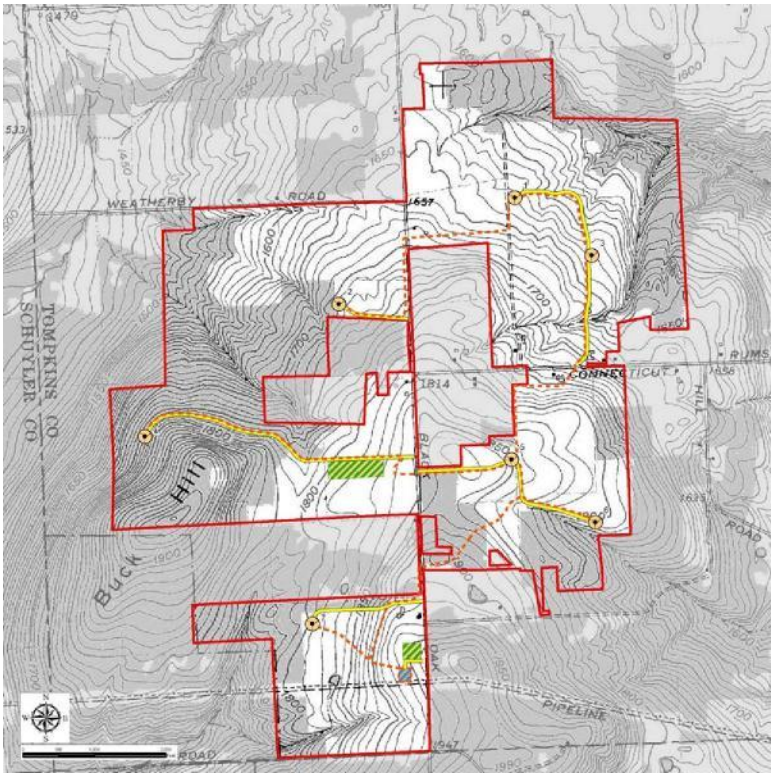
New York State Environmental Quality Review Act
Lead Agency Findings Statement
for the
Black Oak Wind Farm

Town of Enfield
County of Tompkins, New York



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NEW YORK STATE ENVIRONMENTAL QUALITY REVIEW ACT

TOWN BOARD OF THE TOWN OF ENFIELD

FINDINGS STATEMENT

BLACK OAK WIND FARM PROJECT

This document is a Findings Statement prepared pursuant to the New York State Environmental Quality Review Act, Article 8 of the Environmental Conservation Law and the regulations promulgated thereto at 6 N.Y.C.R.R. Part 617 (collectively referred to as "SEQRA") by the Town Board of the Town of Enfield (the "Town Board") as Lead Agency for the proposed Black Oak Wind Farm project (the "Project").

This Findings Statement draws upon the matters set forth in the SEQRA record including the environmental impact statement consisting of the Draft Environmental Impact Statement ("DEIS") accepted by the Town Board on June 12, 2013, the Final Environmental Impact Statement ("FEIS") accepted by the Town Board on November 12, 2014, as well as the public comments on the DEIS received at the July 10, 2013 public hearing and during the public comment period which was conducted from June 12, 2013 through July 22, 2013. (Collectively, the DEIS and the FEIS are referred to as the "EIS").

The purposes of the EIS is to identify and evaluate the potential significant adverse environmental impacts of the Project, compare the reasonable alternatives, and, where applicable, to identify reasonable mitigation measures to reduce the effect of those impacts to the maximum extent practicable while weighing the substantial potential social and economic benefits of the Project.

2.0 DESCRIPTION OF ACTION

The Project is proposed to be located on 930 acres of leased land in the Town of Enfield, County of Tompkins, State of New York (the "Project Site").

The Project Site is located on rolling, elevated plateaus that are dissected by tributaries (and their associated ravines) to Seneca Lake, Cayuga Lake, and the Susquehanna River. Elevations in the area range from approximately 1,600 to 2,000 feet above mean sea level (amsl). Within and adjacent to the Project Site the majority of the upland area primarily consists of northern deciduous forest and open crop fields (primarily hay) and pastures. Existing built features include single-family homes, seasonal homes, communication towers, barns, silos, commercial scrap yard, and other agricultural buildings.

At the time the DEIS was prepared, the Project was proposed to consist of seven wind turbines, each with a nameplate capacity of 1.8 megawatts (MW) for a total generating capacity of 12.6 MW. The Project was also proposed to include the construction of associated components including a system of gravel access roads, buried 34.5 kilovolt (kV) electrical collector lines, two temporary construction staging areas and a collection and transforming station. The Project was

to be developed on approximately 1,060 acres of leased land, or land that was subject to lease negotiations at the time of the DEIS.

As a result of both the review conducted through the DEIS and the change in the kind of turbines to be used by the Project Sponsor, the configuration of the Project was ultimately reduced in size. The Project now consists of 7 wind turbines, each with a nameplate capacity of 1.7 MW for a total generating capacity of 11.9 MW. The Project still includes a system of gravel access roads, buried 34.5 kV electrical collector lines, one temporary construction staging area, and a collection and transforming station. However, the Project Site now only includes approximately 930 acres of leased land. If approved, construction would begin in the spring of 2015.

3.0 PUBLIC NEED AND BENEFIT

The purpose of the Project is to create a wind-powered electrical-generating facility that will provide a significant source of renewable energy to the New York State power grid. The Project would facilitate compliance with the Public Service Commission (PSC) "Order Approving Renewable Portfolio Standard (RPS) Policy" issued on September 24, 2004. This Order calls for the use of renewable energy in the state to increase to 25% (from the then level of 19%) by the year 2013 (PSC, 2004a). In 2008, the PSC increased the RPS goal to 30% by 2015 (NYSERDA, 2012).

The New York State Energy Plan contains a series of mandatory policy objectives that the Project will assist in achieving, including increasing the use of energy systems that enable the State to significantly reduce greenhouse gas emissions, while stabilizing long-term energy costs and improving the State's energy independence through development of in-state energy supply resources (New York State Energy Planning Board, 2009). The State Energy Plan recognizes that wind energy projects will play a role in fulfilling this objective.

The Project will have significant, long-term beneficial effects on the use and conservation of energy resources. The Project will generate approximately 11.9 MW of electricity without consuming water or producing toxic emissions. This greatly exceeds the energy required to construct and operate the Project, and the output is enough to power approximately 6,000 homes in New York State (on an average annual basis).

The Project will add to and diversify the state's sources of power generation, accommodate future growth in power demand through the use of a renewable resource (wind), and over the long term will displace some of the state's older, less efficient, and less environmentally sustainable sources of power and/or the amount of energy imported into the state. Wind energy generation results in reductions in air emissions because of the protocol utilized to manage the electric power system.

4.0 TOWN BOARD JURISDICTION AND SEQRA PROCESS

The Town Board, as the Lead Agency pursuant to SEQRA, issued a Positive Declaration on June 9, 2010, requiring the preparation of a DEIS. The DEIS was accepted as complete on June 12, 2013 and copies of the DEIS were subsequently delivered to involved/interested agencies and individuals, and posted to the website, *www.blackoakwindny.com*.

Opportunities for detailed agency and public review were provided during the DEIS public comment period that was held from June 12, 2013 through July 22, 2013. A public hearing was also conducted by the Lead Agency on July 10, 2013 at the Enfield Community Building, 182 Enfield Main Road, Ithaca, New York.

The following is a list of the interested and involved agencies that participated in the SEQRA review of the Project:

- The New York State Department of Environmental Conservation
- The New York State Public Service Commission
- The New York State Department of Transportation
- Tompkins County Health Department
- The New York State Office of Parks, Recreation and Historic Preservation
- The New York State Department of Agriculture and Markets
- The US Army Corps of Engineers
- Town of Enfield Highway Department
- Tompkins County Area Development
- Tompkins County Planning Department
- Tompkins County Highway Division
- Towns of Ithaca, Ulysses, Newfield, Hector, Catharine and Schuyler
- County of Schuyler

The FEIS was issued by the Town Board on November 12, 2014 and a Notice of Completion of the FEIS was forwarded to the Environmental Notice Bulletin for publication on November 21, 2014.

5.0 DATE FINAL ENVIRONMENTAL IMPACT STATEMENT ISSUED

The FEIS was issued by the Town Board on November 12, 2014.

6.0 FACTS AND CONCLUSIONS RELIED ON TO SUPPORT FINDINGS STATEMENT

The conclusions set forth in this Findings Statement consider the relevant environmental impacts, facts and conclusions disclosed in the EIS; weigh and balance relevant environmental impacts with social, economic, and other considerations; and provide a rationale for the Town Board's decision regarding the potential significant adverse environmental impacts associated with the Project, and the mitigation measures to be implemented to reduce and/or minimize such impacts to the maximum extent practicable.

This Findings Statement also certifies that the requirements of 6 N.Y.C.R.R. Part 617 have been met, and certifies that consistent with social, economic and other essential considerations from among the reasonable alternatives evaluated, the action chosen is the one which avoids or minimizes adverse environmental impacts to the maximum extent practicable, while at the same time maximizing the social and economic benefits provided by the Project, and that adverse environmental impacts will be avoided or minimized to the maximum extent practicable by incorporating as conditions those mitigation measures that were identified as practicable.

The findings contained herein are based on the full record of the proceedings and submissions that were presented to the Town Board and included as part of its administrative record. The potential significant adverse environmental impacts reviewed in the DEIS and FEIS, the analysis conducted related to each potential impact, and the required mitigation and conditions, as applicable, are summarized below.

6.1 Project Alternatives Considered

Section 617.9(b)(5)(v) of the SEQRA regulations requires that an environmental impact statement contain a description and evaluation of the range of reasonable alternatives to the action that are feasible, considering the objectives and capabilities of the Project Sponsor. Although it is not necessary to consider all possible alternatives, those that achieve the same or similar objectives of the Project Sponsor, have relatively the same or reduced environmental impacts, and can be implemented in a timeframe similar to that of the proposed action, should be considered. Section 6197.9(b)(5)(v) of the SEQRA regulations further provides that the description and evaluation of each alternative should be at a level of detail sufficient to permit a comparative assessment of the alternatives discussed, but will vary with the circumstances and natures of each alternative.

The following alternatives to the proposed action are described and evaluated: no action, alternative project sites; alternative project design/layout; alternate project size; alternative technologies; alternative construction phasing; and alternatives that avoid significant impacts. These alternatives offer a potential range and scope of development for comparative analysis and consideration.

The no action alternative assumes that the Project Site would continue to exist as agricultural, forested, successional and rural residential land. This no action alternative would not affect on-site ambient noise conditions, construction traffic or public road conditions, wildlife or wildlife habitat, wetlands and streams, or television/communication systems, and would maintain community character, economic and energy-generating conditions as they currently exist.

Under this alternative, no wind turbines or infrastructure (*e.g.*, roads, buried or above ground electrical interconnects, and substations) would be developed on the site. Consequently, none of the environmental impacts associated with the Project would occur. In addition, no economic benefits would accrue to the community. These unrealized economic benefits would include income from construction jobs, lease payments to the landowners, and annual PILOT payments to the affected Town, school district, and County. Annual revenues to the Town of Enfield, Tompkins County, and the school district remain to be negotiated in the final terms of a PILOT agreement, but are anticipated to be approximately $100,000 per year for the first 15 years of Project operation, declining thereafter based on depreciation. Under the no action alternative, multiplier effects from these economic benefits would also not be realized. Furthermore, the benefits of adding up to 11.9 MW of clean, renewable electric energy to the power grid would be lost, and this renewable energy would not be available to off-set electricity produced by fossil-fuel-fired generators, which contribute to emissions of sulfur dioxide (a precursor of acid rain), nitrogen oxide (a smog precursor), and carbon dioxide (a greenhouse gas). Given the short-term nature of anticipated construction impacts and the generally minor long-term impacts of Project

operation, as compared to the significant economic benefits that the Project would generate, the no action alternative is not considered a preferred alternative.

Under 6 NYCRR § 617.9(b)(5)(v)(g), site alternatives addressed in an EIS may be limited to parcels owned by, or under option to, a private project sponsor. The Project Sponsor does not own, lease or have under option, any contiguous parcels in Tompkins County other than those that constitute the Project Site. Therefore, there is no requirement to evaluate any alternative project sites. Nonetheless, this section provides background information on the selection of the Project Site to facilitate understanding of the criteria that the Project Sponsor employed.

The preliminary selection of wind turbine locations on a regional or statewide basis is constrained by several factors that are essential for the Project to operate in a technically and economically viable manner. These factors include the following:

- adequate wind resource;
- adequate access to the bulk power transmission system, from the standpoints of proximity and ability of the system to accommodate the interconnection and accept and transmit the power from the Project;
- contiguous areas of available land;
- compatible land use;
- willing land lease participants and host communities; and
- limited population/residential development.

In selecting a specific project site, several design factors greatly favor rural areas for commercial wind development, particularly turbine spacing and setback requirements. Generally, approximately 60 acres of land is required for each MW-scale wind turbine to perform properly under New York state wind conditions. Although the actual footprint of the wind turbine is much smaller, this amount of airspace is generally required to minimize effects turbines have on one another when sited down wind. A dense array of wind turbines may result in reduced wind capture and impose unacceptable stresses on operating wind turbine components. These larger land requirements also favor other design considerations including acceptable setback distances from residential areas.

In addition to local landowner support, the Project Sponsor continued with the development of a community based wind project for the following reasons:

- It provides a desirable wind resource based upon an ongoing meteorological monitoring program initiated in November 2006.
- It is immediately adjacent to the NYSEG Montour Falls – Coddington Road Line; a suitable 115kV interconnection transmission facility, which has available capacity to transmit power from the Project to the New York State grid;
- The site is relatively rural, and the area within the vicinity of the proposed Project generating site is of low population and residential density. Therefore turbines on the site will generally be remote from significant population centers and occupied

structures and will readily exceed setback requirements as set forth in the Town's Wind Energy Law.

In addition, the Project Site includes existing farm lanes within the generating site that can be upgraded, thereby minimizing impacts associated with construction access roads in new locations.

The design and layout of the Project and the Project size represent a continuous process of evaluating alternatives. In addition to the no action alternative, the key layouts explored through this process provide the basis for this alternatives analysis: a 20 turbine layout (2009), a 13 turbine layout (2011), and the currently proposed seven-turbine layout.

The initial 20-turbine layout was generated based almost solely on maximizing the wind generation and energy output or wind resource optimization and served as a starting point for desktop and on-site evaluation of environmental impacts. As mentioned previously, various siting constraints dictate the size and layout of a wind power project. These constraints make a significantly larger project highly unlikely. A larger project has the potential to result in location of wind turbine towers in areas that do not have ideal wind resources, and would also require installation of more turbines in areas with more sensitive resources, constructability issues and/or higher population density. Although a larger facility would have more economic value, the greater environmental and social impacts do not justify the increased power generation potential of the Project. In the case of the 20- turbine layout it was determined that the turbines were spaced too close, therefore modifications to the array design were necessary to minimize the power loss due to increased wake effect and turbulence, as well as turbulence induced component wear.

The initial Project footprint was maintained but the Project layout was reduced to 7 turbines, which increased spacing between turbines in the interest of wind resource optimization. Additionally, the 7-turbine layout reduces other land disturbance impacts associated with construction related grading and conversion of land to built facilities, as compared to the 20 and 13-turbine alternative. However, after further environmental review, specifically to impacts relating to noise and additional wind resource optimization, it was determined that further reduction of the number of turbines was needed.

A project of significantly fewer turbines than the currently proposed seven turbine layout has the potential to pose challenges to the economic feasibility of the Project, particularly given the estimated interconnection costs in excess of $4 million, and the Project's other substantial fixed and soft costs. If the proposed number of turbines is significantly reduced beyond the 7-turbine alternative, the economic feasibility of the Project would be jeopardized and the maximum benefit of the available wind resource would not be realized. As previously mentioned, part of the objective of the proposed action is to create an economically viable wind-powered electrical-generating facility. Therefore, the current seven-turbine layout was proposed within a similar footprint to maximize the wind resource on-site without overbuilding the Project Site, while maintaining an economically viable project.

6.2 Geology, Soils and Topography

6.2.1 Discussion of Potential Impacts

The Project Site is located in the Allegheny Plateau segment of the Appalachian Plateau physiographic province (USDA, 1965). This area is characterized as a mature, eroded plateau with gently rolling uplands and valley topography. Valleys in the vicinity of the Project Site are associated with the Cayuga Inlet, Enfield Creek, and tributaries to Cayuga and Seneca Lakes. Regionally, the ground surface generally slopes down from the southwest to the northeast. Slopes generally range from 0 to 20 percent. Elevations in the Project Site range from approximately 1,450 feet amsl in the northeast corner of the site to approximately 1,960 feet amsl on Buck Hill.

The bedrock within the Project Site is composed of shale and sandstone of the Devonian Age. The major bedrock formation in the Project Site is the Beer Hill Shale of the West Falls Group; bedrock ranges from approximately 3.8 to 60 feet within the Project Site. No rock outcrops, large boulders, ledges, or steep slopes were observed in upland areas or in the vicinity of proposed wind turbine locations. Surface geological materials are primarily glacial till, which is composed of poorly sorted material of variable texture that was deposited beneath glacial ice. These soils consist of a mixture of clay, silt, sand, gravel, cobbles, and boulders in varying proportions.

The primary impact to the physical features of the Project Site will be the disturbance of soils during construction, primarily associated with the installation of foundations, underground 34.5 kV cable, and access roads. Soil disturbance from all anticipated construction activities will total approximately 48.9 acres. Of this total, only approximately 6.8 acres will be converted to built facilities (roads, cranepads, structures), while the remaining approximately 42.1 acres will be restored and stabilized following completion of construction. Approximately 38.4 acres of land classified as farmland of statewide importance will be impacted by Project construction, of which 3.9 acres will be permanently impacted. No land classified as prime farmland will be impacted by Project construction. Approximately 18.3 acres of soils listed as hydric by the U.S. Department of Agriculture's Natural Resources and Conservation Service (NRCS) will be impacted by Project construction, of which 1.9 acres will be permanently impacted and the remainder will be restored post-construction. Approximately 2.6 acres of soils exceeding 15 percent slope will be impacted, of which 0.5 acre will be permanently impacted. There will be no impacts to soils with slopes in excess of 25 percent. Permanent impacts on steep slopes are associated with installation of two short sections of access road and co-linear buried collection lines. The actual impact of this work will likely be less than these calculations indicate, due to conservative calculation methods and the proposed use/upgrade of existing farm lanes to access most turbines sites.

6.2.2 Minimization and Mitigation Measures

The Project will result in permanent conversion of approximately 6.8 acres of land into built facilities (0.02 acre of foundation at each tower site, maximum 15-foot-wide permanent access roads, and an approximately 1.0-acre substation). Beyond occasional soil disturbance associated

with Project maintenance and repair, impacts caused by the operation of the Project on physiology, geography, and soils are expected to be minimal.

Impacts to physiography or geology have been largely avoided by siting Project components so as to minimize disturbances to steep slopes, sensitive soils, and bedrock. It is not expected that blasting will be employed for the excavation of tower foundations. In the event that blasting in select locations is required, mitigation measures will include the development and implementation 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. All necessary blasting will receive oversight by an Environmental Monitor. In addition, pre-notification signs and warnings to affected landowners, use of best management practices, and compliance with applicable permit requirements will be instituted as mitigation measures. At a minimum, the written pre-blast survey and final basting plan will conform to the following:

- Structures within a minimum distance of 1,500 feet from any blasting activity shall be surveyed as part of the pre-blast survey. The extent beyond the 1,500-foot minimum shall be determined by the contractor, their blasting subcontractor, and their insurance companies. A pre-blast well survey will also be completed if a well is located within 1,000 feet. This well pre-blast survey will include yield and turbidity measurements.

- The final blasting plan shall addresses air-blast limits, ground vibrations, and maximum peak particle velocity (PPV) for ground movement including provisions to monitor and assess compliance with the air-blast, ground vibration and PPV requirements established.

- The blasting plan shall meet criteria established in Chapter 3 (Control of Adverse Effects) in the Blasting Guidance Manual of the United States Department of the Interior Office of Surface Mining Reclamation and Enforcement.

Additional potential impacts associated with soil disturbance (erosion, sedimentation, compaction) have been minimized by siting turbines in relatively level locations where practicable and using existing roads for turbine access wherever possible. Impacts to soils will be further minimized by the following means:

- Public road ditches and other locations where runoff is concentrated will be armored with rip-rap to dissipate the energy of flowing water and to hold the soils in place.

- Prior to commencing construction activities, erosion control devices will be installed between the work areas and downslope surface waters or wetlands, to reduce the risk of soil erosion and siltation.

- During construction activities, hay bales, silt fence, or other appropriate erosion control measures will be placed as needed around disturbed areas and stockpiled soils.

- Following construction, all temporarily disturbed areas will be stabilized and restored in accordance with approved plans.

Impacts to soil resources will be minimized by adherence to “best management practices” that are designed to avoid or control erosion and sedimentation, stabilize disturbed areas, and

minimize the potential for spills of fuels or lubricants. In general, erosion, sedimentation, and soil drainage impacts during construction will be minimized by the implementation of an erosion and sedimentation control plan developed as part of the Stormwater Pollution Plan (SWPPP) in satisfaction of the State Pollution Discharge Elimination System (SPDES) General Permit. Erosion and sediment control measures shall be constructed and implemented in accordance with an erosion and sediment control plan. The plan shall:

- Describe the temporary and permanent structural and vegetative measures that will be used to control erosion and sedimentation for each stage of the Project.
- Provide a map showing the location of erosion and sediment control measures.
- Provide dimensional details of proposed erosion and sediment control facilities as well as calculations used in the siting and sizing of any sediment basins.
- Identify any temporary erosion and sediment control facilities that will be converted to permanent stormwater management facilities.
- Provide an implementation schedule for staging temporary and permanent erosion and sediment control facilities.
- Provide a maintenance schedule for soil erosion and sediment control facilities and describe maintenance activities to be performed.
- Erosion and sediment control measures shall be constructed prior to beginning any other land disturbances. The devices will not be removed until the disturbed land areas are stabilized.

Mitigation measures to protect and restore agricultural soils will be undertaken during and after construction. These will include full restoration of temporarily disturbed agricultural land in accordance with NYSA&M Agricultural Protection Guidelines. For example, topsoil will not be stripped and cranes will not cross fields during saturated conditions when such actions would damage agricultural soils. This restriction may be a limiting factor for construction activities after heavy rainfalls during any season, particularly in the early spring (due to snowmelt). Existing access roads will be used for access to farmland to the extent practicable. However, for any new access roads that are required, topsoil in the work area will be stripped and stockpiled outside the area of disturbance, yet within the property from which it was removed. All vehicular movements and construction activity will be restricted to areas where topsoil has been removed. Approximately 40.5 acres of temporarily disturbed soils will be restored following construction, including approximately 23.5 acres of agricultural land. Restored areas will include tower sites, road edges, temporary roads, and staging areas. This process will generally involve the following sequence of activities:

1. Removal of gravel or other temporary fill.
2. De-compaction of compacted subsoils using a deep ripper.
3. Disking and removal of stones from de-compacted subsoil.

4. Spreading of stockpiled topsoil over de-compacted subsoil to reestablish pre-construction contours to the extent practicable.

5. Disking and removal of stones from re-spread topsoil.

6. Seeding and mulching topsoil. Seed selection in agricultural fields will be based on guidance provided by the landowner and the NYSA&M.

Soil impacts during construction will also be minimized by providing the contractor and all subcontractors with copies of the final construction documentation and plans, which will contain all applicable soil protection, erosion control, and soil restoration measures. One or more pre-construction meetings will be held with the contractor and a representative of the NYSA&M, and, during construction, the Environmental Monitor will assure compliance with the construction plans and soil protection measures described above. An Agricultural Data Statement will be filed pursuant to Section 305-a of the Agricultural and Markets Law.

6.2.3 Findings

Potential impacts to geology, soils and topographical resources will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the requirements set forth in Section 6.2.2 above.

6.3 Water Resources

6.3.1 Discussion of Potential Impacts

Construction of the Project may result in certain localized and minor impacts to groundwater. Potential groundwater impacts include:

- Localized and temporary impacts to groundwater levels resulting from dewatering activities during excavation and construction of turbine foundations;
- Insignificant impacts to groundwater from buried Project components;
- Minor disturbance of groundwater recharge from the creation of impervious surfaces;
- Increased turbidity in nearby wells should blasting be required; and
- Accidental discharge of pollutants during construction.

Foundation excavations are not expected to exceed 20 feet below ground surface. In order to maintain a dry excavation, the groundwater level will likely be lowered up to 5 feet below the depth of the excavation. Dewatering activities will temporarily lower groundwater levels within the immediate vicinity of the excavation during pumping. No impact on residential wells is expected because no turbines will be located within approximately 900 feet of a residential structure. Additionally, the pumped water will be discharged back into the Project Site allowing for infiltration into the aquifer. Therefore, any impacts will be very localized and temporary. Because the Project Site is larger than one acre, NYSDEC will likely require a SPDES permit for

the Project. As a result, a SWPPP will be submitted as part of the construction documents. Discharge and treatment of pumped water will be performed as stipulated in the SWPPP to eliminate impacts to residential potable water supplies.

Excavations for buried electrical collection lines are not expected to exceed 10 feet below existing ground surface. As potable groundwater is found at depths greater than ten feet below existing ground surface, no significant impact will result from these excavations or the buried electrical lines. The substation and service roads are essentially surface features, and neither will extend to depths that would impact the aquifer or groundwater. The service roads are surface features that are not expected to disturb bedrock. The substation will likely require shallow foundations and slab on grade construction less than 5 feet below grade and, therefore, also will not significantly impact groundwater.

The Project Site covers an area of approximately 930 acres of land. Construction of each wind turbine will result in approximately 0.02 acres of impervious surface. Considering the additional impervious surface associated with construction of the substation, a total long-term impervious surface area of 0.2 acres has been estimated for the Project Site. This conservative estimate results in a total impervious surface area of less than 0.02% of the Project Site, which will not significantly alter the recharge area of the aquifer. Additionally, because stormwater will be shed to the sides of these impervious surfaces and drain into the vegetated soils, the total quantity of water recharging the aquifer in the Project Site will not be significantly reduced as a result of construction.

During construction, direct or indirect impacts to wetlands and surface waters may occur as a result of the installation of access roads, the upgrade of local public roads, the installation of buried electrical collection lines, and the development and use of temporary workspaces around the turbine sites. Direct impacts, including clearing of vegetation, earthwork (excavating and grading activities), and the direct placement of fill in wetlands and surface waters, are typically associated only with the development of access roads and workspaces. The construction of access roads, or the upgrade of local public roads, may result in both permanent (loss of wetland/surface water acreage) and temporary impacts to wetlands. The development and use of temporary workspaces may result in temporary impacts to wetlands/streams. The installation of buried electrical collection lines may temporarily disturb streams and wetlands during construction as a result of clearing (brushogging, or similar clearing method not requiring removal of rooted woody plants) and soil disturbance from burial of the electrical collection lines. In addition, it is anticipated that concrete will be used for wind turbine and substation foundations. Cement truck washout will be performed as stipulated by the SPDES permit. Therefore, no impact to wetlands will occur from the use of concrete within the Project Site.

Indirect impacts to wetlands and surface waters may result from sedimentation and erosion caused by construction activities (*e.g.*, removal of vegetation and soil disturbance). These indirect impacts may occur at wetlands adjacent to work areas where no direct wetland impacts are anticipated, including areas adjacent to proposed access road upgrade/construction, buried collection lines, turbine sites, staging areas, met tower, or the substation. The construction of wind turbine foundations could potentially result in concrete being spilled into adjacent wetlands or water courses.

Based on an analysis of the Project layout and the wetland delineation conducted in June 2013, , approximately 0.07 acre of temporary wetland/stream impacts are anticipated to occur due to Project construction. These impacts primarily involve temporary placement of fill to accommodate proposed Project access road construction and temporary soil disturbance associated with the installation of buried electrical collection lines.

Following Project construction, if any wetland areas are temporarily impacted, such areas will be restored. Restoration is anticipated to include the following:

- To the extent any 200 foot radius turbine workspace cannot avoid a wetland area, such temporary workspace will be reduced to a footprint of 0.2 acre (60 foot by 100 foot gravel crane pad, 18 foot diameter turbine pedestal, and a 6 foot wide gravel skirt around the tower base) thereby allowing restoration of the wetland area. It should be noted, however, that turbine work spaces will be shifted to avoid temporarily impacting wetlands to the greatest extent practicable.

- 40 foot wide access roads will be reduced to maximum width of 25 feet (except where unstable soil conditions or severe erosion hazard preclude restoration).

- Buried electrical collection line routes will be allowed to regenerate naturally.

In addition, during all aspects of construction, any stockpiled soil and/or spoil material will only be temporary (*i.e.*, spread and graded to match original contours following construction activities). Proper methods for segregating stockpiled and spoil material will be implemented, and excavated soil will be reused to the maximum extent possible on the site that it was excavated from, as a means to limit opportunities for proliferation of non-native flora and other invasive species. The Project shall utilize an Invasive Species Control Plan (ISCP) to minimize the spread of invasive species within federal and state regulated wetlands, streams, and other riparian areas affected by wind development activities on-Site.

Permanent impacts to surface waters and wetlands (loss of surface water/wetland acreage) will result from the footprint of permanent access roads necessary to accommodate long-term maintenance and operation activities. Based upon the preliminary layout, the permanent footprint of access roads (assumed to be a maximum of 15 feet wide) is anticipated to result in 0.02 acre of permanent impacts to wetlands/streams.

Impacts to surface waters and wetlands primarily occur during Project construction. The operation of the constructed facility is not anticipated to have significant adverse impacts to wetlands, streams, or other surface waters within the Project Site. Vehicular access to the turbines, substation, and met tower will be completely established during Project construction, and routine operation and maintenance procedures are not anticipated to result in significant adverse impacts. Minor and isolated incidences of impact may occur, which could have a minimal impact to surface waters or wetlands in or adjacent to the Project Site, including buried electrical collection line maintenance, access road washouts, culvert replacement/maintenance, or accidental fuel/chemical spills. In addition, during Project decommissioning, access roads will need to be widened to allow access for large trucks and cranes to turbines, resulting in temporary impacts. Also, in the event of a catastrophic event (*e.g.*, turbine fire, blowdown, blade

failure), when large trucks and cranes may again need to access all or portions of the Project Site, temporary impacts to wetlands will occur.

Indirect impacts to floodplains could result from soil sedimentation caused by construction activities, such as soil disturbance and the removal of vegetation. However, given the distance that floodplains lie from the Project Site, and with the implementation of mitigation measures that have proven effective at keeping soil sedimentation at very low levels, no adverse impacts to floodways are anticipated. The Project will not result in wide-scale conversion of land to built/impervious surfaces. Consequently, no significant changes to the rate or volume of stormwater runoff are anticipated. However, installation of permanent Project components could result in localized changes to runoff/drainage patterns. Culverts and waterbars will be installed to maintain natural drainage patterns. Appropriately sized culverts (minimum 12 inches) will be placed in any wetland/stream crossings in accordance with state and federal permit requirements. In other locations, culverts may also be used to assure that the roads do not impede cross drainage and to provide stormwater control. If culverts are required during Project construction, the Project Sponsor will provide drainage design and calculations to the County or Town for review. Any ditches or other water conveyance structures will be assessed prior to any disturbance to determine if they are part of a stream or wetland and subject to USACE jurisdiction. Where Project construction is adjacent to, or cross, wetlands, streams or drainage ditches/swales, appropriate sediment and erosion control measures will be installed and maintained according to the Project-specific NYSDEC-approved SWPPP for the Project.

6.3.2 Minimization and Mitigation Measures

The groundwater analysis for the Project provides that the following minimization and mitigation measures be completed:

- As the Project Site is over 1 acre in size, a NYSDEC SPDES permit will be required during construction of the proposed Project. Any water pumped from the ground as a result of dewatering excavations will be treated and discharged as stipulated in the SPDES permit. Temporary impacts to the local shallow groundwater due to pumping will not be significant; therefore, no mitigation is required.

- The Project will not require a potable water source and therefore will not withdraw any water from the aquifer. As no potable water is anticipated for use at the Project, no mitigation for water withdrawals is required.

- The construction and presence of each individual wind turbine will not impact the aquifer more significantly than a new residential property. Further, the total area of impervious surface created by the construction of the Project has been conservatively estimated to be less than 0.02% of the total acreage comprising the Project Site. Based on this limited impact, no mitigation is required.

- Hydraulic hammers or dozer-mounted rippers should be used to reach the minimum foundation depth in areas were bedrock is encountered. Blasting should not be necessary; however, a blasting plan will be developed if the need should arise. In order to mitigate potential impacts from blasting, it is recommended that no blasting of bedrock be

performed in the Project Site with 1/10 mile of an existing residence. The Project specifications should be prepared to include this limitation on the use of blasting.

- Groundwater could be impacted as the result of accidental spills due to construction and maintenance activities. Project specifications should include measures for contractors to mitigate these potential impacts. These measures should include requiring the contractor to maintain good housekeeping practices throughout the Project, perform vehicle maintenance and refueling on impervious surfaces, and keep a spill cleanup kit readily available near refueling and maintenance areas during construction activities. Further, after construction is complete a spill cleanup kit should be maintained at a central location for use during maintenance activities. Finally, the project specifications should require the contractor to comply with all applicable NYSDEC spill regulations.

No compensatory mitigation for indirect or temporary impacts to wetlands or streams is proposed because these impacts will not result in any loss of wetland acreage. However, to the extent that Project activities may result in other temporary direct and indirect impacts to wetlands/streams (other than loss of wetland acreage which will not occur as a result of temporary impacts), such impacts will be minimized during construction as discussed below.

The direct impacts to wetlands/streams will be minimized by utilizing existing or narrow crossing locations whenever possible. Upgrading existing crossings that are under-maintained/undersized will have a long-term beneficial effect on water quality, as it will help to keep not only Project-related components from disturbing surface waters, but also farm equipment and other vehicles that are unrelated to the Project and currently operate in the Project Site. Special crossing techniques, equipment restrictions, herbicide use restrictions, and erosion and sedimentation control measures will be utilized to reduce adverse impacts to water quality, surface water hydrology, and aquatic organisms. In addition, clearing of vegetation along stream banks and in wetland areas will be avoided or minimized to the greatest extent practicable.

Where crossings of surface waters and wetlands are required, the Project Sponsor will employ the Best Management Practices associated with particular, applicable streamside and wetland activities, as recommended by the NYSDEC and the USACE, and required by the issued wetland/waters permits. Specific mitigation measures for protecting wetlands and surface water resources will include the following:

- No Equipment Access Areas: Wetlands, streams, and waterbodies will be designated "No Equipment Access," thus prohibiting the use of motorized equipment in these areas except where crossed by permitted access roads.

- Restricted Activities Area: A buffer zone of 100 feet, referred to as "Restricted Activities Area," will be established where Project construction traverses streams, wetlands and other bodies of water. Restrictions will include:

    - No deposition of slash within or adjacent to a waterbody;

    - No accumulation of construction debris within the area;

- Herbicide restrictions within 100 feet of a stream or wetland (or as required per manufacturer's instructions);
- No degradation of stream banks;
- No equipment washing or refueling within the area; and
- No storage of any petroleum or chemical material.

- When crossing wetlands, routing around edges, utilizing higher ground, and crossing the narrowest portion of the wetland will be the preferred crossing options. Wherever feasible, low impact crossing methods will be used, such as timber mats or similar materials. Geotextile mats, corduroy, and/or gravel may also be used to create temporary wetland road widening. Where permanent roadways are installed and impoundment of water is possible, the installation of culverts will maintain the natural water levels/flows on each side of the road.

- The Project Sponsor will adhere to any permit special conditions pertaining to low-impact stream crossing techniques, including seasonal restrictions and/or alternative stream crossing methods, such as temporary bridging and installation of crossings "in the dry" on protected streams. Open-bottomed or elliptical culverts could be required on certain streams to minimize loss of aquatic habitat and restriction of fish passage. Adherence to these restrictions should avoid or minimize any adverse impacts on fish and other aquatic organisms.

- A soil erosion and sedimentation control plan will be developed and implemented as part of the SPDES General Permit for the Project. To protect surface waters, wetlands, groundwater and stormwater quality, silt fences and temporary siltation basins will be installed and maintained throughout Project development. Exposed soil will be seeded and/or mulched to assure that erosion and siltation is kept to a minimum along the wetland boundaries. The location of these features will be indicated on construction drawings and reviewed by the contractor and environmental monitor prior to construction. 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. In addition, a final SWPPP will be implemented during construction. The Environmental Monitor will inspect these features to assure that they function properly throughout the period of construction, and until completion of all restoration work (final grading and seeding).

Construction phasing schedules that relate the establishment of vegetative and structural practices and their timing relative to other construction practices, and an inspection and maintenance plan will be provided for the site. Erosion and sediment control measures will be inspected at least once every 7 days (or following significant storm events) by a person knowledgeable in the principles and practices of erosion and sediment control until all soil disturbance has ceased and a vigorous vegetative cover or equivalent stabilization measures have been established on all disturbed areas across the Project Site. Inspections will be in accordance with the 2010 SPDES General Permit for Stormwater Discharges from Construction. Prior to

beginning construction, the Project Owner will submit a Notice of Intent (NOI) in conformance with the current SPDES regulations and obtain authorization to commence construction activities from the NYSDEC Bureau of Water Permits in Albany. To avoid localized drainage problems, the Environmental Monitor will identify the need for ditches, water bars, culverts, and temporary sediment retention basins at each road and tower site prior to the initiation of construction. If drainage problems develop during or after construction, the Environmental Monitor will evaluate the problem (in consultation with the contractor, landowner, and/or agency representative) and recommend a solution. Corrective actions will be taken by the contractor after receiving the recommendation.

6.3.3 Findings

Potential impacts to water resources will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the requirements set forth in Section 6.3.2 above.

6.4 Climate and Air Quality

6.4.1 Discussion of Potential Impacts

During the site preparation and construction phases of the Project, minor, temporary adverse impacts to air quality could result from the operation of construction equipment and vehicles. Such impacts could occur as a result of emissions from engine exhaust and from the generation of fugitive dust during earth moving activities and travel on unpaved roads. The increased dust and emissions will not be of a magnitude or duration that would significantly impact local air quality. However, dust in particular could cause annoyance and property damage at certain yards and residences that are adjacent to unpaved town roads or Project access roads. These impacts are anticipated to be short-term and localized and will be avoided or corrected quickly.

The operation of this Project is anticipated to have a positive impact on air quality by annually producing 44,150 megawatt hours (MWh) (assuming seven 1.8 MW turbines operating at 40% NCF annually) of electricity with zero emissions, except very small emissions from vehicles servicing the facilities. The operation of this Project is not anticipated to have any measurable effect on climate. In fact, on a larger scale, the Project represents a legitimate effort to mitigate the well-established causes of global climate change by generating up to 11.9 MW of electricity without the production of "greenhouse" gasses.

6.4.2 Minimization and Mitigation Measures

Except for minor, short-term impacts from construction vehicles, the Project will have no significant adverse impacts on air quality. A dust control plan will be developed and implemented to minimize the amount of dust generated by construction activities. In accordance with this plan, the extent of exposed/disturbed areas on the site at any one time will be minimized and restored/stabilized as soon as possible. The Environmental Monitor will identify dust problems and report them to the construction manager and the contractor. Water will be used to wet down dusty roads (public roads as well as Project access roads) as needed throughout the duration of construction activities. In more severe cases, temporary paving (*e.g.*, oil and

stone) could be used to stabilize dusty road surfaces in certain locations. In addition, the Project Sponsor will implement a Complaint Resolution Procedure to establish an efficient process by which to report and resolve any construction (or operational) related impacts.

Project operation has the potential to reduce current emissions from existing power plants. Every 10,000 MW of wind installed can reduce carbon dioxide emissions by approximately 33 million metric tons (MMT) annually if it replaces coal-fired generating capacity, or 21 MMT if it replaces generation from the United States average fuel mix (San Martin, 1989). The U.S. Department of Energy estimates that wind energy has the potential to reach 20% of the total installed generating capacity in the United States by 2030. If this target is achieved, wind would reduce national carbon dioxide emissions by 825 MMT annually (NREL, 2008). The PSC has estimated that achievement of the State's RPS goal will reduce New York State emissions of NOx by approximately 4,000 tons per year, emissions of SO2 by approximately 10,000 tons per year, and emissions of CO2 by approximately 4,129,000 tons per year (PSC, 2004b).

6.4.3 Findings

The Project does not present a potential significant adverse impact to the climate or air resources. To the contrary, the Project will provide incremental and long-term benefits to the climate and air quality by reducing carbon dioxide emissions from fossil fuel burning sources.

6.5 Biological Resources

6.5.1 Discussion of Potential Impacts

Project construction will result in temporary and permanent impacts to vegetation within the Project Site. Three of the proposed turbines would be located within agricultural land, which generally does not support native plant species, and an additional two turbines are located adjacent to agricultural land. No rare or endangered plant species are known to occur within the Project Site; all of the plant species observed during field surveys are common in New York State. Therefore, it is anticipated that no plant species occurring in the Project Site will be extirpated or significantly reduced in abundance as a result of construction activities.

Construction-related impacts to vegetation include cutting/clearing, removal of stumps and root systems, and increased exposure/disturbance of soil. Along with direct loss of (and damage to) vegetation, these impacts can result in a loss of wildlife food and cover, increased soil erosion and sedimentation, a disruption of normal nutrient cycling, and the introduction or spread of invasive plant species. Impacts to vegetation and ecological communities will result from site preparation, earth-moving, and excavation/backfilling activities associated with construction/installation of staging areas, access roads, foundations, and buried electrical interconnect and transmission line. Based on the area of impact assumptions, these activities will result in disturbance to approximately 57.5 acres within the Project Site.

Populations of invasive species typically establish most readily in places where the ground has been disturbed, thereby exposing the soil. These areas will be especially vulnerable to the introduction of invasive species. Ecological surveys conducted during the fall of 2012 identified

the following invasive species within the Project Site: reed canary-grass, black locust, multiflora rose, common buckthorn and smooth buckthorn.

Construction-related impacts to wildlife are anticipated to be limited to incidental injury and mortality due to construction activity and vehicular movement, construction-related silt and sedimentation impacts on aquatic organisms, habitat disturbance/loss associated with clearing and earth-moving activities, and displacement of wildlife due to increased noise and human activities.

Project components have been sited so as to minimize impact to undisturbed habitat. Many of the proposed turbines would be located in or adjacent to agricultural land, which in general provides habitat for only a limited number of wildlife species. In addition, these areas are already subject to periodic disturbance in the form of mowing, plowing, harvesting, etc. However, approximately 51.0 acres of wildlife habitat will be temporarily disturbed during construction, while permanent loss through conversion of natural habitat to built facilities will total 6.6 acres. Ground-disturbing construction activities could also reduce the availability of stopover habitat for migratory birds within the landscape, directly through the loss of habitat and indirectly by inducing avoidance of stopover habitat in response to visual and/or noise disturbance. Changes in vegetation could also influence the behavior of bats by changing microclimatic conditions and the quality of habitat for foraging or roosting bats. Bats may also become attracted to openings made in forested areas from tree clearing activities for turbines and access roads, as they may find foraging opportunities in the openings. It is anticipated that any bats that are present in the Project Site would return to areas that were temporarily disturbed following the completion of construction activity. Significant adverse impacts on bat populations are not expected during construction of the Project, especially since the proposed construction schedule proposes to limit tree clearing activity to the winter months.

Approximately 11.9 acres of forest, 1.0 acres of shrubland, and 12.8 acres of old field will be directly impacted by Project construction; these natural communities provide habitat for wildlife species. It is also anticipated that 23.0 acres of agricultural land and 8.0 acres of disturbed/developed land will be directly impacted by Project construction. The habitats to be impacted by Project construction are common within the region, and on a landscape scale, there is abundant availability of similar habitats in close proximity to the Project Site.

Construction impacts to bat species are expected to be even less than those experienced by birds. Bat habitat may be impacted by ground disturbance and tree removal. However, these activities are also associated with farming and logging, which are common in the area. At this stage of development, it cannot be verified when tree clearing activities will be conducted. Tree clearing during the winter months would present the lowest potential risk to bats by avoiding potential removal of roosting trees.

Some wildlife displacement will also 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, the species most likely to be disturbed/displaced by Project construction include grassland bird species such as red-winged blackbird, song sparrow, and savannah sparrow. Outside of localized construction disturbance and some temporary

displacement in the immediate vicinity of turbines, access roads, etc., no significant displacement impacts on breeding birds are anticipated during construction.

Project components have been sited to avoid wetlands and streams to the extent practicable. In addition, the agricultural lands being affected are generally not high quality grassland habitat, and forest land being impacted often does not display the characteristics of forest interior habitat. Consequently, the habitat being impacted by Project construction is unlikely to receive significant use by listed threatened and endangered species. However, to the extent that these species occur in the area, Project construction could result in limited disturbance/displacement of these species due to human activity and noise, and/or direct mortality impacts to eggs or young.

There are no known occurrences of rare or endangered plant species within the Project Site. A population of the state-listed endangered Hooker's orchid has been documented nearby, but is considered historical by the NHP since recent attempts to re-locate the population have been unsuccessful and notes from those surveys indicate that the habitat is degraded. Prior to the commencement of construction activities, a rare plant survey will be conducted to confirm the absence of Hooker's orchid at proposed construction sites. Therefore, no construction-related significant adverse impacts to listed plants or significant natural communities are anticipated.

Habitat alteration and disturbance resulting from the operation of turbines and other wind farm infrastructure can make a site unsuitable or less suitable for nesting, foraging, resting, or other wildlife use. The footprint of turbine pads, roads, and other Project infrastructure represents a very small percentage of the site following construction. Most breeding grassland bird species are anticipated to habituate to the turbines over the long-term, though some permanent displacement may result. However, displacement is likely to be limited to the immediate area of each turbine, and is also likely to be influenced by other factors, such as size of field and agricultural practices. Many of the proposed turbines are sited in active agriculture fields that are already subject to periodic disturbance and have limited habitat value. Therefore, there is a low risk of substantial displacement of breeding grassland birds.

The potential impacts of the Project on migrating or foraging waterfowl should not be significant, even though migrating geese can be expected to forage in nearby farm fields, sometimes in substantial numbers. Although collision risk is likely to be low, data on resident and migrating birds and bats at the Project Site were collected to determine if site-specific characteristics might suggest an elevated level of risk relative to other sites. The overall level of activity and species composition documented during those surveys is within the range documented by similar surveys that have been conducted at other proposed wind power projects in New York State. Consequently, the Project Site is not believed to be a particularly important avian corridor or an area of concentrated migration activity. Based on post-construction fatality studies at operating wind projects, it is likely that nocturnal migrant passerines (songbirds) will make up the majority of bird kills due to collision with the turbines. However, there are no geographical or topographical features on or adjacent to the Project Site that are likely to attract or concentrate nocturnal migrant passerines, and the Project Site is not immediately proximate to any large water bodies where nocturnal migrants tend to concentrate at stopover areas. Therefore, the Project is anticipated to have a fatality rate that will be within the range of fatality rates observed elsewhere in New York. There are no indicators of potential elevated risk to

passerines, and thus no biologically significant adverse impacts are anticipated for any passerine species.

Because limited use of the Project Site by endangered, threatened, and special concern species is anticipated, no significant adverse impact on these species is expected during Project operation. No federally-listed threatened or endangered species were observed on-site. According to the USFWS, only one federally-listed species was known from Tompkins County, the bog turtle, a threatened species. However, this occurrence is considered historical, and therefore occurrence of bog turtle, or any other federally-listed species, is unlikely to within the Project Site. None of the state-listed species observed on-site appear likely to engage in these behaviors at a frequency that would lead to significant collision risk, except perhaps northern harrier. Although foraging and courtship behavior by this species suggests the possibility at elevated collision risk, very low northern harrier mortality has been documented from wind turbines, even at sites that have relatively high use by this species.

6.5.2 Minimization and Mitigation Measures

Large areas of forest and wetland are being avoided to the extent practicable. Therefore, the most ecologically significant communities within the Project Site will be largely protected from disturbance. Project access roads will be sited on existing farm lanes and forest roads wherever possible, and areas of disturbance will be confined to the smallest area possible. In addition, a comprehensive sediment and erosion control plan will be developed and implemented prior to Project construction to protect adjacent undisturbed vegetation and other ecological resources.

Mitigation measures to avoid or minimize impacts to vegetation will also include pre-construction surveys for rare plant species, delineating sensitive areas (such as wetlands) where no disturbance or vehicular activities are allowed, educating the construction workforce on respecting and adhering to the physical boundaries of off-limit areas, complying with guidance provided by an Environmental Monitor, employing best management practices during construction, and maintaining a clean work area within the designated construction sites. Following construction activities, temporarily disturbed areas will be seeded (and stabilized with mulch and/or straw if necessary) to reestablish vegetative cover in these areas. Other than in active agricultural fields, native species will be allowed to revegetate these areas.

Controlling the introduction and spread of the target invasive species will be achieved through the implementation of an ISCP. In addition to control measures implemented during the construction phase, the Invasive Species Control Plan includes a two-year monitoring period to evaluate the success of invasive species control. This period coincides with the monitoring of other project restoration activities (i.e. agricultural monitoring in accord with NYSA&M Guidelines for Agricultural Mitigation for Wind Power Projects).

Construction-related impacts to fish and wildlife should be limited to incidental injury and mortality due to construction activity and vehicular movement, construction-related silt and sedimentation impacts on aquatic organisms, habitat disturbance/loss associated with clearing and earth moving activities, and displacement due to increased noise and human activities. Mitigation of impacts related to construction activity will be accomplished through careful site design (*e.g.*, utilizing existing roads, avoiding sensitive habitat, and minimizing disturbance to

the extent practicable), adherence to designated construction limits, and avoidance of off-limit sensitive areas.

To avoid and minimize impacts to aquatic resources resulting from construction-related siltation and sedimentation, an approved sediment and erosion control plan and SWPPP will be implemented. Proper implementation of these plans will assure compliance with NYSDEC SPDES regulations and New York State Water Quality Standards. In addition, 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.

Mitigation for impacts related to permanent habitat loss and forest fragmentation will be accomplished through careful site design (*i.e.*, minimizing the permanent footprint of Project components to the extent practicable) and restoration of all temporarily disturbed areas. In addition, cleared forest land along Project access roads and at the periphery of turbine sites will be allowed to grow back and reestablish forest habitat in these areas.

The Project has been designed to minimize bird and bat collision mortality. The turbines will be placed much further apart than in older wind farms where avian mortality has been documented, such as those in northern California. They will also be mounted on tubular towers (rather than lattice) which prevent perching by birds. In an effort to reduce avian and bat impacts, electrical collection lines between the turbines will generally be buried. Lighting of the turbines (and other infrastructure) will be minimized to the extent allowed by the Federal Aviation Administration (FAA), and will follow specific design guidelines to reduce collision risk (*e.g.*, using blinking lights with the longest permissible off cycle).

NYSDEC is requesting post-construction fatality monitoring studies at all wind power projects in New York State, and the Project Sponsor has volunteered to participate in this program in order to further the State's understanding of bird/bat interactions with wind turbines. In addition, a work plan for a post-construction habitat displacement study will be submitted to the NYSDEC for review prior to Project implementation. The post-construction monitoring studies will also include components of the "expanded post-construction studies," specifically a comparison of the number of estimated collisions with passage rates obtained through radar during peak bird and bat migration periods at the Project area (standard studies do not include the use of radar). Project-specific study protocols will be developed in consultation with state and federal agencies, including details such as study duration, search frequency, search areas, number and location of turbines to be searched, concurrent data collection and analysis, carcass collection for further study, and mitigation strategies that may be implemented if post-construction monitoring reveals operational impacts in excess of that which is anticipated or otherwise considered significant.

Mitigation measures will include an adaptive management strategy that incorporates options to be considered during Project operation if significant adverse impacts are identified by post-construction monitoring. Adaptive management actions or options to reduce mortality of bats and birds will be developed and implemented in consultation with state and federal agencies. While the exact components of the adaptive management strategy cannot be determined at this time, possible options could include selective operational changes such as curtailment of turbines

at low wind speeds, deterrents to keep bats away from turbines, or on-site habitat manipulation. Curtailment of power production at low wind speeds may be one method of reducing bat mortality at utility-scale wind facilities, because bats tend to be most active when wind speeds are low. Curtailment appears to be most effective during migration in summer and fall.

No state or federally listed threatened or endangered plant species have been identified within the Project Site, and no impacts to listed plants or significant natural communities are anticipated. Therefore, no mitigation is required. With respect to threatened and endangered wildlife species, listed wildlife species documented in the vicinity of the Project Site utilize a variety of habitats, including wetlands/water bodies, forests and grasslands. The habitat being impacted by the Project is unlikely to receive significant use by listed threatened and endangered species. Therefore, no mitigation specific to threatened and endangered species is required. Should a state or federally listed species be found dead or injured during post-construction monitoring studies, NYSDEC and USFWS will be notified within 48 hours.

6.5.3 Findings

Potential impacts to biological resources will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the requirements set forth in Section 6.5.2 above. Moreover, any potential impacts are outweighed by the environmental benefits to be provided by the Project.

6.6 Traffic and Transportation

6.6.1 Discussion of Potential Impacts

Wind power generating projects have the potential to create transportation impacts as a result of short-term construction activities (temporary impacts) and long-term operation and maintenance of the Project (permanent impacts).

Some temporary impacts along the delivery route will result from the movement of vehicles involved in Project construction. The exact construction vehicles have not yet been determined; however, it is known that transportation of turbine components and associated construction material involves numerous conventional and specialized transportation vehicles, including:

- Blade Sections – Wind turbines consist of three blades that are transported on trailers with one blade per vehicle. Each blade weighs approximately 18,739 pounds. Blades typically control the length of the design vehicle, and the radius of the curves along the travel route to the Project. It is anticipated that the vehicles with the blades will be longest in length (approximately 63 meters or 206 feet). Specialized transport vehicles are designed with articulating (manual or self-steering) rear axles to allow maneuverability through curves.
- Tower Sections – Towers consist of three sections and are transported with one section per truck. The bottom section is the heaviest section of the tower and weighs 63 metric tons (138,891 pounds). Towers generally can control the height and width of the design

vehicle dimensions. The minimum necessary height and width necessary for delivery of components is anticipated to be 5 meters (16.4 feet).

- Nacelle – The turbine and related elements (which are housed in the nacelle) are anticipated to weigh approximately 71 metric tons (158,721 pounds).
- Hub and Nose Cone – Typically transported with one or more of the same element on a vehicle, with a maximum of three trucks required per tower. These elements are not critical elements related to design vehicle dimensions.
- Escort Vehicles

In addition to the wind turbine component delivery vehicles, construction traffic will also consist of standard construction equipment such as gravel/dump trucks, concrete trucks, excavation equipment, conventional semi-trailers, and employee vehicles. These standard construction vehicles should not require physical modifications to the roadways to accommodate their dimensions. Below is a list of construction vehicles typical of wind project construction:

- Construction of Site Roads – Conventional trucks carrying stone, gravel and miscellaneous construction equipment. Access roads will be designed and installed to accommodate both standard and OS/OW vehicles.
- Crane – For assembly of the wind towers, cranes are transported in sections over numerous trips to the Project Site. Assembled cranes may be crawled between tower sites.
- Concrete trucks for tower foundations.
- Variety of conventional semi-trailers for delivery of substation components and materials.
- Construction staff and other incidental truck trips (primarily pickup trucks).

The Project Sponsor anticipates that during construction the Project will generate both standard truck and oversized/overweight (OS/OW) vehicular traffic. There will be approximately 10 OS/OW truck type per turbine for delivery of the turbine components, in addition to approximately 45 loaded concrete trucks per foundation, two conventional semi-trailers of reinforcing steel per turbine, and 20 truckloads for small substation component material. Delivery and transport of crane(s) will also require up to approximately 24 trucks/vehicles for each mobilization/demobilization. Additional vehicle use will include gravel trucks, pick-up trucks for equipment and tools, and trucks and cars for transporting personnel. Approximately 1,400 truckloads of gravel, stone, or other suitable materials will be required to construct Project access roads. These materials could come from local gravel mines or from the existing shale pit near the proposed Turbine 4 location, which would reduce impacts to local roads.

The circulation of OS/OW vehicles along delivery route roadways will result in minor delays on these specific roads as escort vehicles, flag persons, and/or temporary traffic signals slow or stop traffic to allow for safe passage of the OS/OW vehicles. However, this will only occur when these roads are being traveled by the OS/OW vehicles. In addition, this is not anticipated to result in a significant adverse impact because the police and escort vehicles provide for smooth passage through even congested areas.

It is assumed that the wind components will typically be delivered directly to the tower sites and that the laydown area will be used primarily to store spools of cable, set up the construction trailers, and park vehicles and dozers. It should be noted that while construction may begin in the spring, turbine component delivery is not anticipated to occur until early-mid summer, after access roads and turbine foundations have been prepared. Therefore, potential winter weather is not expected to affect and/or delay oversized vehicles. However, if bad weather (*e.g.*, thunder storms) occurs while oversized vehicles are in route, such vehicles will likely be required to delay travel in accordance with NYSDOT permit conditions (*e.g.*, pull into a rest stop).

Delivery routes have some potentially constraining features, particularly intersection turning radii. The extent of the roadway segment improvements will be verified with the turbine supplier/contractor prior to Project construction, and coordinated with the relevant State, County, and local highway departments (at no expense to these departments) prior to the arrival of OS/OW vehicle on-site. However, at this time it is estimated that intersections of public roads will need to be modified to accommodate for temporary access, with a minimum of 150 foot outside turning radius and a maximum 130 foot inside turning radius.

Once the Project is commissioned and construction activities are concluded, traffic will likely result from Project employees traveling to and from the turbines. Each turbine typically requires routine maintenance visits once every three months, but certain turbines or other Project improvements could require periods of more frequent service visits. Such service visits typically involve one to two pick-up trucks. However, because all turbines and associated access road are located on (and accessed from) leased land, public road use due to routine maintenance activities will be relatively limited. The Project owner is responsible for the maintenance of all private access roads leading to the turbine sites. Project personnel may also need to service the Project substation. Routine servicing would likely be carried out on a similar quarterly basis and it is anticipated this would involve a similar number of maintenance vehicles

6.6.2 Minimization and Mitigation Measures

Prior to construction, the Project Sponsor shall obtain all necessary permits from the Town and County highway departments and the NYSDOT for activities including new access roads, improving existing roadways, crossing roadways with buried electrical interconnects, and operating oversized vehicles on the highways. Local utilities will also be contacted to coordinate the need for the temporary relocation or removal of identified utility structures impacted by the transport of Project components. The final transportation routing documentation will be provided prior to construction, and will confirm the local, County, and State roads to be used as delivery routes (both within and outside of the Project Site) by construction/transportation vehicles. The final transportation routing will designed to minimize potential traffic hazards related to repeated movement of trucks and equipment to and from staging areas, and through intersections with poor sight distance. If repeated truck movements cannot be avoided in areas with poor sight distance, flagmen will be utilized to ensure safe passage. All public road upgrades that may be required to accommodate construction vehicles will be identified, including shoring up bridge abutments, adding steel plates or gravel to road surfaces, widening roadways, reconfiguring intersection geometry to accommodate the turning radius of large construction vehicles, and identifying the bridges, pipes, and culverts that will need reinforcement or replacement.

Special hauling permits are required for loads that exceed legal dimensions or weights. Thus transport of the blades, nacelles, tower sections and cranes will require a variety of special hauling permits. Actual loads will depend on the specific turbine supplier, crane equipment chosen, and degree of disassembly of the crane.

Final transportation routing documentation will be developed to assure that to the extent practical, construction vehicles avoid areas where public safety could be a concern (schools, clusters of homes, etc.). To minimize safety risks to the general public, over-sized vehicles will be accompanied by an escort vehicle and/or flagman to assure safe passage of vehicles on public roads. Construction operations will be conducted so that the traveling public is subjected to a minimum delay and hazard. Deliveries will be made during off peak hours for road use (typically 9:30 a.m. to 3:00 p.m. and 6:00 p.m. to 6:00 a.m.) at the discretion of the NYSDOT, County and Town Highway Departments. In addition, it is anticipated that the New York State Police would assist in navigating component delivery vehicles from Interstate 81 to the Project (in additional to the escort vehicles). The contractor shall provide reflective warning signs, barricades, lighting and flags as necessary to protect traffic.

During construction, the Project will not adversely impact the local school districts beyond the possible delay of school bus pick-ups and drop-offs at homes in the immediate vicinity of the Project, due to temporary construction traffic/activity. There are four local school districts with bus routes in the area:

- Ithaca City School District – The majority of the Project Site lies within this district. Three bus routes travel through the area twice daily, for morning pick-up and afternoon drop-off.

- Odessa-Montour Central School District – The northwest portion of the Project Site, including the proposed turbine 2 site, lie within this district. One bus route travels the section of Black Oak Road between Harvey Hill and Weatherby Roads twice daily.

- Newfield Central School District – This district abuts the Project Site to the south. One bus route traverses the section of Black Oak Road between Cayutaville and Griffin Roads twice daily, at approximately 7:10 am and 3:40 pm.

- Trumansburg Central School District – This district is located within close proximity to the Project Site, approximately 0.9 and 1.2 miles to the west and north, respectively. No bus routes from this district pass through the Project Site. However, one bus route traverses Black Oak Road north of the Project Site twice daily, between NYS Route 79 and Enfield Center Road. In addition, NYS Route 79 between Mecklenburg and Enfield is utilized for morning and afternoon runs by five bus routes during the academic year, and one bus route during summer months.

To minimize safety risks to school children (including children at school bus stops on local roads), the Project Sponsor shall coordinate with appropriate school district personnel (*i.e.*, director of transportation) prior to initiating construction activities to determine if the proposed delivery or construction routes pose any safety risks. If necessary, mitigation measures will be determined through consultation with school district personnel, and will address school bus and

construction activity schedules, appropriate safety measures such as regularly scheduled communication between the Project Sponsor and/or contractor and school district personnel, avoidance scheduling, and alerts.

A Road Use Agreement will be required, as per the county road preservation law. A separate agreement will be needed with the Town. In accordance with the anticipated County and Town Road Use Agreements, directly prior to construction, a survey of the agreed delivery route will be carried out by appropriately qualified engineers (and NYSDOT, County Highway, and Town Highway Departments as available) to assess and document current existing road conditions. Any extraordinary damage or over-run caused by vehicles during the construction period is to be repaired to agreeable standards under a Road Use Agreement with the relevant authority (State, County, or Town). The Project Sponsor will repair damage done to roads affected by construction within the approved delivery route, thereby restoring the affected roads to a condition equal to or better than documented by the pre-construction survey. Roads will also be maintained in good working order during construction. The Project Sponsor will establish a road use reparation fund or purchase a reparation bond as financial assurance that the roads damaged by the activities of the Project's construction will be repaired to the standards required by the Road Use Agreement.

Delivery routes may change during the design and construction preparation process; however, the municipalities will be notified of the changes throughout the continued development of the Project. Additionally, design plans will be completed for all public road improvements, and will be made available to the Town (and to the entity with jurisdiction over the respective road) to review prior to construction activities. The Road Use Agreement will identify the County, City, Town and Village officials responsible for roads or other public improvements potentially impacted by Project construction and/or delivery of Project components. Additionally, the Road Use Agreement shall include a method for post-construction inspections to assure local roads were restored to a condition equal to or better than documented by the pre-construction survey.

Following the examination of the proposed delivery routes, the following mitigation measures shall be implemented prior to any construction commencing:

Potential Impacts and Locations	**Potential Improvements**
Areas within the approved delivery route that may be damaged by construction traffic.	Damage will be repaired to agreeable standards under a Road Use Agreement with the relevant authority (State, County or Town).
Damage to road surface conditions throughout the approved delivery route.	Repair the roadways in consultation with the highway departments using the appropriate treatment (*i.e.*, oil and stone, hot or cold mix asphalt, etc.) to re-establish the pre-construction surface conditions.
Areas within the approved delivery route that may require road widening or construction of pull-off areas to allow two-way traffic.	Coordination with municipalities and highway departments will occur to determine which improvements will be maintained after construction.

Potential Impacts and Locations	Potential Improvements
Impacts to the intersection of Black Oak Road and NYS Route 79 and the intersection of Black Oak Road and Connecticut Hill Road.	The Project Sponsor will coordinate with the NYSDOT, County and Local highway departments to determine if the radii/intersection improvements will be returned to pre-construction conditions or left in place for future use.
Potential impacts associated with construction vehicle weight will be evaluated throughout the approved delivery route.	Posted axle weight limit will be inventoried and evaluated to determine if improvements will be necessary to accommodate Project construction. Drainage structures (*i.e.*, culverts) will also be reviewed during the detailed design process to determine if improvements are necessary to accommodate construction traffic.

6.6.3 Findings

Potential impacts to traffic and transportation will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the requirements set forth in Section 6.6.2 above.

6.7 Land Use and Zoning

6.7.1 Discussion of Potential Impacts

The Project is located in the Town of Enfield, along the western boundary of Tompkins County. Tompkins County is located in the southern section of central New York, and contains all of the City of Ithaca. Tompkins County is bordered by Chemung and Tioga Counties to the south, Schuyler County to the west, Cortland County to the east, and Cayuga and Seneca Counties to the north. The region is characterized by a large agricultural base that includes primarily dairy, cattle, and crop operations. Residential land use is concentrated in and around cities, villages, and small hamlets, but occurs throughout the region along the network of state, county, and local roads. Pockets of commercial and industrial development are also scattered along the major transportation corridors. The majority of the population, as well as most commercial and industrial land uses, are located in and around the City of Ithaca. The largest state recreational lands in the county are Connecticut Hill State Wildlife Management Area, Robert H. Treman State Park, and several State Reforestation Areas (Danby, Shindagin Hollow, Hammond Hill and Yellow Barn State Forests).

According to NYSORPTS and Tompkins County 2010 Tax Maps, the Project Site consists of 4 distinct land use types. The majority of the Project Site (approximately 546 acres [51%]) is categorized as agricultural land, which is described by the NYSORPTS as "property used for the production of crops or livestock." Approximately 284 acres (27%) of the Project Site is characterized as vacant land, which is described as "property that is not in use, is in temporary use, or lacks permanent improvement." Residential land, which constitutes approximately 197 acres (17%), is described as "property used for human habitation." Forestland, which constitutes approximately 23 acres (2%), is described as "private wild and forest lands except for private hunting and fishing clubs." Areas categorized as community services are located within the

Project Site, these are public roadways (approximately 13 acres [1%]) which bisect the Project area and are described as "property used to provide services to the general public" (NYSORPTS, 2013).

The Town of Enfield does not currently have zoning districts or zoning regulations in place. However, the Town does have a local law governing Wind Energy Facilities (Local Law No. 1 of 2009). This local law provides the Town of Enfield with the authority to approve, approve with conditions, or disapprove wind energy facility applications. A Wind Energy application, if approved, allows for the construction, maintenance, and operation of a Wind Energy Facility.

The Project will be compatible with the agricultural land use that dominates the Project Site. However, there will be temporary, construction-related impacts, as well as permanent impacts (operation related) to other land uses within the Project Site and the larger community. Construction-related disturbance to agricultural lands, as categorized by NYSORPTS, will total approximately 23.5 acres. Along with this direct impact to agricultural land, movement of equipment and material could result in damage to growing crops, damage to fences and gates, damage to subsurface drainage systems (tile lines), and temporary blockage of farmers' access to agricultural fields. Impacts to NYSORPTS land use classifications are summarized below:

Location	**Total Disturbance (acres)**	**Temporary Disturbance (acres)**	**Permanent Loss (acres)**
Agricultural	26.0	24.0	2.0
Residential	9.5	7.0	2.5
Vacant	20.0	18.0	2.0
Forest	0.5	0.5	0.0
Community Service	1.5	1.5	0.0
TOTAL	**57.5**	**51.0**	**6.5**

The Project will occur entirely on private land in areas dominated by active and reverting agricultural land, vacant land, and managed/disturbed forestland. Project components will be sited in accordance with local setback requirements and no public lands or recreational facilities will be impacted. Therefore, impacts to residential, commercial and recreational land use will be minimized.

6.7.2 Minimization and Mitigation Measures

The Project is compatible with the agricultural land use that dominates the Project Site. However, the Project will impact agricultural activities (at least temporarily) and will result in a change to community character and perceived land use throughout the area.

To minimize and/or mitigate impacts to active agricultural land and farming operations, Project siting and construction will fully comply with NYSA&M Agricultural Protection Guidelines and be compatible with surrounding agricultural operations. These mitigation measures include:

- Limiting permanent road widths to a maximum of 15 feet or less, and where possible, following hedgerows and field edges to minimize loss of agricultural land.
- Having roads that must cross agricultural fields stay on ridge tops and other high ground to minimize cut and fill as well as potential drainage problems.
- Avoiding disturbance of surface and subsurface drainage features (ditches, diversions, tile lines, etc.).
- Prohibiting vehicular access to turbine sites until topsoil has been stripped and permanent access roads have been constructed.
- Limiting vehicular access to construction roads only.
- Prohibiting stripping of topsoil or passage of cranes across agricultural fields during saturated conditions when such actions would damage agricultural soils.
- Avoiding blocking of surface water drainage due to road or installation or stockpiled topsoil.
- Maintaining access roads throughout construction so as to allow continued use/crossing by farmers and farm machinery.
- Temporarily fencing/securing around open excavation areas in active pastureland to protect livestock.
- Disposing of excess concrete offsite (unless otherwise approved by the environmental monitor and the landowner). Under no circumstances shall excess concrete be buried or left on the surface in active agricultural areas.
- Washing of concrete trucks, if necessary, outside of active agricultural areas in locations approved by the environmental monitor.
- Restricting crane set-up, erection, and breakdown activities to designated access roads and work pads at the turbine sites.
- Stabilizing restored agricultural areas with seed and/or mulch.
- Removing and disposing of all construction debris offsite at the completion of restoration.
- Compensation for damaged/lost crops.

In the event that blasting in select locations is required, mitigation measures shall include the development and implementation 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. Beyond reducing impacts to agricultural land, other mitigation measures that will be undertaken to reduce the impact of the Project on land uses are listed below. These include:

- Locating all electrical collection (interconnect) lines underground or where following existing public roads, locating all interconnect lines underground or within an existing ROW when aboveground.

- Lighting towers only to the extent necessary to comply with FAA requirements. An application has been submitted to the FAA for approval and the FAA has conducted an Aeronautical Study for each turbine location These studies indicated that the proposed 7 turbines will require lighting in accordance with FAA guidelines. Lighting for the substation and other ground level facilities will be kept to a minimum and generally operated by switch or motion detector.

- Not affixing television, radio or other communication antennas or advertising signs (other than the turbine manufacturer's logo) to the towers or any other Project structures.

- Utilizing tubular towers and finishing structures painted with a single, non-reflective matte finish color.

- Avoiding use of guy wires on permanent meteorology towers.

- Installing turbines in locations where proximity to existing fixed broadcast, retransmission or reception antenna for radio, television, or wireless phone or other personal communications systems, will minimize potential electromagnetic interference with signal transmission or reception.

- Designing all Project components in a way that minimizes the impacts of land clearing and the loss of open space.

- Locating Project components so as to minimize impacts on state and federal jurisdictional wetlands.

- Managing storm water runoff and erosion control in a manner consistent with all applicable state and federal laws and regulations.

- Removing all solid waste, hazardous materials and construction debris from the site and managing its disposal in a manner consistent with all appropriate rules and regulations.

6.7.3 Findings

Potential impacts to existing land use and zoning patterns will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the measures set forth in Section 6.7.2 above.

6.8 Energy

6.8.1 Discussion of Potential Impacts

Adverse energy impacts are not expected from the construction of the Project. Energy needs will primarily arise from construction equipment and their associated fuel needs. Gasoline and diesel

consumption will be minimal and will not result in significant changes to the energy consumption of the transportation sector.

In accordance with NYISO Interconnection Procedures, a feasibility study was conducted for the Project on January 27, 2011. The study is required to assess the impact of the Project on the base case electrical system, which includes system upgrade facilities and attachment facilities that are required only due to the integration of the Project. The study found that the Project would result in increases of fault currents in the study area. However, the fault current levels will still be well below the lowest breaker rating of the respective substation and the incorporation of the Project will likely not result in adverse impacts in terms of short circuit analysis. Furthermore, overall results of the power flow analysis indicated that the Project will not have an adverse impact on the New York transmission system. Tompkins County initiated a plan in 2010 to reduce greenhouse gas emissions in the community by at least 80% from 2008 levels by 2050. Operation of this Project is anticipated to help Tompkins County reach their goal through a positive impact on air quality by producing 44,150 MWh with zero emissions. Operations are expected to displace approximately 21,986,700 pounds of CO_2. Additionally, the Project will help reach New York State's renewable portfolio standard target of 30 percent renewable energy by 2015.

6.8.2 Minimization and Mitigation Measures

Outside of creating a reliable point of interconnection with the existing Montour Falls – Coddington Road 115kv Line, no mitigation measures will be necessary to ensure reliability with the grid. All impacts to energy are expected to be positive and will not result in the need for mitigation.

6.8.3 Findings

The Project does not present a potential significant adverse impact to energy. To the contrary, the Project will provide incremental and long-term benefits to energy by providing an alternate energy source to replace fossil fuel burning sources and reduce carbon dioxide emissions .

6.9 Community Facilities and Services

6.9.1 Discussion of Potential Impacts

Community facilities for the Project Site include public utilities, police and fire protection services, emergency medical services (EMS), education facilities, and recreational facilities.

The Project will not result in significant increase in the demand for utilities such as telephone, natural gas, electric, water, sanitary sewer, etc. The Project will have a beneficial impact on utilities by generating approximately 11.9 MW of clean renewable energy. With respect to the Project's potential effect on local electric rates, it is not anticipated that the Project will have a direct positive or negative effect on local electric rates given that the energy will be sold competitively in the wholesale market. This wind project will provide an additional source of power generation and will therefore help meet future growing energy demand.

The police, fire, and emergency response departments have adequate personnel and equipment to respond to routine emergency needs (*e.g.*, traffic accidents or medical conditions) during the construction and operation of the Project. However, during construction, some roadways may be temporarily blocked or damage may occur to the roadways anticipated to be used by oversized/heavy equipment, which has the potential to reduce the response time of emergency personnel. This is not anticipated to be a significant problem due to the small number of residents within the Project area, the general availability of alternate access routes, and correspondence and coordination that will occur between construction managers and local police departments. The construction site could also experience vandalism/trespass problems that would require involvement of local police. Based on experience with other wind power projects in New York, this is not anticipated to be a significant impact. To address any emergency access issues that may occur during construction, the Project Sponsor will work with the appropriate county, town, and/or local personnel to establish an emergency response plan, if necessary, during the construction phase. In addition, as required by the Town of Enfield's Wind Energy Facilities Local Law, the Project Sponsor will prepare a Fire Protection Plan that complies with the Tompkins County All-Hazards Mitigation Plan in consultation with the appropriate county, town and/or local fire personnel.

The Project will not result in any significant adverse long-term impacts to local utilities and energy resources. Long-term energy use will increase slightly as a result of facility maintenance. However, this impact will be minor because the amount of required electricity and fuel is small, and local fuel suppliers and utilities have sufficient capacity available to serve the Project's needs. The operation and maintenance of the proposed facility is anticipated to have a positive impact on municipal and school district budgets through the provision of payments in lieu of taxes (PILOT).

No significant public health or safety problems are anticipated to result from Project operation. The wind turbines are located at least 190 feet from non-participating property lines, 900 feet from the nearest public road, and 950 feet from any nonparticipating neighboring residences.

Local fire departments do not have the specialized equipment necessary to respond to a fire should one occur in the nacelle of a Project turbine. Generally, any emergency/fire situations at a wind turbine site or substation will be the responsibility of the Project owner/operator and/or the substation owner/operator. Construction and maintenance personnel (and properly trained and equipped regional responders) will be trained and will have the equipment to deal with emergency situations that may occur at the Project Site (*e.g.*, tower rescue, working in confined spaces, high voltage, etc.). Training of local emergency providers and additional equipment will be funded by the Project Sponsor.

The primary cause of fires in wind turbines is lightning strikes. The turbines to be installed will have LPL1 lightning protection, which is the highest level of lightning protection available today. This protection helps to minimize the likelihood of fire in the turbine by diverting the lightning strike to the ground through a network of ground cables throughout the turbine, including down the length of each blade, down the tower, and on the nacelle body itself. There is also a series of surge protection devices inside the nacelle to prevent overvoltage from sparking electrical failures that could lead to fire. In addition, the turbines have substantially less hydraulic fluid than most other turbines today. Therefore, the fuel supply for any fire is limited,

and the design of the nacelle prevents any oil leak from dripping downwards inside the turbine, as all floors are also containment devices. Also, the towers of the turbines are made entirely of steel, with internal ladders made of steel and aluminum. The turbines will come standard with two fire extinguishers in the nacelle, and one in the base of the tower. Lastly, the Project Sponsor will purchase an additional fire protection system from Firetrace International, LLC, which provides fire control devices in individual turbine components such as the electrical cabinets and converters.

The Project is not anticipated to result in a significant increase in the demand on educational facilities. The Project is anticipated to require only three full-time employees and the existing educational facilities should have sufficient capacity to accommodate the addition of these families to the area.

6.9.2 Minimization and Mitigation Measures

The impacts to the local economy, population, and community services resulting from the proposed Project are not of the type or magnitude to require mitigation. In fact, development of the proposed Project will have minimal impact on population, and place little demand on community services, while at the same time providing significant income and tax revenue to the town, county, and school districts. The income anticipated from the proposed Project will more than offset any incurred costs, and will assist with the financing of community services that benefit all residents of the towns and county.

If it is determined that Project components will cross existing buried gas pipelines, the Project Sponsor and the owners/operators of gas infrastructure will enter into a crossing agreement and the Project Sponsor will provide proof of insurance. The crossing agreement will require that construction not disrupt the safe operation of the natural gas infrastructure and will designate construction parameters to ensure safe construction in the vicinity of natural gas pipelines.

To mitigate any potential concerns regarding Project construction, the Project Sponsor will meet with the local emergency service personnel (fire, police and EMS) to review and discuss the planned construction process. During this meeting, unique construction equipment, the overall construction process, and schedule/phasing will be addressed. In addition, any hazardous materials that may be present during construction and/or operation will be discussed. Prior to construction, the Project Sponsor will implement a coordinated emergency response plan, which will be developed through consultation with local emergency response personnel. The volunteer nature of some of the emergency response personnel, along with the distance and response time of some responders, will be taken into account when initially developing the coordinated emergency response plan, and the presence of emergency personnel on-site during construction will be considered.

Ongoing communication between town officials and police, fire, and emergency services officials will help assure adequate levels of protection potentially related to the Project. Project Sponsor representatives will meet with fire and police and other emergency responders to develop plans to address potential public safety issues. The Fire Protection and Emergency Response Plan to be prepared for the Project Sponsor will comply with the Tompkins County All-Hazards Mitigation Plan and include the following components:

- Initial and refresher training of all operating personnel (including procedures review) in conjunction with local fire and safety officials.

- Regular inspection of transformer oil condition at each step-up transformer installed at the main substation.

- Regular inspection of all substation components.

- Regular inspection of fire extinguishers at all facility locations where they are installed.

- All Project vehicles will be equipped with firefighting equipment (fire extinguishers and shovels) as well as communications equipment for contacting the appropriate emergency response teams.

- The MSDS for all hazardous materials on the Project will be on file in the construction trailers (during construction) and the O&M building (during operation).

- The facility Safety Coordinator shall notify the local fire department of any situation or incident where there is any question about fire safety, and will invite an officer of the fire department to visit the workplace and answer any questions to help implement a safe operating plan.

Although not anticipated, to mitigate for potential impacts related to waste disposal (*e.g.*, excessive waste), the Project Sponsor will coordinate with the Tompkins Solid Waste Management Division County prior to construction. The type and quantify of waste anticipated as a result of Project construction will be discussed, and appropriate means of disposal agreed upon.

6.9.3 Findings

Potential impacts to community facilities and services will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the requirements set forth in Section 6.9.2 above.

6.10 Growth and Community Character

6.10.1 Discussion of Potential Impacts

Visual impacts during construction will include the addition of construction material and working construction vehicles and equipment to the local roads. In addition, construction activity/site disturbance, such as tree clearing, earth moving, soil stockpiling and road building, all of which will alter the character of the landscape, at least on a temporary basis, may be visible from some public vantage points. Dust generated by the movement of these vehicles could also potentially have an adverse impact on aesthetic resources. However, all of these activities will be relatively short term (*i.e.*, generally restricted to the construction season), and at any one site, will generally occur on only a few days during the course of Project construction. In addition, the most significant earth moving, tree clearing, and general construction activity will occur at turbine sites, which are typically well removed and/or screened from public vantage points.

Once construction activity ceases and site restoration activities are complete, construction-related visual impacts will no longer occur.

Little data exists with regard to the specific impacts of wind energy facility construction on nearby property values. Many studies indicate mixed results, or varying results over time. A study conducted in Ford and McLean County, Illinois identified a "wind farm anticipation stigma." This stigma decreases property values when the development is initially proposed, due to uncertainty about where turbines will be placed and what effect the wind facility will have on area residents. The study found that when the 240 turbine wind facility was initially announced, property values near the prospective wind facility decreased compared to elsewhere in the county. However, after the wind facility entered the operational stage, property values near the wind facility increased faster than those located elsewhere in the county.

Similar results were found in one of the largest and most comprehensive studies of wind farms and property values which analyzed 122,198 home sales, occurring between 1998 and 2012, within 5 miles of 41 wind turbines in Massachusetts. The study found no statistically significant effect on nearby home prices from the installation or operation of wind turbines. Announcement of a wind facility was found to have a modest negative effect on home prices; however, these effects were no longer apparent after construction and operation of the wind facilities. If a similar anticipation stigma were to occur in the vicinity of the proposed Project, such impacts would be expected to be similarly short-lived.

The landscape surrounding this Project will retain its open space character and overall spatial organization once the Project is in place. Although there are some intrusions to the vertical and overhead planes in the landscape within the Project Site, the surrounding landscape retains much of its integrity because the open sky, topography, and existing patterns of land use will remain dominant. However, the Project will introduce new elements (*i.e.*, wind turbines) into the existing landscape, which could be considered a change in community character. It is worth noting however, that the introduction of these new elements will, in fact, help maintain the existing community character by helping area farms remain in business with supplemental income from leasing land, and slowing the trend of farm abandonment and conversion to successional vegetation and residential development.

It is also worth noting that community character evolves over time, and wind power can now be considered an integral (if not essential) part of the evolving agrarian landscape. By dissuading the trend of farm abandonment (and subsequent conversion of the landscape), wind power projects, such as the Project, contribute to the economic vitality that helps define an agricultural-dominated community character.

Although the presence of wind turbines will increase the value of the properties on which they are located and generate income for the participating landowners, due to the allowed tax exemption pursuant to New York State Real Property Tax Law, Article 4, § 487, the landowners of these properties will not be assessed a higher value to reflect these improvements. The Project should have no effect on future real property tax obligations for each participating landowner or property values within (or in the vicinity of) the Project area.

The public road system within the Project area consists of improved, year round roads. Therefore, the improvement of existing road systems to accommodate Project component delivery (*e.g.*, turning radii, culvert replacement, etc.) is not anticipated to substantially promote additional residential or commercial growth within the Project area than currently exists. Project access roads that will be constructed will be located within private easements, and therefore will not induce growth in the area.

6.10.2 Minimization and Mitigation Measures

The Project is not expected to have a significant impact on the local property values. Therefore, mitigation measures to address property values are not necessary. However, property owners within the viewshed of proposed wind power projects often inquire about the possibility that these projects could at some point be abandoned, and that the abandoned facilities may affect local property values. To address this issue, the Project Sponsor will establish a decommissioning fund in an amount sufficient to secure the cost of removing turbine site improvements as required under its leases with participating landowners. This fund will assure that the proposed wind power facility will be dismantled and removed in accordance with the Project's Decommissioning Plan in the event that it reaches the end of its operational life span or its operation is otherwise abandoned.

The Project is compatible with the agricultural land use that dominates the Project Site. However, the Project will impact agricultural activities (at least temporarily) and will result in a change to community character and perceived land use throughout the area. Mitigation measures will be undertaken to reduce the impact of the wind energy facility on community character, which includes:

- Locating all electrical collection (interconnect) lines underground or, where following existing public roads, locating all interconnect lines underground or within an existing ROW when aboveground.

- Lighting towers only to the extent necessary to comply with FAA requirements. An application has been submitted to the FAA for approval, and the FAA has conducted an Aeronautical Study for each turbine location. These studies indicated that the proposed 7 turbines will require lighting in accordance with FAA guidelines. Lighting for the substation and other ground level facilities will be kept to a minimum and generally operated by switch or motion detector.

- Not affixing television, radio or other communication antennas or advertising signs (other than the turbine manufacturer's logo) to the towers or any other Project structures.

- Utilizing tubular towers and finishing structures painted with a single, non-reflective matte finish color.

- Avoiding use of guy wires on permanent meteorology towers.

- Installing turbines in locations where proximity to existing fixed broadcast, retransmission, or reception antenna for radio, television, or wireless phone or other

personal communications systems, will minimize potential electromagnetic interference with signal transmission or reception.

- Designing all Project components in a way that minimizes the impacts of land clearing and the loss of open space.

- Locating Project components so as to minimize impacts on state and federal jurisdictional wetlands.

- Managing storm water run-off and erosion control in a manner consistent with all applicable state and federal laws and regulations.

- Removing all solid waste, hazardous materials and construction debris from the site and managing its disposal in a manner consistent with all appropriate rules and regulations.

These actions will assure that adverse impacts on community character are minimized or mitigated to the extent practicable. In addition, building the currently proposed Project will not encourage the development of other wind energy projects in the area. Therefore, mitigation for growth inducing impacts is not required. In the event of re-powering or replacement, visual, noise, and/or other impacts will be extended for the length of the operational Project. If the Project is repowered/redeveloped, measures that are put in place to minimize or mitigate impacts during the current Project will continue for the duration of the repowered Project.

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. Decommissioning would consist of the following activities:

- All turbines, including the blades, nacelles, and towers will be disassembled, and transported off site for reclamation and sale.

- All of the transformers will also be transported off-site for reuse or reclamation.

- Foundations at depths less than 36 inches below grade will be removed.

- Except as described otherwise for active agricultural fields, all buildings, structures, wind turbines, access roads and/or driveways and foundations at depths greater than 36 inches below finished grade will be left in place. Areas where subsurface components are removed will be graded to match adjacent contours, stabilized with an appropriate seed mix, and allowed to re-vegetate naturally. At the discretion of the landowner, access road materials will be removed and transported to a disposal location. Written approval by the landowner will be obtained for any access roads to remain in place.

The Decommissioning Plan will detail the process, estimated cost, salvage value, and site restoration will be provided to the Town of Enfield prior to Project operation. All decommissioning and restoration activities will be in accordance with all applicable federal, state, and local permits and requirements.

6.10.3 Findings

Potential impacts to growth and community character will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the requirements set forth in Section 6.10.2 above. Moreover, any potential impacts are outweighed by the environmental benefits to be provided by the Project.

6.11 Historic, Cultural And Archeological Resources

6.11.1 Discussion of Potential Impacts

Construction of the Project will include ground disturbing activities that have the potential to impact archaeological resources. The area of potential effect (APE) for archeological resources includes all areas within the limits of disturbance for proposed construction activities. Archeologically sensitive areas are identified based on the following criteria: undisturbed areas that are environmentally sensitive with relatively level well-drained soils or in the vicinity of potable water such as springs, streams or creeks (these characteristics typify known site locations in the region); proximity to known (i.e., previously reported) prehistoric or historic site locations within or adjacent to the Project Site; and proximity to structures depicted on historic maps located within or immediately adjacent to the Project Site. Once the Project has been constructed, no significant earth-disturbing activities associated with operation and maintenance of the Project will occur.

The Project's potential effect on a given historic property would be a change (resulting from the introduction of wind turbines) in the property's visual setting, if turbines are visible when the historic property is viewed from a publicly accessible vantage point. The potential effect resulting from the introduction of wind turbines into the visual setting for any historic or architecturally significant property is dependent on a number of factors including the number of visible turbines, distance, visual dominance, orientation of views, viewer context and activity, and the types and density of modern features in the existing view (such as buildings/residences, overhead electrical transmission lines, cellular towers, billboards, highways and silos). Scenic views and/or association with the landscape are not specifically identified as contributing to the significance of any of the historic resources in the study area.

Visibility of a project does not necessarily indicate that an adverse effect will occur. The NYSDEC guidance concerning visual impacts on aesthetic resources of statewide significance (which include NRHP-listed and NRHP-eligible structures) defines significant aesthetic impacts as those "that may cause a diminishment of the public enjoyment and appreciation of an inventoried resources, or one that impairs the character or quality of such a place. Mere visibility, even startling visibility of a project proposal, should not be a threshold for decision making. Instead a project, by virtue of its visibility, must clearly interfere with or reduce the public's enjoyment and/or appreciation of the appearance of an inventoried resource" (NYSDEC, 2000:5).

A series of cultural resources studies were undertaken in the Project's Area of Potential Effect to identify potential adverse impacts to historic and archeological resources. All of the studies were

conducted in accordance with the New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work (the SHPO Wind Guidelines) issued by the NYSOPRHP in 2006.

A Phase 1A Cultural Resources Survey was initially conducted, including an inventory of previously identified cultural resources (archeological sites and historic structures/properties) in the area that may be affected by the proposed Project, and an evaluation of the potential for previously unidentified cultural resources to be located in the Project's area of potential effect. The Phase 1A report recommended that additional (Phase 1B) studies be conducted to determine if previously unidentified cultural resources are located in the Project APE.

The Phase 1B Archeological Reconnaissance Survey was conducted in August 2013. The survey consisted of a review of NYSOPRHP files to determine the presence of known archeological sites within five miles of the proposed Project and an archeological survey (field investigation) of areas where ground-disturbing activity will occur during construction of the Project. The site inventory identified fourteen prehistoric and eleven historic archeological sites within five miles of the proposed Project. The field investigation included a total of 643 shovel test pits (STPs) and a systematic surface survey of a recently plowed field. No prehistoric or historic archeological sites were identified by the archeological field survey. The review of the results by the NYS Office of Parks, Recreation and Historic Preservation (NYSOPRHP) indicated that no further archeological investigation was required.

A Phase 1B Historic Building Survey was conducted in September 2013 to identify buildings, structures, districts, cemeteries, and landscapes that are eligible for the National Register of Historic Places (NRHP) within the five-mile area of potential effect of the Project. A file search identified two NRHP-listed structures, three buildings previously determined to be NRHP-eligible, and one NRHP-eligible district comprised of six structures along NY Route 228 between the hamlets of Odessa and Mecklenburg. A field survey recorded 403 historic properties fifty years or older within the five-mile viewshed of the Project. Of these properties, the survey recommended 27 individual historic resources and one historic district eligible for the NRHP. These properties are typically determined NRHP-eligible because they are representative examples of vernacular nineteenth-century architectural styles that retain their overall integrity of design and materials, or are associated with broad themes such as the agricultural development of the region. These properties would retain the characteristics that caused them to be recommended eligible after the introduction of wind turbines into their visual settings.

The Historic Building Survey concluded the construction of the Project would not require the demolition or physical alteration of any buildings. It also the noted the possibility of adverse effects on historic properties if the physical features, setting, or use of the property that contributes to its historic significance are changed by the introduction of visual, atmospheric, or audible elements. NYSOPRHP reviewed the Phase 1B Historic Building Survey and indicated that a Historic Resources Visual Effects Analysis was needed.

A Historic Resources Visual Effects Analysis was conducted. According to viewshed modelling, 30 of the 46 historic resources surveyed will have no views of the Project due to screening from topography and vegetation. Of the remaining 16 historic resources, two are located within one

mile of the Project. The potential visual effect on the setting associated with these two properties is greater compared to those resources located further away, due to the proximity and perceived scale of the turbines.

The Historic Resources Visual Effects Analysis completed the series of cultural resource studies submitted to the NYSOPRHP. NYSOPRHP issued an effect determination for the entire project in a letter dated September 18, 2014 including the determination that the Black Oak Wind Farm would have No Adverse Effect on properties listed or eligible for listing in the National Register of Historic Places, stated as follows:

> While there are a significant number of National Register eligible and listed resources within the visual area of potential effect for this project, the low number of actual turbines minimizes the overall impacts to the general setting shared by these properties. As such, it is our recommendation that this undertaking, as presently proposed, will have No Adverse Effect on those properties that are listed in or eligible for listing in the National Register of Historic Places.

6.11.2 Minimization and Mitigation Measures

No impacts have been identified to historic and archeological resources eligible for listing on the State or National Register of Historic Places, and no mitigation is proposed. With regard to locally perceived impacts on historic resources or character, mitigation options are limited, given the nature of the Project and its siting criteria (very tall structures typically located in open fields at the highest locally available elevations). Mitigation measures with regard to visual and aesthetic resources listed in Section 6.13.2 are also relevant to cultural resources.

6.11.3 Findings

Potential impacts to historic, cultural and architectural resources will be avoided, minimized and/or mitigated to the maximum extent practicable.

6.12 Agricultural Resources

6.12.1 Discussion of Potential Impacts

Project construction will result in temporary and permanent impacts to agricultural land within the Project Area. Construction-related impacts to agricultural lands will result from site preparation, earth-moving, and excavation/backfilling activities associated with construction/ installation of staging areas, access roads, foundations, and buried electrical interconnect. Specifically, construction activities have the potential to impact soil in agricultural fields through rutting, mixing of topsoil and subsoil, and soil compaction. In order to minimize soil disturbance impacts, construction on steep slopes (*i.e.*, in excess of 25 percent) was avoided when siting Project components. In addition, existing roads will be used for turbine access where available.

Based on the area of impact assumptions, these activities will result in disturbance to approximately 26 acres of land categorized as agricultural by the NYSORPTS. Most of these impacts will be temporary; however, approximately 2.0 acres of NYSORPTS classified

agricultural land will be converted to build facilities and removed from agricultural land use for the life of the Project. Approximately 58 acres of impacts are expected within Tompkins County Agricultural District 2. Of these 58 acres of disturbance, approximately 51 acres will be temporary.

No soils classified as Prime Farmland will be disturbed; however, approximately 38 acres of soils classified as Farmland of Statewide Importance will be disturbed by the Project. Temporary impacts will account for approximately 34 acres of disturbance to these soils, while approximately 4 acres will be converted to build facilities. Along with direct impacts to agricultural land, movement of equipment and material during construction could result in impacts to growing crops, fences and gates, subsurface drainage systems (tile lines), and temporary blockage of farmers' access to agricultural fields.

6.12.2 Minimization and Mitigation Measures

To minimize and/or mitigate Project impacts to active agricultural land and farming operations, Project siting and construction will comply with NYSA&M Guidelines for Agricultural Mitigation for Windpower Projects. Mitigation and minimization measures will include the following:

- Limiting permanent road widths to 15 feet, and where possible, following hedgerows and field edges to minimize loss of agricultural land.
- Siting roads that must cross agricultural fields on ridge tops and other high ground to minimize cut and fill as well as potential drainage problems.
- Limiting vehicular access and equipment traffic and parking to access roads and/or designated work areas such as tower sites and laydown areas.
- Maintaining access roads throughout construction so as to allow continued use/crossing by farmers and farm machinery.
- In developing roads on active agricultural land, strip all topsoil from the entire work area and stockpile in windrows along the road or in designated temporary storage areas. Temporarily stockpiled topsoil shall be segregated from other excavated material (rock and/or subsoil) and located far enough from the road edge to allow vehicles to pass without driving over topsoil. However, stockpiled topsoil must be left on the property from which it was removed.
- Avoiding blocking of surface water drainage due to road installation or stockpiled topsoil.
- Burying interconnection lines underground wherever possible. A minimum depth of 48 inches will be used in tilled lands in order to minimize the potential for contact with agricultural implements. A minimum depth of 36 inches will be used in unimproved grazing areas and land permanently devoted to pasture. If bedrock is encountered before

the depths specified above, cables will be placed entirely below the top surface of bedrock and at least 24 inches below the surface.

- Consultation with landowners, the Tompkins County Soil Conservation District and the NRCS will be conducted prior to Project construction to identify any known subsurface drainage features to avoid disturbance of surface and subsurface drainage features (ditches, diversions, tile lines, etc.) to the greatest extent practicable. Efforts will be made to avoid potential impacts. In cases where disturbance is unavoidable any necessary repair/replacement of the affected features will be undertaken. Any such structures disturbed during construction shall be repaired to as close to original condition as possible, as soon as possible, unless such structures are to be eliminated based on new design.

- Prohibiting stripping of topsoil or passage of cranes across agricultural fields during saturated conditions when such actions would damage agricultural soils. This restriction may be a limiting factor for construction activities after heavy rainfalls during any season, particularly in the early spring (due to snowmelt).

- Temporarily fencing open excavation areas in active pastureland to protect livestock.

- Washing of concrete trucks and disposal of excess concrete outside of active agricultural areas in locations approved by the environmental monitor.

- Restricting erection cranes to designated access roads, crane paths, and work pads at the structure sites for all setup, erection and breakdown activities.

- Site restoration, including removal of excess road material, soil decompaction, rock picking, and respreading of topsoil in disturbed agricultural fields following the completion of construction.

- Stabilizing restored agricultural areas with seed and/or mulch.

- Removing and disposing of all construction debris offsite at the completion of restoration.

- Compensation for damaged/lost crops in accordance with participating landowner lease agreements.

Temporarily disturbed soils on agricultural land will be restored following construction. Restored areas will include the area around turbine sites, road edges, crane paths, temporary roads, and staging areas. This process will generally involve the following sequence of activities:

1. Removal of gravel or other temporary fill.

2. Decompaction of compacted subsoils to a depth of 18 inches using a deep ripper.

3. Disking and removal of stones from decompacted subsoil.

4. Spreading of stockpiled topsoil over decompacted subsoil. Respreading of topsoil so as to reestablish pre-construction contours to the extent practicable.

5. Disking and removal of stones from respread topsoil.

6. Seeding and mulching topsoil. Seed selection in agricultural fields will be based on g guidance provided by the landowner and the NYSA&M.

Agricultural impacts during construction will also be minimized by providing the contractor and all subcontractors with copies of the final construction documentation and plans, which will contain all applicable soil protection, erosion control, and soil restoration measures. In general, erosion, sedimentation, and soil drainage impacts to agricultural lands during construction will be minimized by the implementation of an erosion and sedimentation control plan developed as part of the SPDES General Permit for the Project. One or more pre-construction meetings will be held with the contractor and a representative of the NYSA&M, and, during construction, the Environmental Monitor will assure compliance with the construction plans and soil protection measures. In addition, an Agricultural Data Statement will be filed pursuant to Section 305-a of the Agricultural and Markets Law.

Following construction, mitigation of agricultural impacts will continue through the two-year monitoring and remediation period, as specified by the NYSA&M Guidelines for Agricultural Mitigation for Windpower Projects. The monitoring and remediation phase is important to identify any remaining agricultural impacts associated with construction that are in need of mitigation or to implement the follow-up restoration.

6.12.3 Findings

Potential impacts to agricultural resources will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the requirements set forth in Section 6.12.2 above.

6.13 Aesthetic and Visual Resources

6.13.1 Discussion of Potential Impacts

Visual impacts during construction will include the addition of construction material and working construction vehicles and equipment to the local roads. In addition, construction activity/site disturbance, such as tree clearing, earth moving, soil stockpiling and road building, all of which will alter the character of the landscape, at least on a temporary basis, may be visible from some public vantage points. Dust generated by the movement of these vehicles could also potentially have an adverse impact on aesthetic resources. However, all of these activities will be relatively short term (*i.e.*, generally restricted to the construction season), and at any one site, will generally occur on only a few days during the course of Project construction. In addition, the most significant earth moving, tree clearing, and general construction activity will occur at turbine sites, which are typically well removed and/or screened from public vantage points. Once construction activity ceases and site restoration activities are complete, construction-related visual impacts will no longer occur.

The potential visibility and visual impact of the proposed Project is evaluated in the Visual Impact Assessment (VIA) for the Project. The VIA includes an evaluation of the potential daytime and nighttime visibility of the Project based on viewshed analysis (including the screening effects of vegetation and FAA warning light visibility) and preparation of representative visual simulations.

In the daytime hours, the turbines will not be visible from 84.0 percent of the area within five miles of the Project. In the nighttime hours, the turbines will not be visible from 86.6 percent of the area within five miles of the Project. Views to the Project will be screened by topography, forested areas and existing structures.

Potentially visible areas are scattered throughout the five-mile study area, but are most concentrated in the central and northern portions of the study area. Of the six identified aesthetic resources of statewide significance within the five-mile study area, five will have no views of the Project, due to topographical and vegetative screening. Based on the viewshed analyses and field verification efforts, the Finger Lakes Trail is the only aesthetic resources of statewide significance expected to have partial views of the turbines. In addition, there will be no turbines visible from the population centers of Newfield Hamlet and Enfield Center, nor from the majority of identified resources of local significance (*e.g.*, schools, campgrounds, parks, golf courses, State Forests). Local resources expected to have partial or full views of the turbines include Rolfe Cemetery, the Noble House Farm Bed and Breakfast, State Routes 79 and 228, and Mecklenburg United Methodist Church. Views will also be available from portions of numerous local roadways, including McIntyre Road, Carley Road, Williamee Road, Black Oak Road, Swamp Road, Cox Road, Rothermich Road, County Line Road, and Kelsey Road.

Field review confirmed that actual Project visibility is likely to be even more limited than suggested by viewshed mapping. This is due to the fact that trees within the study area provide more extensive and effective screening than assumed in these analyses (e.g., vegetation is more extensive than indicated on the USGS NLCD, and often taller than 40 feet in height). The result is that certain sites/areas where "potential" visibility was indicated by viewshed mapping were actually well screened from views of the proposed Project. Field review also confirmed a lack of visibility (due the screening effects of adjacent buildings and/or vegetation) from areas that were heavily forested and from hamlet centers. Sites of statewide significance where field review confirmed lack of visibility (due the screening effects of adjacent buildings and/or vegetation) included Newfield Covered Bridge, Enfield Falls Mill, Miller's House, Robert H. Treman State Park, and forested portions of the Finger Lakes Trail.

Photo simulations demonstrate that the visual impact of the Project will be highly variable based on landscape setting, the extent of the screening (e.g., buildings, trees, or terrain), presence of other natural or man-made features in the view, the distance of the viewer from the Project, weather conditions, and sensitivity of the viewer to change. When characterizing the Project visibility, there are a number of factors involved when analyzing the impact and compatibility of the Project with the existing environment. Some of the factors include: landscape setting, visible horizon, contrast and color, and scale. The visual impact of the Project will be greatest within 1.5 mile (*e.g.*, from locations with foreground views) where the turbines will be the largest structures and appear out of context compared to other structures within the landscape view. The

photo simulations of the Project from middle ground distances (*i.e.*, 1.5 to 4.0 miles) show that the turbines will still be perceived as the dominant structures; however, the scale and dominance begin to lessen as one moves further away from the turbines, and topography and vegetation play a greater role in screening potential views.

According to the NYSDEC Visual Policy, simple visibility of the Project from any of the viewing locations does not imply detrimental effect to the beauty or structure. The photo simulations show that there will be views of the proposed Project from many locations within the visual study area. However, these views do not meet the NYSDEC criteria for significant aesthetic impacts. The turbines will not have a detrimental effect on the perceived beauty of a place of aesthetic resources of statewide significance, and will not cause a diminishment of the public enjoyment of such resources.

In addition to the VIA, a separate assessment of the phenomenon known as "shadow flicker" was conducted by Harris Miller Miller & Hanson Inc. (HMMH). Shadow flicker is the alternating change in light intensity or shadows created by the moving turbine blades when back-lit by the sun. The Town of Enfield has a local wind law that addresses shadow flicker, stating "the study shall identify locations where shadow flickers could be caused by the WTG and the expected durations of the same at these locations. Shadow flickers shall be mitigated if their impact materially affects any Residence." However, no local, county state, or national laws or standards exist that set a threshold or quantify the allowable frequency or duration of shadow flicker at the Project Site. In general, quantified limits on shadow flicker are uncommon in the United States because studies have not shown it to be a significant issue.

The shadow flicker modeling analysis for the Project was conducted by HMMH (2013b) using WindPRO SHADOW Modeling Software. Input variables and assumptions used for shadow flicker modeling calculations for the proposed Project include:

- Latitude and longitude coordinates of the seven proposed wind turbine sites.
- Latitude and longitude coordinates for 82 nearby residential structures.
- The rotor diameter (100 meters [328 feet]) and hub height (96 meters [315 feet]) for the GE 1.7-100 turbine model.
- The average monthly sunshine probability for Enfield.
- Annual wind direction frequency, based on site specific meteorological data.
- National Elevation Dataset (NED) from the USGS.
- Forest cover data from the 2001 NLCD, verified by comparison with recent aerial photographs.

The study results indicate relatively low shadow/flicker effects to a majority of receptor locations in the vicinity of the Project Site. Shadow flicker will not exceed the 30 hour/year threshold at any residential structures. Moreover, shadow flicker will not exceed 20 hours/year at any residential structure. The projected shadow flicker at each of the 82 residential structures near the Project Site is summarized below:

- 50 structures (61%) are not expected to experience any shadow flicker,
- 19 structures (23%) may be affected 0 to 10 hours/year, and

- 13 structures (16%) may be affected 10 to 20 hours/year.

Additional information about the anticipated shadow flicker at receptors expected to receive more than 10 hours of flicker per year is provided below:

Receptor ID	Location	Predicted Shadow Flicker (hh:mm)
BI	Black Oak Road 7th from the top	19:51
AB	Chapman Road 2nd from the top	17:16
AJ	Connecticut Hill Road 3rd from west	16:33
BL	Black Oak Road 9th from the north	16:21
AD	Black Oak Road 3rd from the top	16:08
BJ	Black Oak Road 8th from the top	14:48
AH	Connecticut Hill furthest west	14:04
AA	Black Oak Road furthest north	13:42
AI	Connecticut Hill Road 2nd from west	13:40
AF	Black Oak Road 6th from the top	13:30
AP	Connecticut Hill Road 3rd from east	11:07
AS	Connecticut Hill Road 2nd from east	10:56
AO	Connecticut Hill Road 4th from east	10:32

6.13.2 Minimization and Mitigation Measures

Construction-related visual impacts will be minimized and mitigated through: 1) careful site planning/project layout, 2) development and implementation of various construction plans, and 3) a comprehensive site restoration process following completion of construction. Site planning has already been utilized to locate turbines away from visually sensitive resources/receptors and minimize site disturbance, including tree clearing and grading. During construction, visual impacts associated with working construction equipment will be minimized through adherence to a construction routing and sequencing plan that minimizes impacts on local roads and residences. A dust control plan and a sediment and erosion control plan will be developed and implemented to minimize offsite visual impacts associated with construction activities. Any unavoidable construction-related visual impacts will be short term.

Following completion of construction, site restoration activities will occur. Restoration will include removal of excess road material from Project access roads, restoration of agricultural fields (including soil decompaction, rock removal, and topsoil spreading), and revegetating/restoring disturbed sites through seeding and mulching. These actions will assure that, as much as possible, the site is returned to its preconstruction condition and that long-term visual impacts are minimized.

Mitigation options for the operating Project are limited, given the nature of the Project and its siting criteria (very tall structures typically located in open fields at the highest locally available elevations). It is also worth noting that for many individuals, views of wind power projects are not necessarily considered an adverse impact that requires mitigation. However, in accordance with NYSDEC Program Policy, the following mitigation measures are required:

- The Project has been scaled down to seven turbines, which is far fewer than the 20 original proposed, thereby reducing the visual impacts.
- There will be no new overhead transmission or collection lines. To reduce visual impacts, the system of 34.5 kV collection lines connect the individual turbines to the substation will be buried underground.
- The turbines will not be used for corporate advertising. Lettering on the turbines will be minimized and will not include the Project Sponsor (but may include the turbine manufacturer).
- The wind turbines will be simple in design and consist of a tubular structure and not lattice framework. The color of the turbines will be non-intrusive and consist of a non-reflective neutral off-white color. This color is also conducive to minimizing the visual contrast with the background sky. The turbines appearance with respect to one another will be similar throughout the facility so as to provide uniformity in overall size, geometry, and rotational speeds.
- No new maintenance buildings are anticipated for the Project; however, if one is required, it will be designed to resemble an agricultural building similar in style to those found throughout the area, minimizing contrast.
- Vegetation clearing around the turbines will be kept to minimum to ensure the natural landscape is maintained as much as possible.
- To the extent feasible, the Project will utilize existing roadways to minimize removal of trees and vegetation during construction and maintenance activities. Any additional roadways will be designed to follow topographic contours and minimize cutting and filling.
- Once construction is complete, temporarily disturbed areas will be restored (including removal of excess road material, de-compaction, and rock removal in agricultural areas) and returned to approximately their pre-construction contours. Exposed soils at restored tower sites, and along roads, crane paths, and buried collection lines will be stabilized by seeding, mulching, and/or agricultural planting.
- Turbine lighting will be kept to the minimum allowable by the FAA. Medium or low intensity red blinking lights will be used at night, rather than white strobes or steady burning red lights. The lowest permissible "off-cycle" will be utilized, and fixtures with a narrow beam path will be considered as a means of minimizing the visibility/intensity of FAA warning lights at ground-level vantage points.
- Lighting at the substations will be kept to a minimum, and turned on only as needed. The main security lighting at the substation will be activated by passive infrared sensors, and will be fitted with appropriate shades to direct light in a downward direction. Task lighting will be designed related to specific operational and emergency activities, and will only be activated when required.

- The turbines and turbine sites will be maintained to ensure that they are clean, attractive, and operating efficiently. The towers will be re-painted as needed.
- Ancillary facilities, including the substation, will also be maintained to ensure they are clean and operating efficiently. The substation will be fenced.
- The Project Sponsor will establish a decommissioning fund to ensure that if the Project goes out of service and is not repowered/redeveloped, all visible above-ground components will be removed.
- A Landscaping Plan will be prepared as part of the submission of the Wind Energy Permit application. This Plan will depict existing vegetation and areas to be cleared, as well as describe any new plant materials proposed to be added to the landscape.
- Correction of an existing aesthetic problem within the viewshed is a viable mitigation strategy for wind power projects that result in significant adverse visual impacts. Alternatively, historic structure restoration/maintenance activities could be undertaken to offset potential visual impacts on cultural resources.

As indicated above, 30 hours of shadow flicker per year is commonly used as the threshold of significant impact, or as a measure of when shadow flicker is commonly perceived as an annoyance. When shadow flicker is anticipated to exceed 30 hours/year, mitigation measures such as plantings to provide screenings or installation of window treatments are often considered. However, shadow flicker from the proposed Project will not exceed the 30 hour/year threshold at any residential structures. Therefore, no mitigation for shadow flicker effects is warranted and none is proposed.

6.13.3 Findings

Potential impacts to aesthetic and visual resources will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the requirements set forth in Section 6.13.2 above. Moreover, any potential impacts are outweighed by the environmental benefits to be provided by the Project.

6.14 Open Space and Recreation

6.14.1 Discussion of Potential Impacts

Construction of the Project would cause no direct impacts to recreational areas because none are located within the construction footprint.

Project construction will require the use of heavy equipment and construction vehicles for construction of access roads, excavation and pouring of foundations, installation of buried electrical interconnects, and the erection of turbine components. Users of recreational areas in the immediate vicinity of the Project Site (*i.e.*, Connecticut Hill WMA, the isolated portion of Robert H. Treman State Park, and portions of the Finger Lakes Trail) may temporarily experience construction-related noise impacts similar in magnitude to repair or repaving work occurring on a nearby road. More commonly, sounds from Project construction are likely to be faintly perceived as the far off sound of diesel-powered earthmoving equipment characterized by such things as irregular engine revolutions, back up alarms, gravel dumping, and the clanking of metal tracks. In any event, construction-related noise will be a temporary impact.

Some wildlife displacement may occur in the immediate vicinity of construction activities because of increased noise and human activity. The significance of this impact will vary by species and the seasonal timing of construction activities. No significant impact to hunting opportunities within the Connecticut Hill WMA are anticipated because the impact will be localized, minor, and temporary. No construction transportation routes will pass through the Connecticut Hill WMA because the roads in this area are unsuitable and do not provide an efficient route to the Project Site. Construction transportation will proceed from Highway 79 south on Black Oak Road to the Project Site. Therefore, no significant impacts to the WMA will result from construction transportation.

No federal, state, or local regulations regarding wind turbine operations would place additional restrictions on firearm use in the vicinity of the Project. Therefore, no hunting restrictions will be imposed within the Connecticut Hill WMA and no loss of public use will result from Project operation.

The Finger Lakes Trail System (FLT) is the only recreational area anticipated to have views of the Project. Trail users are likely to have intermittent turbine views as they pass along the eastern side of the Project Site. The impacts to these users are expected to be highly subjective. Some users would consider this an adverse impact and others would not be adversely impacted. In fact, the Project would likely become a sight-seeing attraction to some people. Vegetation and topography are expected to screen the Project from all other recreational areas in the vicinity of the Project.

Users of the FLT and a small, northern portion of the WMA may experience low levels of turbine noise. The sound levels experienced by these users are expected to be much less than those produced by other sources commonly encountered in the area (*e.g.*, cars and trucks, tractors, lawnmowers, snowmobiles, etc.). In none of these areas will the ambient noise level exceed the 65 dBA maximum recommended by the NYSDEC for non-industrial settings. Given the distance to all other recreational resources in the area, no noise-related impacts are anticipated to these resources.

The Project will not result in wide-scale conversion of land to built/impervious surfaces. Consequently, no significant changes to the rate or volume of stormwater runoff are anticipated. However, installation of permanent Project components could result in localized changes to runoff/drainage patterns. During detailed design, the exact locations of such measures will be determined and depicted on the Project sediment and erosion control drawing set. Nevertheless, specific means of avoiding or minimizing stormwater-related adverse impacts during construction and operation of the Project include adherence to detailed soil erosion and sedimentation control plans and the stormwater requirements set forth in the SPDES regulations. As a result, no significant impacts are anticipated related to waters flowing from the Project Site through the Connecticut Hill WMA.

6.14.2 Minimization and Mitigation Measures

The Project would result in no direct impacts to common, prominent, or customary recreational practices in the area such as hiking, bicycling, snowmobiling, camping, bird watching, hunting, or fishing. No recreational areas are located within the Project's construction footprint and only a small portion of the FLT (approximately 1 mile) occurs within the Project Site. Construction and operation of the Project is expected to result in minor, temporary, and intermittent visual and noise impacts to recreational users in the immediate vicinity of the Project.

Although impacts related to construction noise will be temporary, and are not anticipated to be significant, mitigation measures shall include:

- Implementing best management practices for sound abatement during construction, including use of appropriate mufflers and limiting hours of construction.
- Implementing a complaint resolution procedure to assure that any complaints regarding construction or operational sound are adequately investigated and resolved.

While the impacts to recreational resources resulting from the proposed Project are not of the type or magnitude to require mitigation, the Community Outreach and Communications Plan will provide area residents with a forum to log and resolve complaints if necessary.

6.14.3 Findings

Potential impacts to open space and recreational resources will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the requirements set forth in Section 6.14.2 above.

6.15 Socioeconomics

6.15.1 Discussion of Potential Impacts

The Project should have both direct and indirect positive economic effects on participating individual landowners, the Town of Enfield, Tompkins County, and the school districts. These effects would commence during the planning and construction phases and continue throughout the operating life of the Project.

For the duration of construction (approximately 6 to 8 months), there could be a temporary increase in local population and demand for temporary housing by out-of-town workers. However, this demand would be relatively modest, and could easily be accommodated by the availability of vacant housing in the Town of Enfield and surrounding communities. Beyond this relatively minor (and positive) short-term impact, Project construction would not have significant impact on population and housing. Based on the above housing information and vacancy rate, there is likely an adequate supply of local housing and temporary accommodations in Tompkins County for the expected Project demand.

The Project Sponsor estimates the on-site construction workforce at approximately 25 workers. It is anticipated that a majority of the onsite workforce would be from the New York labor market, which in light of the size of the statewide labor force and the number of unemployed, can easily supply the required workforce. Local employment would benefit those in the construction trades, including equipment operators, truck drivers, laborers, and electricians. Project construction would also require workers with specialized skills, such as crane operators, turbine assemblers, specialized excavators, and high voltage electrical workers. It is anticipated that the majority of these specialized workers would be sourced from outside of the Project area and would remain only for the duration of construction.

The Project Sponsor expects that the operation of the installed Project will require between four and five full-time jobs or their equivalent. The Project Sponsor expects that salaries in the first year of operation will total approximately $240,000. Some of these employees may be local to the Project, which could translate into a very slight increase in local population. Based on vacancy rates in the Towns, there would be an adequate number of housing units available for purchase or rent. Although this represents a positive economic impact, long-term employment associated with the Project is not large enough to have a significant impact on local population or housing characteristics.

In addition to employment, lease payments also offer a direct financial benefit to all participating landowners, and may enhance the ability of participating landowners to purchase additional goods and services. A total of five leaseholders will receive payment at a flat rate of 3% of the project gross revenue, for an estimated total of $116,250. Leases will be for a 30-year term, with two 20-year extensions beyond that.

The Project Sponsor also expects to distribute "good neighbor" payments in the amount of $5,000 per year. Although the structure of such payments has not yet been formalized, the Project Sponsor's preliminary estimates indicate that an annual payment equal to 1% of the project gross revenue (approximately $35,000) would be distributed among 80 landowners within the Project footprint.

Furthermore, as a community wind project, the Project is expected to distribute annual cash dividends to its investors, which include local residents. Based on estimates for power output and Project-related expenses, total dividend distributions are estimated to reach approximately $623,000 annually in the near term. To date, approximately $1,000,000 worth of local capital has been invested in the Project. The Project Sponsor anticipates that an additional $35,000,000 in construction capital will be raised from New York State residents only. These in-state investors will receive returns on their investment, which will have a positive impact on the statewide economy.

Subject to ongoing negotiations between the Project Sponsor and the Tompkins County Industrial Development Agency, it is anticipated that a PILOT agreement will be reached between the Project sponsor and the Town of Enfield, Ithaca City School District, Odessa School District, and Tompkins County. Although the structure of such payments has not yet been formalized, it is estimated that the PILOT will be approximately $100,000 per year over the course of 15 years. This annual revenue stream will be distributed among the relevant taxing

jurisdictions according to their share as determined by the local combined tax rates and pursuant to the terms of the PILOT agreement.

6.15.2 Minimization and Mitigation Measures

Because the Project will create positive impacts to the socioeconomic status of the community, no mitigation measures are proposed herein.

6.15.3 Findings

The Project does not present a potential significant adverse impact to the socioeconomic conditions. To the contrary, the Project may provide incremental and long-term economic benefits to the community.

6.16 Public Safety

6.16.1 Discussion of Potential Impacts

Public safety concerns associated with the construction of a wind power project are fairly standard construction-related concerns. These include the potential for injuries to workers and the general public, as well as livestock, from: 1) the movement of construction vehicles, equipment and materials, 2) falling overhead objects, 3) falls into open excavations, and 4) electrocution. These types of incidents are well understood and with proper safety plans can be eliminated or at least minimized, and do not require extensive background information.

Public safety concerns associated with the operation of a wind power project are less well known to most people and are thus the focus of this section. In many ways, wind energy facilities are safer than other forms of energy production since a combustible fuel source and fuel storage are not required. In addition, use and/or generation of toxic or hazardous materials are minor when compared to other types of generating facilities. However, wind turbines are generally more accessible to the public, and risks to public health and safety can be associated with this form of energy generation. Examples of such safety concerns include ice shedding, tower collapse, blade throw, stray voltage, fire, lighting strikes, electrocution and electromagnetic fields.

Ice shedding and ice throw refer to the phenomena that can occur when ice accumulates on rotor blades and subsequently breaks free and falls to the ground. Although a potential safety concern, there has been no reported injury caused by ice being "thrown" from an operating wind turbine. However, ice shedding does occur, and could represent a potential safety concern.

The general public could also be exposed to construction-related hazards due to the passage of large construction equipment on area roads and unauthorized access to the work site (*e.g.*, on foot, by motor vehicle, ATV, or snowmobile). The latter could result in collision with stockpiled materials (soil, rebar, turbine/tower components), as well as falls into open excavations. Because construction activities will adhere to industry safety standards and occur primarily on private land, and be well removed from adjacent roads and residences, exposure of the general public to construction-related risks/hazard is expected to be very limited.

While the concerns surrounding stray voltage are legitimate, it is important to note they are largely preventable with proper electrical installation and grounding practices. The Project's power collection system will be properly grounded, and will be electrically isolated (in accordance with required electricity regulations) from the local electrical distribution lines that provide electrical service to on-site structures or off-site buildings and homes. It will be physically and electrically isolated from all of the buildings in and adjacent to the Project. Additionally, the bulk of the wind farm's electrical collection lines will be located a minimum of three to four feet below ground, and will use shielded cables with multiple ground points. This type of design eliminates the potential for stray voltage.

Wind turbines, due to their height, physical dimensions, and complexity, have the potential to present response difficulties to local emergency service providers and fire departments. Although the turbines contain relatively few flammable components, the presence of electrical generating equipment and electrical cables, along with various oils (lubricating, cooling and hydraulic) does create the potential for fire or a medical emergency within the tower or the nacelle. This, in combination with the elevated location of the nacelle and the enclosed space of the tower interior makes response to a fire or other emergency difficult, and beyond the capabilities of most local fire departments and emergency service providers.

Due to the generation and transmission of electricity, a wind power project poses the risk of electrocution. Because power generation and transmission does not occur until after the wind project has been constructed, this concern is primarily associated with an operating wind power project. For the Project, the electricity generated by each turbine will initially be transmitted through buried 34.5 kV electric lines, which will ultimately be delivered to the Project substation. The buried lines will be placed at least 3 feet below grade (4 feet in agricultural land). Therefore, any earthwork conducted at or below these depths (and in the immediate proximity of the buried lines) will introduce the risk of electrocution by accidental contact.

6.16.2 Minimization and Mitigation Measures

Contractors will comply with Occupational Safety and Health Administration (OSHA) regulations, in addition to state worker safety regulations, regarding electricity, structural climbing, and other hazards, during construction of the Project. To minimize safety risks to construction personnel, workers will be required to adhere to various health and safety compliance protocol, which are typically set forth by all construction-related entities (Project Sponsor, contractors, turbine manufacturer) prior to construction. The safety compliance program will address appropriate health and safety related issues including:

- personal protective equipment such as hardhats, safety glasses, orange vest and steel-toed boots
- job safety meetings and attendance requirements
- fall prevention
- construction equipment operation
- maintenance and protection of traffic
- hand and power tool use

- open hole and excavation area safety
- parking
- general first aid
- petroleum and hazardous material storage, use, containment and spill prevention
- posting of health and safety requirements
- visitors to the job site
- local emergency resources and contact information
- incident reporting requirements

A construction routing plan will be developed to assure that construction vehicles avoid areas where public safety could be a concern (schools, clusters of homes, etc.). To minimize safety risks to the general public, over-sized vehicles will be accompanied by an escort vehicle and/or flagman to assure safe passage of vehicles on public roads. Because construction activity will occur on private land, the general public should not be on the construction site. After hours, vehicular access to such sites may be blocked by parked equipment, and temporary construction fencing or other visible barriers will be placed around excavations that remain open during off hours. In addition, material safety data sheets (MSDS) for potentially hazardous construction materials will be provided to local fire and emergency service personnel. The contractor will also coordinate with these entities (including but not necessarily limited to local fire departments, ambulance squads, and county emergency management services office) to assure that they are aware of where various construction activities are occurring, and avoid potential conflicts between construction activity and the provision of emergency services (*e.g.*, road blockages, etc.).

All construction and maintenance activities will adhere to the spill prevention industry best practices. Although not anticipated, to mitigate for potential impacts related to waste disposal (*e.g.*, excessive waste), the Project Sponsor will coordinate with the Tompkins Solid Waste Management Division County prior to Project construction. The type and quantify of waste anticipated as a result of Project construction will be discussed, and appropriate means of disposal agreed upon.

Compliance with required set-backs and measures to control public access (gates, warning signs, etc.) should minimize any public safety risk associated with ice shedding. The Project will also meet with local landowners and snowmobile clubs to explain the risks of ice shedding and proper safety precautions. Relocation of designated snowmobile trails that occur within 200 feet of a proposed turbine (if any) will be undertaken by the Project Sponsor in coordination with the local snowmobile clubs and affected landowners. Additionally, icing of the sensors on the wind turbines will result in automatic turbine shut-down.

Project component setbacks, which are greater than those included in the Town of Enfield Wind Energy Facilities Local Law, should assure that a tower failure would not endanger adjacent properties, roadways, or utilities. No turbine will be located closer than approximately 190 feet from roads and adjacent non-participating land parcels or approximately 900 feet of a residence. Stray voltage will be prevented through proper design and grounding of the Project's electrical system, supplemented by appropriate testing and commissioning. Should issues or complaints regarding stray voltage arise, these would typically be investigated by the local utility operator

who will investigate the problem and isolate the source of the problem. In the unlikely event of any stray voltage issues, the Project Sponsor will coordinate with local utilities where necessary to help identify the source of the problem. Although not anticipated, any reported stray voltage problems will be addressed through the Project's Community Outreach and Community Plan.

An employee safety manual will be incorporated into the overall operating and maintenance policies and procedures for the Project. Included in that manual will be specific requirements for a fire prevention program. In addition, a Fire Protection and Emergency Response Plan will be developed for the proposed Project in consultation with local fire and emergency response personnel. This plan will include the following components:

- Training of all Project operating personnel and procedures review in conjunction with local fire and safety officials. Any Project-related fires will be the responsibility of the Project owner/operator.
- Regular inspection of transformer oil condition at each wind turbine step-up transformer.
- Regular inspection of all substation components.
- Regular inspection of fire extinguishers at all facility locations where they are installed.
- All Project vehicles will be equipped with firefighting equipment (fire extinguishers and shovels) as well as communications equipment for contacting the appropriate emergency response teams.
- The MSDS for all hazardous materials on the Project Site will be on file in the construction trailers (during construction) and the Project vehicles (during operation), and provided to local fire departments and emergency service providers.
- The facility Safety Coordinator shall notify the local fire department of any situation or incident where there is any question about fire safety, and will invite an officer of the fire department to visit the workplace and answer any questions to help implement a safe operating plan.

Development and implementation of this plan will assure that Project construction and operation will not have a significant adverse impact on public safety, or the personnel and equipment of local emergency service providers.

The Project Sponsor has committed to burying all electric lines a minimum of 3 feet (4 feet in agricultural lands), which significantly minimizes the risk of electrocution to the public. Beyond these activities, no additional measures to mitigate the potential for electrocution are proposed. Because no significant impacts from EMF are expected, no mitigation is required. However, to reduce the potential effects of EMF from the Project to the maximum extent practicable, the Project Sponsor will voluntarily adhere to the magnetic field strength interim standards established in the New York State PSC's Interim Policy Statement on Magnetic Fields, issued September 11, 1990.

6.16.3 Findings

Potential impacts to public safety will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the requirements set forth in Section 6.16.2 above.

6.17 Noise

6.17.1 Discussion of Potential Impacts

To obtain background sound levels HMMH conducted a noise measurement study for the Project Site and prepared a *Noise Study for Black Oak Wind Farm Project* (HMMH, 2012). To evaluate potential sound impacts from the Project, an *Acoustic Study of the Black Oak Wind Farm* was prepared (Tech Environmental, Inc., 2013) and updated for the currently proposed turbine model in 2014..

Construction of wind power projects requires the operation of heavy equipment and construction vehicles for various activities including construction of access roads, excavation and pouring of foundations, the installation of buried electrical interconnects, and the erection of turbine components. Assessing and quantifying construction-related impacts is typically difficult for most wind power projects because construction activities will be constantly moving from place to place around the site, leading to highly variable impacts at any given location. A significant portion of the construction will occur in remote areas, and significant construction-related sound impacts are not anticipated. In general, the maximum potential impact at any single residence might be analogous to a few days to a week of repair or repaving work occurring on a nearby public road. More commonly, sounds from Project construction are likely to be faintly perceived as the far off sound of diesel-powered earthmoving equipment characterized by such things as irregular engine revolutions, back up alarms, gravel dumping, and the clanking of metal tracks.

Construction-related noise will not occur on a permanent basis, or outside of normal daytime working hours (when all Project construction is planned), but as a temporary, daytime occurrence during construction. Construction noise of this magnitude may go unnoticed by many in the area. In any event, Project construction noise will be a temporary impact.

The Town's Wind Energy Facilities Local Law sets a sound limit of 60 dBA at the nearest non-participating residence. None of the 88 residential receptors modeled will experience operational noise produced by the Project in excess of 60 dBA established in the Town of Enfield Wind Energy Facilities Local Law.

The predicted worst-case sound levels from the Project were compared to the NYSDEC Noise Guideline document to assess noise impacts under the SEQRA process. The Guidelines state, "in non-industrial settings the SPL should probably not exceed ambient noise by more than 6 dBA at the receptor," and the addition of any noise source, in a non-industrial setting, should not raise the ambient noise level above a maximum of 65 dBA" (NYSDEC 2001).

It is important to note that in the particular case of wind turbine noise, the NYSDEC threshold of a 6 dBA cumulative increase does not represent the point of inaudibility. Operational noise from wind turbines is often unsteady and variable with time, largely because the wind does not always blow in a completely smooth manner. When unsettled air or gusty winds interact with the rotor, or the airflow is not perpendicular to the rotor plane, an increase in turbulence (and noise) can result. On top of this, turbines often produce a periodic swishing sound. These characteristics make operational noise more perceptible than it would be if it were bland and continuous in

nature. Consequently, turbines can commonly be discerned at fairly large distances even though the actual sound level may be relatively low and/or comparable to the magnitude of the background level.

However, a cumulative increase in the total sound level of about 5 or 6 dBA at a given point is required before the new sound begins to be clearly perceptible or noticeable to most people. Cumulative increases of between 3 and 5 dBA for a source of this kind are generally regarded as negligible or hardly audible. Lower sound levels from the new source are "buried" in the existing background sound level and become progressively less perceptible. Cumulative increases in the total ambient sound level of 6 dBA or less are unlikely to constitute an adverse community impact. For increases beyond 6 dBA, the guidelines suggest further evaluation. The guidelines go on to say "in non-industrial settings the SPL should probably not exceed ambient noise by more than 6 dBA at the receptor," but also notes "there may be occasions where an increase in SPLs of greater than 6 dBA might be acceptable" (NYSDEC, 2001).

The 10-minute Leq sound levels were analyzed to identify those time periods: (1) for which hub-height wind speeds were at least 10 m/s, approaching the design speed at which the turbines will produce maximum sound power, and (2) for which there was no measurable precipitation, a requirement of ANSI Standard S12.18-1994. These criteria were only met for the three long-term monitoring stations, LTI, LT2, and LT3. The overall Leq sound level across the three sites and all hours was 39.8 dBA. This measured ambient level is 5 dBA less than the suggested 45 dBA ambient level in the NYSDEC Noise Guideline for "a seemingly serene setting such as rural farm land," a description that fits Enfield. Following the NYSDEC Guideline and adding 6 dBA, the Project goal for non-participating residences is therefore a sound level no higher than 45.8 dBA, rounded down to 45 dBA. This is not an enforceable regulatory limit, and the NYSDEC Guideline is used solely to judge whether sound levels are at a level to require further analysis or mitigation.

Regarding seasonal variations, ambient sound levels are generally 5 dBA higher in the leaf-on summer season due to wind blowing tree foliage and warm-weather insect noise. Thus, ambient sound levels in the Project Area can be characterized as 40 dBA in the leaf-off season, and 45 dBA in the leaf-on season.

The NYSDEC Guideline also notes the EPA residential goal of 55 dBA for the day-night sound level (Ldn). An Ldn of 55 dBA is equivalent to Leq of 48.6 dBA for a continuously operating sound source such as a wind farm. For this project, the NYSDEC Leq and Ldn guidelines were applied to the nearest non-participating residences in the Project Site. Of these, the NYSDEC guideline of 45 dBA is lower and was used for evaluating predicted wind turbine sound levels.

Cadna/A uses the sound power (energy density) level of a wind turbine along with other assumptions to calculate the sound pressure (what we hear) level heard at a receiver located a certain distance from the wind turbine. The acoustic modeling determined the maximum sound power level for a GE 1.7-100 turbine is 106 dBA, which includes a 2.0 dBA uncertainty factor.

Maximum sound levels have been mapped and include (among others) a 45 dBA isoline, which is the Project-only sound level associated with the NYSDEC threshold for receptors. Beyond

this threshold, Project noise is unlikely to result in a significant adverse impact under most normal atmospheric conditions. Inside of this threshold, the Project is likely to be audible above the background sound level. The vast majority of residences surrounding the Project Site lie beyond this threshold, and therefore will experience no adverse impacts from Project noise. None of the 88 residential receptors modeled will experience operational noise produced by the Project in excess of 65 dBA NYSDEC Guideline, with the highest sound level being 45.9 dBA.

An increase above background sound levels between 5 and 6 dBA, with a maximum of 45.9 dBA, is predicted at 3 receptors provided below. Agreements are expected that will include all of these residences as Project participants.

Tax Parcel ID	ID	Name	Total Level (dBA)	31.5 Hz Band Level (dB)	63 Hz Band Level (dB)
13.-1-4.4	R14	Black Oak Rd. 3rd from north	45.9	60	57
18.-2-1.7	R8	Black Oak Rd. 10th from top	45.8	60	57
18.-2-1.33	R16	Black Oak Rd. 4th from north	45.2	60	56

Although concerns are often raised with respect to low frequency or infrasonic noise emissions from wind turbines, no adverse impact of any kind related to low frequency noise is expected from this Project. It is true that early wind turbines (designed with the blades downwind of the support tower) were prone to producing a periodic thumping noise each time a blade passed the tower, and the widespread belief that wind turbines generate excessive or even harmful amounts of low frequency noise likely originated with this phenomena. While modern wind turbines have been re-configured, with blades arranged upwind of the tower, and no longer produce such thumping noises, the myth of excessive low-frequency noise may have perpetuated due to confusion of low frequency sound with the amplitude modulation typical of wind turbines (*i.e.*, the periodic swishing sound with a frequency of about 1 Hz). However, numerous studies show that the low frequency content in the sound spectrum of a typical modern wind turbine – like those proposed for this Project – is no higher than that of the natural background sound level in rural areas.

6.17.2 Minimization and Mitigation Measures

Although impacts related to construction noise will be temporary, and are not anticipated to be significant, measures to be employed to mitigate temporary construction noise shall include:

- Implementing best management practices for sound abatement during construction, including use of appropriate mufflers and limiting hours of construction.
- Notifying landowners of certain construction sound impacts in advance (*e.g.*, if blasting becomes necessary).
- Implementing a complaint resolution procedure to assure that any complaints regarding construction or operational sound are adequately investigated and resolved.

As indicated in the Acoustic Study of the Project (Tech Environmental, 2013) and summarized above, an increase above background sound levels between 5 and 6 dBA is predicted at three receptors. All of these are expected to be Project participants. However, these modeled sound levels are based on a worst case scenario, with conservative assumptions required by ISO 9613-2 propagation standards, including low ground-level wind, high hub height winds, and the residence being downwind of multiple wind turbines under different wind directions at the same time. In addition, none of the 88 residential receptors modeled will experience operational noise produced by the Project in excess of 60 dBA established in the Town of Enfield Wind Energy Facilities Local Law or 65 dBA NYSDEC Guideline, with the highest sound level being 45.9 dBA. Because three receptors exceed the noise level increase threshold of 6 dBA set by the NYSDEC Guideline, mitigation or curtailment may be necessary if complaints arise. The Community Outreach and Communications Plan will provide area residents with a forum to log and resolve complaints if necessary.

6.17.3 Findings

Potential impacts concerning noise will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the requirements set forth in Section 6.17.2 above. Moreover, any potential impacts are outweighed by the environmental benefits to be provided by the Project.

6.18 Communication Facilities

6.18.1 Discussion of Potential Impacts

Temporary communication interference as a result of Project construction may occur. Cranes used during construction activities (and the individual turbine components being raised by the cranes) can cause temporary obstruction of microwave links, as well as some degradation to television and radio signals. However, because individual turbines have been sited to avoid interference with microwave paths that cross the Project, the potential for microwave interference by equipment assembling and erecting these turbines is expected to be minimal. Any impact on television or radio reception or other communication systems caused by construction equipment would be temporary, as turbine assembly and erection at each turbine site is typically completed within one to three days.

To assure an uninterrupted line of communications, a microwave link should be clear, not only along the axis between the center point of each antenna, but also within a mathematical distance around the center axis known as the Fresnel Zone. A Worse Case Freznel Zone (WCFZ) was calculated for each of the two microwave paths identified within the Project Site. Based upon the calculated WCFZ, it was determined that the Project, as currently proposed, will not interfere with microwave communications. Four operating full power stations were identified within 65 kilometers of the Project Site as the off-air television stations potentially affected by the proposed Project. These stations are WETM-TV and WENY-TV out of Elmira (Channels 18 and 36, respectively) and WSKA and WYDC out of Corning (Channels 30 and 48, respectively).

High-power television broadcast stations ceased analog operations in June 2009 and began broadcasting exclusively in digital format. Low-power TV broadcasters and translators were exempt from the FCC's digital requirement, and may still broadcast analog signals. Since translator stations rebroadcast high-power stations to a limited local audience, their programming is typically in digital format as well. Analog television broadcast signals are subject to variations in signal level by the motion of wind turbine blades, which may result in distortions in the contrast, brightness, and clarity of the video. In addition, changing reflections produced by the motion of wind turbine blades may cause ghosting. Digital television signals are also subject to level variations and reflections, but as long as the signal remains above the operational threshold of the receiver, the video produced is unaffected. Wind turbines can cause signal attenuation in both analog and digital signals. However, because they require a much lower signal level to produce excellent video, digital signals can withstand the attenuation effect to a greater extent. For analog television, as the signal is degraded by external effects, video quality is reduced in a sliding scale of performance. For digital television, as the signal is degraded, the video quality remains excellent until the signal level falls below the operational threshold of the receiver. Since the conversion to digital broadcast, there has been an improvement in television reception in the vicinity of wind energy facilities.

The coverage areas of the other 14 low-power stations and translators located within 65 kilometers of the Project do not overlap the Project Site and will not be affected by Project operation.

AM frequency broadcast coverage can be affected when turbines are located within 3.2 kilometers of stations with directive antennas or within 0.8 kilometer of stations with non-directive antennas. Since the closest AM station to the proposed Project is located 6.6 kilometers from the Project center, no impact to the coverage of AM stations is anticipated.

The coverage of FM stations can be affected when turbines are located within 4.0 kilometers of a station. Three operating FM stations (95.5 WFIZ, 104.1 W281AT, and 103.7 WQNY) are currently operating within 4.0 kilometers of the proposed Project. The Project Sponsor evaluated the rotor-swept zone of the wind turbine (height range of 34 to 150 meters) in comparison with the heights of these three FM stations (45 meters, 39 meters and 42 meters, respectively) and concluded that there is a strong potential for the coverage of these stations to be limited by the proposed Project.

First responder, industrial/business land mobile sites, area-wide public safety, and commercial E911 communications are not anticipated to be impacted by the proposed Project for the following reasons:

- These networks are designed to operate reliably in a non-line-of-sight environment;
- Many land mobile systems are designed with multiple base transmitter stations covering large areas with overlap between adjacent transmitter sites resulting in users receiving signals from multiple transmitter locations; and
- The frequencies of operation for these services allow the signal to propagate through wind turbines.

Nonetheless, to be conservative, a distance of 77.5 meters between the nearest turbine and land mobile fixed-base stations is customary. The nearest land mobile site to the Project, KEB422, is located 375 meters from the Project Site, and therefore no impact to these services is anticipated. Similarly, no significant impact to mobile phone service is anticipated. Mobile phone users often receive signals from multiple transmitter locations due to coverage overlap and should not experience a disruption in service even if one of these signals is attenuated by a turbine in a particular location. No impact to cable and satellite services is anticipated to result from the operating Project. All cable headend and satellite earth station facilities are located well beyond the Project Site and their services will not be impacted. The Project is not anticipated to have an impact on DoD military systems or FAA Long Range radar systems, as the Project is a sufficient distance from such systems. Specifically, there are no DoD military systems documented in the Comsearch report.

6.18.2 Minimization and Mitigation Measures

If disruptions to existing communication systems occur as a result of Project construction, they will be temporary, and will only occur during the erection of a limited number of turbines. Because turbine installation/crane activity will occur at different locations and at different times during the construction period, any degradation/disruption to existing communications will not represent a constant interference to a given television/radio reception area or microwave signal. In addition, turbine erection will be performed as efficiently as possible (under favorable conditions, one turbine can be erected in one day). Therefore, mitigation is not warranted. A Community Outreach Plan has been developed to resolve issues and complaints brought up by the local community.

The Project, as currently proposed, will not impact existing microwave communications. Should Project operation result in adverse impacts to existing off-air television coverage, the developer/operator will address and resolve each individual problem as necessary. Mitigation actions shall include adjusting existing receiving antennas, upgrading an antenna, or providing cable or satellite systems to the affected households. Three licensed and operational FM radio stations are likely to have their coverage affected by the Project. The Project Sponsor has initiated contact with the individual stations to determine appropriate mitigation measures, such as installation of auxiliary antennas to maintain coverage in affected areas**.** No impact to AM station coverage is anticipated, therefore mitigation measures are not proposed.

Impacts to communication signals are not anticipated, therefore mitigation measures are not proposed. No impact to military radar systems or FAA long range radar systems are anticipated and therefore do not require mitigation measures. A potential impact to the weather service NEXRAD Binghamton radar site has been identified. However, further evaluation and consultation through the NTIA indicated that no impacts are anticipated. according to the NTIA Notification letter, the DOC and DON identified potential concerns. Subsequent consultation revealed the Project is not anticipated to have an impact on these agency's systems. Therefore, no mitigation is required. FAA determinations of "No Hazard" were issued for the Project. Therefore, the Project will not result in impacts to airspace and nearby airports, and mitigation is not necessary.

6.18.3 Findings

Potential impacts to communications facilities will be avoided, minimized and/or mitigated to the maximum extent practicable with implementation of the requirements set forth in Section 6.18.2 above.

7.0 POTENTIAL UNAVOIDABLE IMPACTS

The Project will result in significant long-term economic benefits to participating landowners, as well as to the Town of Enfield, the local school districts, and Tompkins County. When fully operational, the Project will provide up to 11.9 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.

Despite the positive effects anticipated as a result of the Project, its construction and operation will necessarily result in certain unavoidable impacts to the environment. The majority of these environmental impacts will be temporary, and will result from construction activities. However, long-term unavoidable impacts associated with operation and maintenance of the Project include turbine visibility from some locations within the area. The presence of the turbines will result in a change in perceived land use from some viewpoints. Project development will also result in an increased level of sound at some receptor locations (residences) within the study area, a minor loss of forest land, wildlife habitat changes, and some level of avian and/or bat mortality associated with bird/bat collisions with the turbines. These impacts are not considered significant, 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 result in significant environmental impacts.

Although unavoidable impacts will occur, they will be minimized through the use of various general and site-specific avoidance and mitigation measures. With the implementation of these mitigation measures, the Project is expected to result in positive, long-term overall impacts that will offset the adverse impacts that cannot otherwise be avoided.

8.0 EFFECTS ON USE AND CONSERVATION OF ENERGY RESOURCES

In a July 15, 2009 policy titled Guide for Assessing Energy Use and Greenhouse Gas Emissions in an Environmental Impact Statement, the NYSDEC Office of Air, Energy, and Climate states, "Global climate change is emerging as one of the most important environmental challenges of our time. There is scientific consensus that human activity is increasing the concentration of [greenhouse gas] in the atmosphere and that this, in turn, is leading to serious climate change. These climate changes will continue to affect the environment and natural resources of the State of New York" (NYSDEC, 2009b). A subsequent policy titled Climate Change and DEC Action released by NYSDEC Commissioner Grannis on October 22, 2010 states: "Based on overwhelming scientific evidence, the New York State Department of Environmental Conservation recognizes that New York State's air and water quality, forests, fish and wildlife habitats, and people and communities, are at risk from climate change. In order to perform its core mission of conserving, improving, and protecting the State's natural resources and environment, DEC must incorporate climate change considerations into all aspects of its

activities…" (NYSDEC, 2010b). Clearly the NYSDEC, whose mission is "to conserve, improve and protect New York's natural resources and environment, and to prevent, abate and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall economic and social well-being", is concerned about the negative effects of climate change and greenhouse gas emissions.

The Project will have significant, long-term beneficial effects on the use and conservation of energy resources. The Project will generate up to approximately 11.9 MW of electricity without consuming cooling water or emitting pollutants. Assuming that the average house in New York uses approximately 7.3 MWh of electric power per year and that the average house in the United States uses approximately 11.5 MWh of electric power per year, and assuming the Project generates approximately 35% of its nameplate generating capacity, this is enough power to support between approximately 5,400 and 3,500 average homes (based on the New York and national averages, respectively).

The Project will add to and diversify the state's sources of power generation, accommodate future growth in power demand through the use of a renewable resource (wind), and over the long term will displace some of the state's older, less efficient, and dirtier sources of power. Wind energy generation results in reductions in air emissions because of the way the electric power system works. Generally, the most expensive power sources will be "backed down" when there is a sufficient source of wind energy available. Wind energy is a preferred power source on an economic basis because the operating costs to run the turbines are low and there are no fuel costs. Therefore, wind turbines produce power that reduces the need for generation from individual fossil fuel-fired power plants or units, thereby reducing fuel consumption and the resulting air emissions that would have otherwise occurred. The specific types of fossil fuel-fired power units and associated emissions that will be displaced by wind energy generation vary significantly among states and regions of the country. The displaced emissions of CO2, NOX, SO2, and mercury generally will be greater in regions with large amounts of coal-fired generation and lower in areas where natural gas is the primary fuel (such as New England). However, even in New England, where natural gas is a major source of generation, wind energy backs down some generating units fired by coal and residual oil at certain times.

In June 2007, former Governor Spitzer and Lieutenant Governor Paterson formed the NYS Renewable Energy Task Force to investigate the implementation of increased renewable energy sources in the State. The Task Force published a report in February of 2008 that is intended to serve as a policy "road map" to address the many challenges we face in reducing our dependence on fossil fuels, stimulating investment in clean energy alternatives, and moving toward a Clean Energy Economy in New York State.

In addition, in December 2012 the New York Energy Highway Task Force issued the New York Energy Highway Blueprint, on behalf of Governor Andrew Cuomo. Regarding the importance of renewable energy in New York State, the Blueprint states that "modernizing our generation assets promotes environmental and efficiency goals and preparing well in advance for the potential closure of power plants is critical to safeguarding system reliability and protecting consumers." The Blueprint also contends that new renewable energy projects provide sustained environmental benefits through reduced local and state air emissions, and can also generate

short- and long-term economic development through construction, operation, and maintenance jobs, expenditures for supplies and materials, and tax payments to local communities.

9.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The Project will require the irreversible and irretrievable commitment of certain human, material, environmental, and financial resources as described below. For the most part, the commitment of these resources will be offset by the benefits that will result from implementation of the Project.

Human and financial resources have already been expended by the Project Sponsor, the State of New York (*i.e.*, various state agencies), Tompkins County, and the Town of Enfield for the planning and review of the Project. The expenditure of funds and human resources will continue to be required throughout the permitting and construction phases of the Project (*e.g.*, for environmental reviews and permitting, site plan approval, building and construction inspections).

The Project also represents a commitment of land for the life of the Project. Specifically, the approximately 7.0 acres of land to be developed for wind turbines, access roads, and substations will not be available for alternative purposes for the life of the Project. However, because the turbines/towers could be removed, and the land reclaimed for alternative uses at some future date, the commitment of this land to the Project is neither irreversible nor irretrievable.

Various types of construction materials and building supplies will be committed to the Project. The use of these materials, such as gravel, concrete, steel, etc., will represent a long-term commitment of these resources, which will not be available for other projects. However, some of these materials (*e.g.*, steel, gravel) will be retrievable following the operational life of the Project, and will likely be retrieved in accordance with Project decommissioning.

Energy resources will also be irretrievably committed to the Project, during both the construction and operation of the Project. Fuel, lubricants, and electricity will be required during site preparation and turbine construction activities for the operation of various types of construction equipment and vehicles, and for the transportation of workers and materials to the Project Site. However, the energy resources utilized to construct and operate the Project will be minor compared to the energy generated by the Project and made available to the people of New York State.

10.0 MITIGATION MEASURES

This section summarizes the various mitigation measures set forth above that shall be implemented by the Project Sponsor in order to minimize, avoid and/or mitigate potential adverse impacts associated with the Project. This summary is not intended to supplant any of the mitigation measures set forth above, but merely to provide a summary of some of the measures that are being required for the Project.

Compliance with the various federal, state, and local regulations governing the development, design, construction and operation of the proposed Project shall serve to minimize potential adverse impacts. Construction activities and Project engineering shall comply with all applicable

state and local building codes and federal OSHA guidelines to protect the safety of workers and the public. Federal and state permitting required by the USACOE and/or the NYSDEC shall serve to protect water and biological resources, along with implementation of a SPDES permit, SWPPP, and SPCC plan. Highway permitting at the local, county, and state level shall assure that safety, congestion, and damage to highways in the area is avoided or minimized. The Project's siting criteria, guidelines, and design standards that serve to avoid or minimize adverse environmental impacts include the following:

- Siting the Project away from population centers and areas of high-density residential development.
- Siting turbines in accordance with physical setback requirements found in the Town of Enfield Wind Energy Facilities Local Law.
- Minimizing and/or avoiding stream and wetland crossings.
- Where available, using existing forest and/or farm roads for turbine access to minimize impacts to soil and ecological resources.
- Designing all buried electrical lines in a manner that denies any possibility of stray voltage.
- Designing, engineering, and constructing the Project 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.
- Following construction procedures in accordance with Best Management Practices for sediment and erosion control.
- Installing turbines with appropriate grounding and automatic shutdown/braking capabilities to minimize public safety concerns.
- Complying with the NYS Department of Agriculture and Markets guidelines in order to mitigate impacts on agricultural ground and farming practices

10.1 Specific Mitigation Measures

Project development and operation shall also adhere to specific mitigation measures including the following:

- Developing and implementing plans to minimize and/or avoid adverse impacts to air, soil, and water resources, including a NYSDEC-approved SPDES permit and SWPPP, SPCC plan, dust control plan, and soil erosion and sedimentation control plan.
- If necessary, implementing blasting safety and management plan in accordance with the Blasting Guidance Manual of the U.S. Department of the Interior Office of Surface Mining Reclamation and Enforcement.

- Restoration of agricultural soils in accordance with NYSA&M Agricultural Protection Guidelines.
- Implementation of an Invasive Species Control Plan.
- Completion of a post-construction avian fatality monitoring plan consistent with the applicable NYSDEC guidelines.
- Execution and Implementation of Road Use Agreements with the Town of Enfield and the County of Tompkins, including documenting existing road conditions and undertaking public road improvement/repair at no cost to the town or county.
- Implementation of a Fire Protection and Emergency Response Plan in compliance with the Tompkins County All-Hazards Mitigation Plan.
- Prior to the Town issuing a building permit for the Project, the Project Sponsor shall establish decommissioning funds in the amount of $125,000, or such greater amount as reasonably determined by the Town, for each wind turbine and/or wind energy facility comprising the Project. The decommissioning funds shall be provided in the form of a surety bond, letter of credit, and/or cash, or in lieu thereof and in accordance with the Town's local laws, any other suitable security instrument which shall guarantee the amount of decommissioning funds and provide for the Town Board of the Town of Enfield as the sole beneficiary. The decommissioning fund will be retained for the life of the Project. The Project Sponsor shall also adhere to the Decommissioning Plan.
- Entering into a PILOT agreement with the local taxing jurisdictions to provide a significant and predictable level of funding for the town, county, and school district over the first 20 years of Project operation.
- Conduct regular meetings and coordination with local emergency service personnel including police, fire, and EMS to review and monitor construction process.
- Implementation of a Community Outreach and Communications Plan which establishes an open communication link between the Lead Agency and the Project Sponsor, as well as a complaint resolution procedure which shall include an 1-800 number for use by local residences and the website, www.blackoakwindny.com to be maintained during the operative life of the Project wherein regular updates of the construction of the Project, contact information, and the various plans shall be posted for the public's review.

10.2 Environmental Compliance and Monitoring Program

In addition to the mitigation measures described above, the Project Sponsor will develop an environmental compliance program and compensate the Town for the employment of an Environmental Monitor to oversee compliance with the various environmental commitments and permit requirements outlined in this Findings Statement. The environmental compliance program will include the following components:

1. Planning – Prior to the start of construction, the Environmental Monitor will review all environmental permits and, based upon the conditions/requirements of

the permits, prepare an environmental management document that will be utilized for the duration of the Project. This document will distill and clearly present all environmental requirements for construction and restoration included in all Project permits and approvals.

2. Training – The Environmental Monitor will hold environmental training sessions that will be mandatory for all contractors and subcontractors. The purpose of the training sessions will be to explain the environmental compliance program in detail, prior to the start of construction.

3. Preconstruction Coordination – Prior to construction, the contractor(s) and the Environmental Monitor will conduct a walkover of areas to be affected by construction activities. This walkover will identify landowner concerns, sensitive resources, limits of clearing, proposed stream or wetland crossings, and placement of sediment and erosion control features. The limits of work areas, especially in sensitive resource areas, will be defined by flagging, staking or fencing prior to construction, as needed.

4. Construction and Restoration Inspection – The monitoring program will include the inspection of construction work sites by the Environmental Monitor. The Environmental Monitor will be present during construction at environmentally sensitive locations, will keep a log of daily construction activities, and will issue periodic/regular reporting and compliance audits. Additionally, the Environmental Monitor will work with the contractors to create a punch list of areas for restoration in accordance with issued permits. A two-year post construction monitoring period will be established for agricultural mitigation and restoration monitoring, invasive species monitoring, and monitoring of other issues that arise during construction as agreed to by the Project Sponsor and the Town.

CERTIFICATION OF FINDINGS TO APPROVE

Having considered the Findings Statement for the Black Oak Wind Farm, and having considered the preceding relevant environmental impacts, facts and conclusions relied upon to meet the requirements of 6 N.Y.C.R.R. § 617.11, and having weighed and balanced the relevant impacts with social, economic and other considerations, this Statement of Findings certifies that:

1. The requirements of 6 N.Y.C.R.R. Part 617 have been met; and

2. Consistent with the social, economic and other essential considerations from among the reasonable alternatives available, the action is one which avoids or minimizes adverse environmental effects to the maximum extent practicable, and that adverse environmental impacts will be avoided or minimized to the maximum extent practicable by incorporating as conditions to the decision those mitigative measures which were identified as practicable.

Town Board of the Town of Enfield
Name of Agency

	Ann Rider
Signature of Responsible Official	Name of Responsible Official
Supervisor	January , 2015
Title of Responsible Official	Date

Enfield Town Hall, 168 Enfield Main Road, Ithaca, New York 14850
Address of Agency