2: Decisions by the Town Highway Department regarding improvement of local roads for the Maple Ridge project are beyond the scope of this SEQRA analysis. The Project Sponsor respectfully disagrees with the commenter with regards to the road widths required to provide truck/trailer access to the Roaring Brook site. A detailed Route Evaluation Study was conducted for the Project. This study was discussed in Section 3.8 of the DEIS, with the full report attached as Appendix O. Following the release of the DEIS, the anticipated point of construction vehicle access to the Project area changed from Carey Road to Flat Rock Road, and an updated Route Evaluation Study was conducted. This report was discussed in Section 3.8 of the SDEIS and attached as Appendix O. The route evaluation studies included precise documentation of existing conditions along area roadways, which along with the specifications of delivery vehicles, were used to determine road improvement

pursuant to a Road Agreement approved between Atlantic Wind, LLC and the Town of Martinsburg.

Comment R3: The commenter stated that she never received the notes/minutes she requested from the DEIS public hearing.

Response R3: The requested information has been forwarded to the commenter.

Comment R4: The commenter is concerned with the spacing of the turbines. She does not feel they are 40 acres apart, which she claims is the recommended spacing guidelines of NYSERDA and the industry.

Response R4: The commenter is correct that turbine spacing is a critical design factor to minimize wake loss and turbulence. Turbine spacing is discussed in Sections 2.5.1 and 5.1 of the DEIS. Turbine spacing is typically measured as a linear distance (in multiples of the proposed rotor diameter) rather than in acreage.

Comment R5: People are still waiting to get their TV reception fixed from Maple Ridge.

Response R5: See Response N1.

**COMMENT S. John Waligory**

Comment S1: The commenter is the President of the Maple Ridge Landowners Association, and is not aware of any problems with the wind power people. There was a contract issue last year, but it has been resolved. He is in favor of the Roaring Brook Project. The turbines are back away from all the people, so visual and sound impacts should not be a problem. He wishes everyone in Martinsburg could have a turbine on his or her property.

Response S1: Comment noted.

Comment S2: The Nature Conservancy looked at purchasing the Zeager parcel, and it is unclear why they didn't buy it. Had they purchased it at that time, their current problems with the Project would be solved. People need to look at the events that took place before this also.

Response S2: Comment noted.

Comment S3: The Town of Cape Vincent did a month-long noise study in my backyard.

Response S3: Comment noted.

**COMMENT T. Rick Beyer**

Comment T1: The commenter has unfinished business with Maple Ridge, specifically with his neighbor agreement, noise, vibration, TV reception, FM radio reception, and shadow flicker. He has not been satisfied with the responses received from Maple Ridge staff. He feels he should receive restitution for the issues he has to put up with.

Response T1: See Response N1.

Comment T2: The commenter feels money is being harvested for the Town at his expense, as the Town is giving raises and buying new equipment, but tax rates are still going up. How much more money does the Town need? And unlike Maple Ridge, where money was spread out amongst many landowners, this Project will mostly benefit just one landowner. What will this do for the neighbors but cause problems?

Response T2: Potential socioeconomic benefits and impacts of the proposed Project are evaluated in Section 3.9 of both the DEIS and SDEIS.

Comment T3: The Town of Cape Vincent did a month-long noise study in my backyard, and the decibel levels were extremely higher than what was predicted.

Response T3: Comment noted.

**COMMENT U. Jim Howe**

Comment U1: The commenter read a prepared statement, which he also submitted in writing.

Response U1: These comments were previously addressed in this FEIS as Comment K.

Comment U2: I just want to respond to the comment that The Nature Conservancy should have bought the land when we had the chance. We did try to purchase the property

from Mr. Barry when it was owned by Barry Brothers Lumber, but the negotiations were not fruitful. We have also talked with the current owner about purchasing the property or purchasing a conservation easement on the property. That is certainly an option we would consider and I would love to talk to the current owner about that.

Response U2: Comment noted.

**COMMENT V. Gordon Yancey**

Comment V1: The commenter owns the Flat Rock Inn at the corner of Centerville and Flat Rock Roads, and is concerned about fire protection. He is worried that a tower fire in a dry year could spread throughout the Tug Hill forests. What provisions has the Town of Martinsburg made to prevent that?

Response V1: A Emergency Response Plan incorporating fire protection measures will be prepared for the Roaring Brook Project. This plan is discussed in Section 3.10.3.2.4 of the DEIS and would be updated with additional contingencies as construction approaches and during operation.

Comment V2: The commenter wants to know if all adjacent landowners (or those within a 1 mile radius) have been notified about the Project. He is concerned that some landowners, particularly those with camps or seasonal homes, may not be aware of the proposed Project. Registered letters should have been sent to all adjacent landowners at the Project's inception.

Response V2: See Response P2.

Comment V3: Another issue is the taxes. The commenter is concerned about the Empire Zone PILOT Agreement that is in place for Maple Ridge, and how funding is threatened. What will happen to the Town budget if the state money disappears? He also doesn't understand the assessment for Maple Ridge, and feels Iberdrola should be paying taxes on the full \$2.2 billion purchase price they paid instead of on the \$380 million construction cost.

Response V3: Anticipated socioeconomic impacts of the Roaring Brook Project are described in Section 3.9 of the DEIS and SDEIS. The assessment policies and budgets used



by the Town of Martinsburg relative to the Maple Ridge project are beyond the scope of this SEQRA analysis.

Comment V4: The commenter doesn't like how tax discussions for the current Project have been conducted behind closed doors, and feels such discussions should open to the public.

Response V4: Comment noted.

Comment V5: The commenter is concerned that Flat Rock Road will be plowed to provide access to the turbines, and is frustrated that no one will discuss this. Plowing Flat Rock Road would seriously affect his business.

Response V5: As indicated in Section 3.8.2.2 of the DEIS, *"The Project owner is responsible for the maintenance of all private access roads leading to the turbine sites, and does not anticipate plowing access roads during winter months. Therefore, it may become necessary for personnel to service turbines with snowmobiles or some other small track driven vehicles."* If any emergency situation did arise that required additional vehicle access to the site, Atlantic Wind would coordinate the most appropriate form of access with Emergency Services and the Town of Martinsburg, taking into consideration potential landowners and businesses local to the Project.

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