3.0 UNAVOIDABLE ADVERSE IMPACTS

The purpose of the Project is to create a reliable and profitable wind-powered electric generation facility that will provide a significant source of clean, renewable energy to the New York power grid and will result in significant long-term economic benefits to participating landowners and neighbors, as well as the towns of Arkwright and Pomfret in Chautauqua County. When fully operational, the Project will provide up to 79.9 MW of electric power generation capacity with no emissions of pollutants or greenhouse gases to the atmosphere. The development of the site is consistent with surrounding land uses and will help maintain the area's predominantly agricultural economy. Additional discussion of the public need for and benefit from this Project is provided in Section 1.4.

The positive and negative impacts of this Project, along with proposed mitigation measures, have been presented in a tabular format in the Executive Summary and are described in detail in Section 2.0, Environmental Setting, Impact Analysis, and Mitigation Measures. Unavoidable adverse impacts resulting from the Project are further discussed in the following subsections, along with mitigation measures proposed by the Applicant.

3.1 General Mitigation Measures

General planning and design measures include the procedures required by various local, state, and federal ordinances and regulations that govern Project development. The Project will be developed in accordance with primary government review/approval processes and/or standard conditions, including:

- State Environmental Quality Review Act (SEQRA);
- New York State Department of Transportation (NYSDOT) and Chautauqua County Department of Public Facilities highway regulations;
- Federal Clean Water Act regulations (Section 404 individual permit, 401 water quality certification);
- Towns of Arkwright and Pomfret zoning, building and other local regulations;
- New York State Department of Environmental Conservation (NYSDEC) water resources regulations (Article 24, Article 15, Section 401 water quality certification);
- Occupational Safety and Health Administration (OSHA) regulations (standard conditions for safe work practices during construction);
- State Historic Preservation Office (SHPO) Consultation;
- New York State Agricultural District's Law and Guidelines for Agricultural Mitigation for Windpower Projects;
- NYSDEC Program Policy for Assessing and Mitigating Visual Impacts;
- NYSDEC Program Policy for Assessing and Mitigating Noise Impacts; and
- Federal Aviation Administration (FAA) Marking and Lighting Standards.

SEQRA regulations require environmental review of proposed development projects, such that potential adverse impacts and public concerns can be identified prior to Project implementation and avoided or mitigated to the extent practicable. This DEIS was prepared in accordance with these regulations, and provides the primary means by which the potential costs and benefits of the Project are described and evaluated in a public forum. Compliance with SEQRA regulations will assure that public and agency comments are solicited and appropriately addressed, Project alternatives are evaluated, and potential adverse impacts are identified and mitigated to the extent practicable. Responses to comments and preparation of a FEIS will provide the information necessary for the lead agency and other cooperating agencies to draw conclusions (which will be contained in each agency's Findings Statement) regarding the Project's overall environmental impacts and impose conditions on its approval, if necessary.

Compliance with other various federal, state, and local regulations and policies governing the construction and design of the Project also will serve to minimize unavoidable adverse impacts. For example, construction activities and building designs will be in compliance with applicable provisions of state and local building codes and federal OSHA guidelines to protect the safety of workers and the public. State permitting required by the NYSDEC will serve to protect water and wildlife resources, while state and county highway permitting will assure that safety, congestion, and damage to highways in the area are avoided or minimized. Compliance with the towns of Arkwright and Pomfret ordinances that require building and highway permits, as well as specific requirements for wind energy facilities, will further serve to minimize impacts of the Project. Section 1.10 provides a list of the regulatory approvals and consultations required for this Project.

3.2 Proposed Mitigation Measures for Long-Term Unavoidable Environmental Impacts

Although the overall impact of the Project is positive for the environment and community, there remain temporary and long-term unavoidable adverse impacts that must be considered and addressed. The majority of the adverse environmental impacts associated with the Project will be temporary in nature and will be associated with construction activities. Site preparation (e.g., clearing, grading), improvement of local roads, and the installation of roads, turbines, interconnects, staging areas, the O&M building, meteorological towers, and the substation and POI switchyard will have short-term and localized adverse impacts on the soil, water, agricultural, and ecological resources of the site. This construction will also have short-term impacts on the local transportation system, air quality, and noise levels. These impacts will largely result from the movement and operation of construction equipment and vehicles, which will occur during the roughly nine months of actual Project construction. The level of impact to each of these resources has been described and assessed in other sections of this DEIS and will generally be localized and/or of short duration, and will be effectively minimized through mitigation strategies such as, but not limited to, best management practices and the development of a SWPPP.

Table 3.2-1 below lists long-term adverse impacts associated with the Project that will likely remain after mitigation, as well as measures proposed that would reduce the magnitude of these impacts. Each of the potential impacts to existing environmental resources listed in Table 3.2-1 is discussed in more detail following the table.

Table 3.2-1. Summary of the Long-Term Unavoidable Adverse Impacts Associated with the Project

Environmental Factor	Potential Impacts	Mitigation Factors
Soils, Geology, and Topography	Conversion of agricultural land in Project footprint	Using existing public and private (i.e., farm, gas well and logging) roads whenever practicable. Installing buried power collection cables at a depth that provides for long-term agricultural use above and within the shoulder of the access road wherever practicable. Aligning roads and turbines at the edges of fields where possible to avoid impacting agricultural operations. Compliance with New York State Agricultural District's Law and Guidelines for Agricultural Mitigation for Windpower Projects.
Surface and Groundwater Resources	Wetland filling Permanent stream crossings	Aligning roads and turbines to avoid wetlands and streams or minimize impacts at crossings. Funding for restoration or creation of wetlands, as needed, to offset impacted wetlands.
Biological Resources	Incidental wildlife injury and mortality Loss or alteration of habitat	Funding of post-construction studies to monitor potential impacts on birds and bats. Using minimal lighting required by FAA. Erecting free-standing permanent met towers without guy wires.
Land Use and Zoning	Adverse and beneficial impacts on farming Changes in community character and land use trends	Aligning roads and turbines with existing field rows and seams whenever practicable. Making attractive royalty payments to landowners that should reverse the loss of family farms. Payments in lieu of taxes to host communities.
Cultural Resources	Project views from architectural resources (indirect impact) Disturbance of historic archaeological resources (direct impact)	Identifying, documenting, preserving in place or relocation/recovery of existing resources. Funding and/or implementing mitigation programs for unavoidable impact to historic resources and minimizing/avoiding impacts where possible.

Environmental Factor	Potential Impacts	Mitigation Factors
Visual Resources	Visual change to the landscape Visual impact on sensitive sites/viewers Shadow-flicker impact on adjacent residents	Siting the Project away from population centers and areas of residential development and ensuring required setbacks from residential properties. Installing turbines that don't exceed the 420 foot height restriction established in zoning law. Identifying residences with potential for shadow flicker impacts, shifting turbine locations within a given area to minimize shadow impact. Using minimal lighting required by FAA. Installing underground electrical collection lines between turbines, unless otherwise required by technical or environmental reasons. Offering neighbor agreements to neighboring homeowners located outside of the Project site within 2,500 feet of a wind turbine. Using turbines and monopole towers that will be painted white to blend in with the surroundings.
Noise	Operational impacts on adjacent residents	Siting the Project away from population centers and areas of residential development. Offering development agreements with neighboring homeowners located outside of the Project site within 2,500 feet of a wind turbine.
Communications	Interference with existing microwave, radio, and television pathways	Turbines sited outside of WCFZ. The Complaint Resolution Plan outlined in Appendix N is designed to address communications concerns if diminished communication signals are reported.

Soils, Geology, and Topography

Regarding unavoidable soil and land-use impacts, the Applicant voluntarily presented draft versions of the Project layout to host landowners and has incorporated their feedback into the layout where feasible. The Applicant will continue to work with host landowners to incorporate any additional suggestions, such as those that may result from the SEQR process, regarding the placement of Project components to further reduce such unavoidable impacts.

Surface and Groundwater Resources

Water resource impacts will be mitigated through the proposed development of a SWPPP based on best management practices related to erosion, spills, and excavation. The Applicant has minimized potential impacts to wetlands by designing the Project layout around wetland

buffer zones as described by NYSDEC permitting standards. Where wetland and stream crossings could not be avoided, the Applicant sited access roads to cross wetlands and streams at their narrowest points and also minimized road width at these crossings to the extent practicable. A wetland delineation effort has not yet been completed for the Project Area; therefore, the Project layout may be subject to change following completion of the wetland delineation field work to be conducted in the spring/summer 2008, and up until the issuance of the Joint Wetland Permit. In keeping with the NYSDEC and USACE permitting requirements, the Applicant will, to the extent necessary, improve the quality of existing on-site wetlands or possibly construct new wetlands in or as close to the Project Area as practicable to mitigate residual wetland impacts.

Biological Resources

With respect to biological resources, the Applicant conducted extensive studies to inventory the species endemic to the Project Area, as well as those that migrate through the Project Area. These inventories show that no endangered species would be at risk and that only avian and bat species would face risk of mortality associated with Project operation. Avian and bat studies conducted by New Grange assessed the risk to these species and find them comparable to, or of lesser risk than, other wind projects in New York. The Applicant will work with the NYSDEC and the USFWS to develop and implement a detailed post-construction monitoring protocol to verify the consistency of predicted studies and, if necessary, develop further site-specific mitigation strategies.

Land Use and Zoning

The proposed Project is consistent with current and future land uses and zoning regulations and is compatible with the rural residential, forest, and agricultural land use that dominates the Project Area. Minor direct changes in land use in the Project Area are anticipated as a result of the conversion agricultural and forested land to developed land. During operation, Project O&M staff will work with local landowners to coordinate their maintenance activities in a manner that will not adversely impact seasonal agricultural activities, especially as they relate to movement of vehicles or equipment over agricultural lands. Overall, the Project will have a net benefit to agricultural land use, because the presence of the wind farm will prevent or delay the conversion of agricultural land to seasonal, recreational or permanent residential use by paying royalties that will increase the viability of the land for agricultural purposes. In addition, payments in lieu of taxes to host communities will likely assist them in providing services and other benefits to their residents, and should reduce the overall tax burden on property owners in those communities.

Cultural Resources

With respect to cultural impacts, the Applicant has been in communication with local historians and the SHPO. The Applicant has conducted an inventory of area architectural resources and will conduct additional impact assessments upon receipt of public and agency comments to this DEIS and based on SHPO guidelines regarding architectural and archeological resources. In the event that shovel-test assessments unearth additional archeological resources and the Applicant decides not to relocate the improvements, the Applicant will develop a protocol for the proper documentation and relocation or recovery of these resources. The Applicant is also committed to working with the SHPO and the host communities to develop and fund a visual mitigation program aimed at restoring or improving each community's cultural and/or historical resources.

Visual Resources and Noise

As discussed in Section 2.0, the residual noise and shadow impacts have been conservatively estimated. In the case of noise, the Applicant designed its ambient noise assessment using a measure of background noise well below average conditions. The Applicant studied the theoretical worst case scenario (i.e., no leaves, no birds, no snow, 6 m/s wind speeds from all directions at once), although this scenario is thought to exist for only a fraction of a year, if at all. The assessment found that even under these hypothetical worst case conditions, the noise impacts are within the limits established under local law.

The Applicant has a neighbor program whereby non-participating landowners will be offered compensation. The purpose of this neighbor program is to share the benefits of the Project with that group of neighbors that will experience the most significant change in their neighborhood. Such a program is not required by law and affirms the Applicant's intent that those in the Project area who will be faced with unavoidable changes have the option to participate in the Project.

Communications

Interference with microwave communication systems, television reception, LMR operations, and cellular communication is not anticipated. An assessment of the potential impacts to AM/FM radio will be included in the FEIS. However, if Project operation does result in any impacts to existing communication transmissions, the Applicant will address and resolve each individual reported problem, as necessary. This will be accomplished through the Complaint Resolution Plan Methods outlined in Appendix N. Available mitigation measures include adding transmitters or receiver antennas and installing cable or satellite television. Additionally, if the FAA and DOD detect a possible conflict with military radar, the Project will work to resolve the conflict to the satisfaction of the federal agencies involved.

3.3 Environmental Compliance and Monitoring Program

This section summarizes general planning and design measures that have been incorporated into the Project, and specific mitigation measures proposed to minimize adverse impacts to

specific resources. The Project will be subject to many environmental restrictions and requirements during both construction and operation phases. In order to ensure compliance with these measures, a formal environmental compliance and monitoring program will be created.

After the SEQRA process is complete and permits have been issued, but prior to construction, the Applicant will develop a construction and operation environmental compliance program and will employ at least one environmental inspector to ensure compliance with Project environmental commitments and permit requirements. The environmental compliance program will include the following components:

Planning – Prior to the start of construction, the Applicant will review all environmental permits and studies, including the FEIS, and based upon the conditions/requirements of these documents, prepare an environmental management plan that will be used for the duration of the Project. This plan will outline the environmental requirements for construction and restoration included in Project permits, approvals, and other relevant documents, such as those associated with SEQR review.

Training – A construction environmental training program will be developed that will be required for all personnel to be on the Project Site during construction. Prior to the start of construction, the Applicant will hold environmental training sessions, in conjunction with mandatory safety training sessions for all contractors and subcontractors, as well as Applicant staff and agency representatives who will be accessing construction work sites.

Preconstruction Coordination – At least one week prior to construction in any given area, the contractor(s) and the environmental inspectors will conduct a walkover of areas to be affected by construction activities. This walkover will identify landowner restrictions, sensitive resources, valuable timber and limits of clearing, proposed stream or wetland crossings, layout of sediment and erosion control features, and other important features. The limits of work areas, especially in sensitive resource areas, will be well defined prior to construction. Defining these areas may include the use of signs, flagging, staking or fencing prior to construction, as needed.

Construction and Restoration Inspection – A construction compliance inspection program will be created based upon the Project construction environmental compliance plan. The inspection program will include approximately daily inspection of every active construction work site by an environmental inspector. An inspector will be present during construction at environmentally sensitive locations and will keep a log of daily construction activities. This log will become the basis for periodic/regular reporting and compliance audits. Additionally, the inspector will work with the contractors to create a punch list of areas for restoration in accordance with issued permits. The Applicant or an environmental inspector will maintain a monitoring presence, as required in Project authorizations, following the completion of site restoration to evaluate areas disturbed during construction and assure that agricultural and ecological functions and values are restored and maintained over the long-term.

Restoration of Public Roads – The Applicant will monitor the condition of public roads with the respective highway superintendents and will restore roads impacted by the Project to a condition that is as good as or better than prior to construction. The specific transport routes, public road improvements, and the process for restoration will be memorialized within the Road Use Agreements to be developed with the towns of Arkwright and Pomfret.

Ecological Resource Monitoring – The Applicant will monitor avian and bat activity during Project operation in accordance with the post-construction monitoring protocol developed in cooperation with the NYSDEC and USFWS. If significant mortality occurs, specific mitigation strategies will be developed to reduce the likelihood of future adverse impacts to birds and bats. The Applicant will also monitor the restoration or creation of any wetlands that result from the final mitigation program, in accordance with NYSDEC and USACE wetland permitting conditions.

Agricultural Resource Monitoring – The Applicant will monitor the restoration of topsoil following Project construction in cooperation with the Ag & Markets as outlined in the Agricultural Protection Measures in Appendix C of this DEIS. This includes monitoring and remediation immediately following the completion of initial restoration.

3.4 Conclusion

With the incorporation of the mitigation measures described in this DEIS and the implementation of the environmental compliance and monitoring program, along with the beneficial effects and avoidance measures that are discussed throughout this DEIS, the Project is expected to result in positive, long-term overall impacts that will significantly offset unavoidable adverse effects.

4.0 ALTERNATIVES ANALYSIS