Simulation of EverPower's Howard Wind Project located in Steuben County, New York, which has been operational since 2011.

Preliminary Scoping Statement

Cassadaga Wind Project

Towns of Charlotte, Cherry Creek, Arkwright, and Stockton, Chautauqua County, New York

Respectfully submitted to:

New York State Board on Electric Generation Siting and the Environment
3 Empire State Plaza
Albany, NY 12223

Applicant:

Cassadaga Wind LLC, a subsidiary of EverPower Wind Holdings, Inc.
1251 Waterfront Place, 3rd Floor
Pittsburgh, PA 15222
www.everpower.com

everpower

Prepared by:

Environmental Design & Research
217 Montgomery St., Suite 1000
Syracuse, New York 13202
P. 315.471.0688
F. 315.471.1061
www.edrdpc.com

edr

September 2015

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Case No. 14-F-0490

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1251 Waterfront Place, 3rd Floor
Pittsburgh, PA 15222
www.everpower.com

Prepared by:

Environmental Design & Research,
Landscape Architecture, Engineering, & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1000
Syracuse, New York 13202
www.edrdpc.com

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1.0 INTRODUCTION

Cassadaga Wind LLC ("the Applicant"), a subsidiary of EverPower Wind Holdings, Inc. intends to submit an Application to construct a major electric generating facility under Article 10 of the Public Service Law ("PSL"). Pursuant to the rules of the New York State Board on Electric Generation Siting and the Environment ("Siting Board"), applicants proposing to submit an Application to construct a major electric generating facility under Article 10 must submit a Preliminary Scoping Statement (PSS). Under 16 NYCRR § 1000.5(c), an Applicant must file an electronic copy and 10 paper copies with the Siting Board no less than 90 days before the date on which an Application is filed. This document represents the PSS for the Cassadaga Wind Project (the Project) and is intended to satisfy the filing requirements set forth at 16 NYCRR § 1000.5(c). (See Section 3.0 of this PSS for additional information.) Pursuant to 16 NYCRR 1000.5(g), within 21 days after the filing of this PSS, in this case by September 25, 2015, any person, agency or municipality may submit comments on this PSS by serving such comments on the applicant and filing a copy with the Secretary. Further details for filing comments on this PSS are provided in the Notice accompanying this document. (See Appendix A; copy of the Notice).

1.1 PROJECT DESCRIPTION

The Cassadaga Wind Project is a proposed 126 megawatt (MW) wind powered electric generating project located within the Towns of Charlotte, Cherry Creek, Arkwright, and Stockton, Chautauqua County, New York. The regional Project location and general Project Area is depicted on Figures 1 and 2, respectively. The Project will be located on leased private land that is rural in nature. The actual footprint of the proposed facilities will be located within the leased land, and will enable farmers and landowners to continue with farming operations or other current land uses such as forestry practices.

The proposed "Project" consists of all activities necessary for the construction and operation of a commercial-scale wind power project, including the installation and operation of up to 62 wind turbines, together with approximately 34 miles of associated collection lines (mainly below grade unless there are physical or environmental constraints, which will be described in the Application), approximately 19 miles of access roads, up to two permanent meteorological towers, one operation and maintenance (O&M) building, and up to four temporary construction staging/laydown areas. To deliver electricity to the New York State power grid, the Applicant proposes to construct a collection substation, a 115 kV generator lead line and a point of interconnection substation, which will interconnect with National Grid's Dunkirk-Moon 115 kV transmission line. It is anticipated that the newly constructed 115 kV generator lead line will be approximately 5.5 miles in length. All of these Project components collectively constitute the "Major Electric Generating Facility" as defined at 1000.2(v).

The Cassadaga Wind Project will have a nameplate capacity of up to 126 MW, and is expected to operate at an annual net capacity factor (NCF) of approximately 36%. This means that over the course of a full calendar year the Project would produce up to 397,353 megawatt hours (MWh) of energy (i.e., 126 MW x 24 hrs/day x 365 days x 36%). This will be enough electricity to meet the average annual consumption of between approximately 36,791 and 55,187 households, based on average annual electric consumption of 10.8 MWh for the U.S. and 7.2 MWh for New York State, respectively (EIA, 2014).

The immediate benefits of utility scale renewable projects, such as the Cassadaga Wind Project, include economic development and jobs for the community, lease payments to landowners and compliance with State and Federal renewable energy and other policy objectives. In the long run, as recognized by the newly issued State Energy Plan, benefits may include below-market electricity prices by avoiding reliance on commodity fuel costs and a healthier environment associated with electricity generation that does not involve greenhouse gas and other harmful emissions. The Project is consistent with State policies designed to encourage the development of renewable energy projects, fight climate change, and contribute to the transition of New York's energy markets.

Global climate change has been recognized as one of the most important environmental challenges of our time. (See New York State Climate Action Plan Interim Report, November 2010; DEC's Commissioner Policy 49, issued October 22, 2010; DEC Guidance Assessing Energy Use and Greenhouse Gas Emissions in Environmental Impact Statements, issued July 15, 2009). There is scientific consensus that human activity is increasing the concentration of greenhouse gases (GHGs) in the atmosphere and that this, in turn, is leading to serious climate change. By its nature, climate change will continue to impact the environment and all natural resources of the State of New York. New York has been proactive in its efforts to address the serious threat posed by climate change. For example, the latest iteration of the New York State Energy Plan, which was announced on June 25, 2015, contains a series of policy objectives and coordinates with New York's Reforming Energy Vision ("REV") initiative and the objectives to increase the use of energy systems that enable to the State to significantly reduce Greenhouse Gas emissions while stabilizing energy costs. According to the State Energy Plan, the Plan is a "comprehensive strategy to create economic opportunities for communities and individual customers throughout New York." Through the State Energy Plan, New York has committed to achieving a 40% reduction in GHG emissions from 1990 levels by 2030 and an 80% reduction in reducing total carbon emissions by 2050. In addition, the State Energy Plan calls for 50% of generation of electricity from renewable energy sources by 2030. According to the Plan, "Renewable Energy sources, such as wind, will play a vital role in reducing electricity price volatility and curbing carbon emissions." The Cassadaga Wind Project fully advances the objectives of the State Energy Plan and assists the State in achieving the 50% renewable energy generation objective.

The proposed Project will have positive impacts on socioeconomics in the area through employment opportunities, specifically by generating temporary construction employment. Local construction employment will primarily benefit those in the construction trades, including equipment operators, truck drivers, laborers, and electricians. In addition, Project operation will generate full-time jobs, including a Site Manager, Wind Technicians, and an Assistant Site Manager. The Project will also result in increased revenues to County and local municipality tax bases, payments to the local hospitality industry, purchase of local supplies and goods, and lease revenues to participating landowners.

1.2 SUMMARY OF PRE-APPLICATION ACTIVITIES

Prior to this PSS, the Applicant prepared a Public Involvement Program (PIP) plan in accordance with 16 NYCRR § 1000.4, which was filed with the Siting Board, and the Project was assigned a case number (Case No. 14-F-0490). The initial draft of the PIP was submitted to the Siting Board on November 4, 2014, comments on the PIP were received from the New York State Department of Public Service (DPS) on December 4, 2014, and the PIP was updated, finalized and filed by the Applicant on January 4, 2015. The PIP can be accessed, viewed and downloaded on the online case record maintained by the Siting Board and on the Project-specific website maintained by the Applicant:

- (http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?Mattercaseno=14-F-0490)
- (http://everpower.com/cassadaga-wind-project-ny/)

According to 16 NYCRR § 1000.4(c), a Public Involvement Program must include: (1) consultation with the affected agencies and other stakeholders; (2) pre-application activities to encourage stakeholders to participate at the earliest opportunity; (3) activities designed to educate the public as to the specific proposal and the Article 10 review process, including the availability of funding for municipal and local parties; (4) the establishment of a website to disseminate information to the public; (5) notifications; and (6) activities designed to encourage participation by stakeholders in the certification and compliance process. It is anticipated that this will be an ongoing, evolving process throughout all phases of the Article 10 review process (pre-application phase, application phase, hearing and decision phase, and post-certification phase) intended to disseminate information regarding the Project to stakeholders, solicit information from those stakeholders during public outreach events, and generally foster participation in the Article 10 review.

The Applicant has established the following public/stakeholder interaction elements that will carry on through the duration of the Project:

- Project Representative (for the public and stakeholders to contact with questions, concerns, etc.): Bill Spencer, EverPower Development Manager; 1251 Waterfront Place, 3rd Floor, Pittsburgh, PA 15222; bspencer@everpower.com; 412-253-9403 (office), 724-674-2100 (mobile)
- Project Representative (media contact): Kevin Sheen, Sr. Director of Development & Public Relations; 1251 Waterfront Place, 3rd Floor, Pittsburgh, PA 15222; ksheen@everpower.com; 646-839-8919 (office), 917-679-6877 (mobile)
- Toll Free Number: 1-844-624-WIND (9463)
- Local Document Repositories:
    - Cassadaga Branch Library; 18 Maple Avenue, Cassadaga, NY 14718 (716-595-3822)
    - Sinclairville Free Library; 15 Main Street, Sinclairville, NY 14782 (716-962-5885)
    - Farman Free Library Association of Ellington; 748 North Park, Ellington, NY 14732 (716-287-2945)

In support of this PSS, the Applicant has consulted with the public, affected agencies and other stakeholders, as required by 16 NYCRR § 1000.5(b). All such consultations have been documented in a Meeting Log maintained by the Applicant, which has been updated and submitted to the Siting Board approximately once per month (also available on the case record website referenced above). The most recent Meeting Log was filed with the Siting Board on August 10, 2015 and is also included with this PSS as Appendix B. The Applicant will continue to prepare and file a Project-specific Meeting Log on an approximate monthly basis throughout the duration of the Article 10 review process. See Section 2.2(c) of this PSS for additional information regarding PIP implementation.

1.3 ORGANIZATION OF THE PSS

To facilitate an understanding of the intended content and organization of the pending Application, and to identify the proposed methodology or scope of the studies to be conducted in support of the Application, this PSS has been organized in accordance with 16 NYCRR § 1001 (Content of an Application). Specifically, all sub-sections of Section 2.0 (Content of the Application) below correspond directly to each Exhibit that will be included in the Application as set forth in 16 NYCRR § 1001 (e.g., Section 2.1 corresponds to 16 NYCRR § 1001.1, Section 2.2 corresponds to 16 NYCRR § 1001.2, etc.). This is the reason Exhibits that are not necessarily applicable to the Project have been included as individual sections here to maintain the numbering consistent with the regulations. In order to ensure compliance with 16 NYCRR § 1000.5(l) a content matrix is provided in Section 3.0 (Summary and Conclusions) of this PSS, which cross-references the requirements of 16 NYCRR § 1000.5(l) with the sections of this PSS.

In addition, the following general information regarding Project-related impacts is provided in accordance with 16 NYCRR § 1000.5(l)(2)(ii):

The proposed Project will result in significant long-term economic benefits to participating landowners, as well as to the Towns of Charlotte, Cherry Creek, Arkwright, and Stockton, the local school districts, and Chautauqua County. When fully operational, the Project will provide up to 126 MW of electric power generation with no emissions of pollutants or greenhouse gases to the atmosphere and without the need for the use of significant quantities of water. However, 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.

Over 1700 MWs of utility-scale wind resources have been developed in New York State and the potential environmental impacts associated with the operation and construction of a wind project are generally well known. The majority of these environmental impacts will be temporary, and will result from construction activities. The primary construction-related impacts will be the disturbance of soils during the development of the construction staging areas, the O&M building, and the installation of access roads, turbine foundations, permanent meteorological towers, underground and overhead collection systems, overhead interconnection poles, collection substation, and interconnection substation. Earth moving and general soil disturbance will increase the potential for wind/water erosion and sedimentation into surface waters, particularly in areas with moderate erosion hazards.

During construction, potential direct or indirect impacts to wetlands and surface waters may also occur. Direct impacts, including clearing of vegetation, earthwork (e.g., grading activities), and the direct placement of fill in wetlands and surface waters, are typically associated with the development of access roads and workspaces around turbines. The construction of access roads, and possibly the upgrade of local public roads, is anticipated to result in both permanent (loss of wetland/surface water acreage) and temporary impacts to wetlands. The development and use of temporary workspaces will result in only temporary impacts to wetlands/streams. The installation of above-ground or buried electrical lines (transmission and interconnects) will temporarily disturb streams and wetlands during construction as a result of clearing (brushhogging, or similar clearing method requiring no removal of rooted woody plants), potential conversion of wetland communities as a result of construction activities (i.e., forested to scrub-shrub) and soil disturbance from burial of the electrical 34.5 kV collection lines or from pole installation along the overhead collection and/or transmission lines. Indirect impacts to wetlands and surface waters may result from sedimentation and erosion caused by adjacent construction activities (e.g., removal of vegetation and soil disturbance).

Project construction will also result in temporary and permanent impacts to vegetation and wildlife habitat. 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. Habitat fragmentation is also a potential Project-related impact, which divides once continuous, large populations into many smaller ones, and can be a significant threat to threatened and endangered species.

In addition to construction impacts, impacts associated with operation and maintenance of the Project may be associated with turbine visibility from some locations within the area. Project operation may also produce shadow flicker and sound at some receptor locations (residences), a permanent loss of forest land, wildlife habitat changes, and some level of avian and/or bat mortality associated with bird/bat collisions with the turbines. Additional information regarding potential Project impacts is included in Section 2.0 below.

With careful planning and design, many of the potential impacts associated with wind facilities can be avoided or minimized to be compatible with the surrounding areas. To the extent that certain impacts cannot be avoided, mitigation measures can be implemented to reduce the environmental impact from the Project. With respect to general avoidance, minimization, and mitigation measures, the following information is provided in accordance with 16 NYCRR § 1000.5(l)(2)(v) and (vi):

Compliance with the Conditions of the Article 10 Certificate, and other various federal regulations, as well as certain applicable state and local regulations governing the development, design, construction and operation of the proposed Project will serve to avoid and minimize adverse impacts. Construction activities and Project engineering will be in compliance with applicable state and local building codes and federal OSHA guidelines to protect the safety of workers and the public. Federal and applicable state permitting typically required by the USACE and/or the NYSDEC will serve to protect water resources, along with implementation of a state-approved SPDES permit. Coordination between state and federal agencies will ensure that natural resource impacts are avoided to the extent practicable and that minimization and mitigation programs are in place to monitor potential impacts and ensure effective mitigation is in place. Highway permitting typically authorized at the local, county, and state level will assure that safety, congestion, and damage to highways in the area is avoided or minimized. In addition, the final Project layout will be in accordance with various siting criteria, guidelines, and design standards that serve to avoid or minimize adverse environmental impacts. These include:

- Siting turbines in compliance with all local set-back requirements to minimize noise, shadow flicker, and public safety concerns.
- Using existing farm roads or logging roads for turbine access whenever practical, to minimize impacts to soil, ecological, and agricultural resources.
- Minimizing the number of stream and wetland crossings.
- Designing all electrical lines in a manner that minimizes the possibility of stray voltage.
- Siting turbines in open field areas when possible to minimize forest clearing and impacts to habitat.
- Minimizing overhead transmission lines and designing any overhead transmission line in accordance with Avian Power Line Interaction Committee (APLIC) guidelines to minimize impacts on birds.
- Limiting turbine lighting to the minimum allowed by the FAA to reduce nighttime visual impacts, and following lighting guidelines to reduce the potential for bird collisions.
- Construction procedures that follow Best Management Practices for sediment and erosion control.
- Designing, engineering, and constructing the Project in compliance with various codes and industry standards to assure safety and reliability.
- Installing turbines with appropriate grounding and redundant shutdown/braking capabilities to minimize public safety concerns.
- Complying with the NYSA&M guidelines in order to minimize impacts on agricultural land and farming practices.

Project development, construction and operation will also include specific measures to mitigate potential impacts to specific resources, which are anticipated to generally include the following:

- Developing and implementing various plans to minimize adverse impacts to air, soil, and water resources, including a dust control plan, sediment and erosion control plan, and Spill Prevention, Control, and Countermeasure (SPCC) plan.
- Documenting existing road conditions, undertaking public road improvement/repair as required to mitigate impacts to local roadways, and entering into a Road Use Agreement with the municipalities.
- Employing an environmental monitor/inspector to oversee construction activities at sensitive areas such as stream and wetland crossings.
- Implementing an Invasive Species Control Plan.
- Implementing a Blasting Plan, if required.
- Developing and implementing a complaint resolution procedure to address landowner concerns throughout Project construction and operation.

- Preparing a historic resource mitigation program to be developed in consultation with the State Historic Preservation Office (SHPO).
- Preparing a compensatory wetland mitigation plan, if required, to mitigate impacts to streams and wetlands.
- Entering into a Payment in Lieu of Taxes (PILOT) agreement with the local taxing jurisdictions to provide a significant predictable level of funding for the towns, county, and school districts.
- Developing of an emergency and fire response plan with local first responders.
- Implementing a Decommissioning Plan.

With respect to the remaining PSS requirements set forth at 1000.5(l), as previously indicated a content matrix has been prepared and is included in Section 3.0. This matrix cross references all requirements of 1000.5(l)(2) with the sections/information provided in this PSS.

2.0 CONTENT OF APPLICATION

2.1 GENERAL INFORMATION

(1) Applicant Information

The Applicant is Cassadaga Wind LLC (Cassadaga Wind), a wholly-owned subsidiary of EverPower Wind Holdings, Inc. (EverPower). Cassadaga Wind is located at 1251 Waterfront Place, 3rd Floor Pittsburgh, PA 15222. Headquartered in Pittsburgh, Pennsylvania with offices in New York and Ohio, EverPower is a developer of utility scale wind projects. Since its founding in 2002, EverPower has used a unique approach to wind power development by partnering with landowners and communities to establish itself as a premier developer, owner, and operator of wind projects in the U.S. To date, EverPower currently has seven operational wind facilities with a nameplate capacity of approximately 752 MW, including the Howard Wind Project in Steuben County, New York, which is owned by the affiliated entity, Howard Wind LLC. The Howard Wind Project has a total generating capacity of 55.35 MWs and uses 27 Repower MM92 turbines. The first 25 turbines became commercial operational in 2011, and the two-turbine second phase became operational in 2012.

(2) Project Website

The Project website can be found at http://everpower.com/cassadaga-wind-project-ny/

(3) Public Contact

The Project's public contact is Bill Spencer, Project Manager. His contact information is:

1251 Waterfront Place, 3rd Floor
Pittsburgh, PA 15222
412-253-9403 (o)
412-578-9757 (f)
bspencer@everpower.com

(4) Principal Officer

The Principal Officer of Cassadaga Wind is Jim Spencer, Chief Executive Officer. His contact information is:

1251 Waterfront Place, 3rd Floor
Pittsburgh, PA 15222
412-253-8915 (o)
412-578-9757 (f)
jspencer@everpower.com

(5) Document Service

Generally, documents should be served on the public contact identified above. For example, comments to this PSS can be addressed to the Applicant via the public contact. The Article 10 Application will indicate if the Applicant desires service of documents or other correspondence on an agent, and if so the required contact information will be provided.

(6) Type of Business

Cassadaga Wind LLC is a privately owned limited liability company. Cassadaga Wind was formed in the state of Delaware on July 6, 2009. EverPower Wind Holdings, Inc. is the parent company of Cassadaga Wind LLC, which has a business address of 1251 Waterfront Place, 3rd Floor Pittsburgh, PA 15222.

(7) Documents of Formation

The facility will be owned by Cassadaga Wind LLC. The certification of formation for Cassadaga Wind LLC is included as Appendix C to this PSS.

2.2 TERRESTRIAL ECOLOGY AND WETLANDS

(a) Brief Description of the Proposed Facility

The proposed facility is a utility scale wind project located in Chautauqua County, New York. Project facilities will be located in four Towns: Cherry Creek, Charlotte, Stockton, and Arkwright. The proposed Project Area boundary (see Figure 2) consists of approximately 35,365 acres of private land, and the general landscape is a mix of agricultural and forest land. There are no Villages or other urban areas within the Project Area boundary.

The Project will consist of up to 62 utility scale wind turbines. The total size of the Project will be a maximum of 126 Megawatts (MW). Wind turbines will only be located in the Towns of Cherry Creek, Charlotte and Arkwright. Other proposed components will include: access roads, above and underground collection lines, above ground generator lead line, collection substation, point of interconnection substation, two permanent meteorological (met) towers, staging/laydown yards, and an Operations and Maintenance (O&M) building. The only proposed Project components in the Town of Stockton are a short section of the generator lead line and the interconnection substation.

The Application will provide a range of turbine models that may ultimately be selected. In no case will the Project consist of more than 62 turbines or be greater than 126 MW. For example, if a 3.0 MW turbine is analyzed and ultimately selected, no more than 42 turbines will be built, whereas if a 2.1 MW turbine is selected, then 60 turbines will be built. The Application will analyze potential impacts such as view shed, sound and shadow flicker based on a

62 turbine layout in order to include the maximum level of potential impacts. For example, the turbine with the longest blade will be assumed to be built in every proposed location for the purposes of analyzing potential shadow flicker impacts. The Application will clearly describe the range of project sizes based on the size of turbine models proposed.

Currently, the proposed total length of access roads is approximately 19 miles. The proposed length of combined overhead and underground collection lines that will collect power from the turbines to deliver to the collection substation is approximately 34 miles. There are expected to be up to four temporary laydown yards, one O&M building and two permanent met towers. There will be two substations, a collection substation and interconnection substation and an approximately 5.5-mile long above ground generator lead line will connect the two substations.

The Article 10 Application will clearly depict all 62 turbine locations, along with the footprint of all other Project components. The linear distances of all components will be updated in the Application based on the actual footprint that will be presented and analyzed.

(b) Brief Summary of the Application Contents

The Application will contain a complete analysis of all exhibits required under Part 1001 Content of an Application except the following that do not apply to the proposed Project:

- Exhibit 7: Natural Gas Power Facilities
- Exhibit 16: Pollution Control Facilities
- Exhibit 17: Air Emissions
- Exhibit 30: Nuclear Facilities
- Exhibit 36: Gas Interconnection
- Exhibit 37: Back-up Fuel
- Exhibit 38 Water Interconnection
- Exhibit 39: Wastewater Interconnection
- Exhibit 40: Telecommunications Interconnection
- Exhibit 41: Application to Modify or Build Adjacent

(c) Brief Description of the Public Involvement Program before Submission of Application

The first goal of the Public Involvement Program (PIP) Plan is to identify affected stakeholders. Exhibit A (Master List of Stakeholders) of the PIP presented this information. Since the PIP's final submission, that master list has been

updated based on the Applicant's consultations and meetings with stakeholders. An updated Master List of Stakeholders is presented in Appendix D of this PSS. The next step in PIP implementation is consultation with stakeholders. In its PIP, the Applicant established a prescriptive plan for consulting with stakeholders (see Exhibit B of the PIP). The Applicant has completed the pre-PSS consultations set forth in Exhibit B and, in many cases, has had additional stakeholder meetings and communications. The results of these meetings are summarized in the Meeting Log, and the most recent Meeting Log is included as Appendix B to this PSS. The Meeting Log will continue to be updated and filed on the Siting Board website through the entire PSS and Application process.

The Applicant also distributed the two stakeholder mailings and held two open houses, both of which included the following information:

- Project and company fact sheet
- Department of Public Service's prepared Article 10 "Consumer Presentation"
- Projects maps from the PIP
- Summary of the Article 10 process

The Applicant has a Project specific website as well as a toll free number to call with any questions and comments on the Project. There is also a Project Facebook page through which stakeholders and the public can submit comments and questions on the Project. The Applicant has provided paper copies of all documents presented at the open houses at the following repositories:

- Cassadaga Branch Library
- Sinclairville Free Library
- Farman Free Library Association of Ellington

All library addresses are provided on the Project website and were presented in the open houses. Electronic copies of major Project documents are on the Project website and all Article 10 documents and filings are on the Project-specific website maintained by the Siting Board.

The Applicant successfully held two open houses within the Project area in accordance with the PIP. The open houses were well attended and served to educate the public and stakeholders on the Project and the Article 10 process. Based on feedback from the open houses, the Applicant gave additional presentations on the Project's timeline and Article 10 process at the Town Board meetings of Cherry Creek and Charlotte.

Prior to submission of the Article 10 Application, the Applicant intends to continue stakeholder outreach. The Applicant will do a mass mailing to all stakeholders following submission of the PSS to provide an update on the Project, invite comments, and remind the stakeholders of the comment period timeframe. The Applicant will continue to attend municipality meetings and will hold at least one additional open house prior to submitting the Application. Finally, the Applicant will also attempt to identify additional community events in which it would participate. These outreach efforts will be tracked in a table in the Monthly PIP tracker submissions filed with Siting Board.

(d) Brief Description of the Public Involvement Program after Submission of Application

The Applicant will continue to engage stakeholders following submission of the Application. The Applicant will continue to attend Town Board meetings at the host municipalities. In addition, the Applicant will continue to meet with other local public stakeholders such as the Town and County road departments.

The Applicant will also continue communication with non-public entities as identified in the PIP and through outreach activities. For example, the Applicant has started to engage with equestrian and snowmobile groups regarding their trail network and obtained spatial data on snowmobile trails from a local snowmobile club. The Applicant plans to continue conversations with these organizations following submission of the Application to ensure that there are no conflicts between use of the trails and the Project.

Lastly, the Applicant will continue its investment in community activities such as the Cherry Creek Independence Day Festival, for which it was a sponsor. The PIP, in Section 5.6, requires the Applicant to identify additional activities to encourage stakeholder participation during the certification process including hearing and decision phase and post-certification phase. These additional activities may include more open houses, participation in community events, or Project update mailings. The Applicant will identify these additional activities and include additional detail/description in the Application.

All of the above ongoing PIP activities will continue to be tracked and filed in the monthly meeting log. During the two public open house meetings, a variety of informal conversations and questions/answers occurred between the public, local municipal representatives and the Applicant. However, as of the filing of this PSS, the Applicant has not received any written comments or any calls to the established 1-800 number. The Applicant will respond to suggestions and written comments or questions through a detailed response to the commenter and will summarize the response in the meeting log.

In addition to the PIP activities, the Project has recently experienced some positive local press coverage. Specifically, on August 5, 2015 the Chautauquan Daily published an article about the Cassadaga Wind Project and

the associated benefits that will be realized at the local level. The article can be found at http://chqdaily.com/2015/08/05/something-in-the-air-wind-farm-to-be-built-in-chautauqua-county/?utm_content=buffer560ff&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer.

(e) Brief Overall Analysis

This section will provide an overview analysis of how the relevant and material facts from the Application, together with the information gleaned from the studies conducted in support of the Application, provide a basis for the Siting Board to make the required Findings on the proposed Project and a decision to grant the Certificate..

2.3 LOCATION OF FACILITIES

(a) Topographic Maps

The Article 10 Application will provide maps showing the location of the components of the major electric generation facilities, interconnection and related facilities associated with the proposed Project including the turbines, access roads, electrical interconnect/collection system, generator lead line, collection and point-of-interconnect substations, permanent meteorological towers, operations and maintenance (O&M) building, and staging/laydown areas. These Project components will be mapped on the 2013 (or more recent) version of the United States Geological Survey (USGS) 1:24,000 edition Cassadaga, Hamlet, and Cherry Creek topographic quadrangles available from the USGS National Map Viewer, which will include such features as contours, transportation with road names, streams and other water features, etc.

(1) Proposed Major Electric Generating Facility Locations

For the purposes of the Article 10 Application, the Project Site will be defined as those parcels under lease (or option for lease) with Cassadaga Wind LLC for the location of all Project and related facilities. A map(s) of all Project components within the Project Site will include the following:

- wind turbines
- permanent meteorological towers
- access roads
- buried electrical collection
- overhead electrical collection
- collection substation
- O&M building

- laydown/staging areas
- centerline of the 115 kilovolt (kV) generator lead line
- point of interconnect substation

As explained in Section 2.9 on Alternatives, the presentation of the location of alternatives in Exhibit 3 of the Article 10 Application will be limited to locations under control of or owned by the Applicant.

(2) Interconnection Location

As indicated above, all Project components will be located within the defined Project Site and therefore will be mapped in accordance with (a)(1) of this section of the Article 10 Application.

(3) Location of Ancillary Features

It is not anticipated that this Project will require any additional off-site ancillary facilities.

(4) Location of Article VII Transmission Lines Not Subject to Article 10

It is not anticipated that this Project will have any components that are subject to Article VII of the PSL. As currently conceived, the 115kV line will be approximately 5.5 miles in length. Additional information regarding the design and length of this line will be provided in the Article 10 Application.

(5) Study Area

As indicated in Section 2.24 of this PSS (Visual Impacts), a preliminary visibility assessment and identification of visually sensitive resources will include the area within 10 miles of the proposed Project boundary. The purpose of including areas between 5 and 10 miles from the Project will be to identify any regionally significant areas or resources of concern and to assist in determining whether a 5-mile radius study area is appropriate for this Project. Please note that other resources have different study areas (e.g., wetland and stream delineation study area), which are addressed in the respective sections below.

(b) Municipal Boundary Maps

Data from the United States Census Bureau (TIGER/line files), the NYS GIS Clearing House, and from ESRI Online will be used to map the Project in relation to municipal boundaries, taxing jurisdictions, and designated neighborhoods or community districts.

(c) Description of Proposed Facility Locations

The Project will be located on leased private land in the Towns of Charlotte, Cherry Creek, Arkwright, and Stockton, Chautauqua County, New York. The Project will include up to 62 wind turbines and associated access roads, electrical collection lines, O&M building, permanent meteorological towers, staging areas, a collection substation, a 115 kV generator lead line and a Point-of-Interconnect ("POI") substation. A written description of the relation of the Project to affected municipalities, taxing jurisdictions, and designated neighborhoods or community districts will be provided in the Article 10 Application.

2.4 LAND USE

(a) Map of Existing Land Uses

A map of existing land uses, within a 5–mile radius of the Project, will be prepared using publicly available data from the Chautauqua County GIS Department and the Classification codes of the New York Office of Real Property Services (NYSORPS). It is anticipated that the following classification codes will be used: 100 – Agricultural; 200 – Residential; 300 – Vacant Land; 400 – Commercial; 500 – Recreation and Entertainment; 600 – Community Services; 700 – Industrial; 800 – Public Services; 900 – Wild, Forested, Conservation Lands and Public Parks. Land use will be further described, refined, and mapped based on site-specific investigations and documentation.

(b) Transmission Facilities Map

Existing overhead and underground major facilities for electric, gas or telecommunications within a 5–mile radius of the Project will be obtained from Platts, a division of McGraw Hill Financial, Inc. for use in the required Project mapping.

(c) Tax Parcel Map

Parcels where Project components will be located and all those within 2,000 feet of such properties, showing land use, tax parcel number, and owner of record of each property, and any publically known proposed land use plans for any of these parcels, will be mapped using data from the Chautauqua County GIS Department.

(d) Zoning District Map

A map delineating existing and proposed zoning districts within a 5–mile radius of the Project will be created by data obtained from local governments. The Article 10 Application will also include an associated description of the permitted and prohibited uses within each zone.

(e) Comprehensive Plan

The Article 10 application will include a detailed review of the Chautauqua County Comprehensive Plan, adopted by the Chautauqua County Board of Legislators in April of 2011 (http://www.planningchautauqua.com/comp_plan/index.htm). The Application will also describe if the proposed project area land use is consistent with the Chautauqua County Comprehensive Plan. Please note that the Towns of Charlotte, Cherry Creek, Stockton, and Arkwright do not have comprehensive plans.

(f) Map of Proposed Land Uses

Maps of publicly known proposed land uses within a 5–mile radius of the Project will be developed from discussions with local planning officials, review with them of pending applications, open houses, the PIP implementation/PSS development process, and other sources. For example, such discussions have resulted in data associated with existing local snowmobile trails, state forest trails, and equestrian trails and potential future uses and plans. The Applicant used a Chautauqua County Parks map to digitize the state forest trails. The Applicant also contacted the Chautauqua County Snowmobile Club and received a map of all known snowmobile trails. There are no plans for new snowmobile trails to the Applicant's knowledge. The Applicant used this map to digitize snowmobile trails within the Project Area. The equestrian club has indicated that they can provide data and/or a map of existing and future equestrian trails. The Applicant will include this information in the Application. The Applicant will hold an additional open house prior to the Application being submitted to offer an additional opportunity for the public and stakeholders to provide information on land uses.

(g) Map of Specially Designated Areas

Maps designating coastal areas, inland waterways, and other specially designated areas will be created within a 5–mile radius of the Project using the following data:

Table 1. Sources of Data To Be Used In Mapping of Specially Designated Areas

Mapping Requirement	Source
Designated coastal areas.	NYS GIS Clearinghouse, NYS Dept. of State
Inland waterways and local waterfront revitalization program areas.	NYS GIS Clearinghouse, NYS Dept. of State
Groundwater management zones.	NYS GIS Clearinghouse
Agricultural districts.	NYS GIS Clearinghouse
Flood prone areas.	NYS GIS Clearinghouse, FEMA
Critical environmental areas.	NYSDEC

(h) Map of Recreational Areas and Other Sensitive Land Uses

Maps of all recreation areas and other sensitive land uses known to the Applicant will be created within a 5–mile radius of the Project using the following data:

Table 2. Sources of Data To Be Used In Mapping of Recreational And Sensitive Areas.

Requirement	Source
Wild, scenic and recreational river corridors.	National Wild and Scenic Rivers System.
Open space.	NYS GIS Clearinghouse and local governments as available.
Areas identified in the Adirondack Park State Land Master Plan.	Not applicable
Conservation easement lands.	National Conservation Easement Database; NYS GIS Clearinghouse
State and federal scenic byways.	NYSDOT; NYS GIS Clearinghouse
Nature preserves.	NYS GIS Clearinghouse
Designated trails.	NYS GIS Clearinghouse and local Governments as available
Public-access fishing areas.	NYS GIS Clearinghouse, NYSDEC
Major communication and utility uses and infrastructure.	Comsearch.

Requirement	Source
Institutional, community and municipal uses and facilities	ESRI; TIGER/line files; NYS GIS Clearinghouse

With respect to a preliminary assessment of potential impacts of the construction and operation of the Project on recreational and other cultural resources, please note that in support of the Project's Visual Impact Assessment, the identification of visually sensitive resources was initiated in the spring of 2015, which included recreational and other land uses within the study area that may be affected by potential visibility of the Project. Specifically, EDR conducted a desktop inventory of visually sensitive resources of potential statewide significance within 10 miles of the proposed Project and a more detailed inventory (including potential locally significant resources) within a 5-mile visual study area. Aesthetic resources of statewide significance located within 10 miles of the proposed Project include 11 sites and four districts listed on the National Register of Historic Places (NRHP); the Seaway Trail National Scenic Byway, three state parks (Lake Erie State Park, Long Point State Park and Midway State Park), the Concord Grape Belt New York State Heritage Area, the Canadaway Creek Nature Sanctuary, six wildlife management areas, and Conewango Creek (included in the National Rivers Inventory for "Outstandingly Remarkable Value" due to the large adjacent ecologically/botanically significant swamp). While water bodies are not typically considered resources of statewide significance, Chautauqua Lake is included in this inventory due to its regional significance with respect to recreation and tourism.

Resources located within the 5-mile visual study area that may be regionally or locally significant/sensitive, include the Villages of South Dayton, Cassadaga, Cherry Creek, and Sinclairville; 11 hamlets; four local parks; three trails; four state forests (including Boutwell Hill State Forest, located within the Project Area) and one state fishing access point; three public schools; four state highways and one US highway; and several recreational water resources. The 5-mile visual study area also includes 44 sites that have previously been determined to be eligible for listing on the NRHP. Appendix E of this PSS is a Visual Outreach Letter that was distributed to numerous stakeholders in April 2015, and this letter includes a table of the identified visually sensitive resources. This table provides information about each site, including name, distance to the nearest proposed turbine, and the potential visibility of the Project based on a preliminary viewshed analysis[1]. Please see Section 2.24 of this PSS (Visual Impacts) for additional information.

[1] The Visual Outreach Letter includes analyses that were based on a preliminary Project layout of up to 70 turbines. Since then, the layout has been further refined, and as set forth in this PSS the Project will include up to 62 turbines. Ultimately all analyses included with the Visual Outreach Letter will be updated and presented in the Article 10 Application.

(i) Compatibility of the Facility with Existing and Proposed Land Uses

According to the NYSORPS, the Project Area consists of 10 distinct land use types. The majority of the Project Area (approximately 40.4%) is categorized as Residential, which is described as "property used for human habitation." Vacant Land, which constitutes approximately 39.3%, is described as "property that is not in use, is in temporary use, or lacks permanent improvement". Agriculture, which is defined as “Property used for the production of crops or livestock” makes up approximately 6.8% of the Project Area. Approximately 6.5% of the Site is characterized as wild, forested, conservation lands and public parks, which is described by the NYSORPS as "reforested lands, preserves, and private hunting and fishing clubs". Public roadways immediately adjacent to the Site are classified as Community Services, which are described as “property used to provide services to the general public”. The remaining land use types consist of Undefined (4.9%), Industrial (.7%), Recreation & Entertainment (.6%), Public Service (.5%), and Commercial (0.1%).

Although the local towns do not have comprehensive plans, the Project’s consistency with the Chautauqua County Comprehensive Plan, and other regional plans, is summarized below. Additional detail regarding the Project’s compatibility with existing and proposed land uses will be included in the Article 10 Application.

Plan	Relevant Goals	Project Consistencies	Project Inconsistencies
Chautauqua County Comprehensive Plan	- Capitalize on the County’s abundant water and energy resources for economic development. - Make sustainable use of local and green energy resources to benefit the local environment and economy.	- utilizing a renewable resources (wind) to generate electric power and provide local and regional economic benefits	- Maintain the County’s rural landscape, heritage, and scenic views*
Western New York Regional Sustainability Plan 2013	<u>Energy Goals</u> - Increase renewable energy generation in the region, including technologies listed in the NYS Renewable Portfolio Standard. - Support innovative energy projects that are consistent with the sustainability goals of the region and that encourage economic development. - Preserve, protect, and enhance the viability of agriculture, including agricultural lands and urban agriculture.	- utilizing a renewable resources (wind) to generate electric power and provide local and regional economic benefits - Maintaining agricultural land use patterns within the vicinity of the Project	

Plan	Relevant Goals	Project Consistencies	Project Inconsistencies
2014 Southern Tier West Region Comprehensive Economic Development Strategy	<u>Goal 3: Quality, connected places</u> - Encouragement of alternative energy utilities and creation of a regional energy purchasing alliance. - Encouragement and enhancement of renewable energy exploration and production in an environmentally sensitive manner.	- utilizing a renewable resources (wind) to generate electric power and provide local and regional economic benefits	

*The Proposed Project will help maintain agricultural land use within the County. Whether or not a wind facility negatively impacts scenic views is subjective to an extent, and this statement could be considered both a consistency and an inconsistency.

(j) Compatibility of Above-Ground Interconnection with Existing and Proposed Land Uses

It is currently anticipated that the Project will use above-ground interconnect lines where appropriate, including (but not limited to) along the edges of agricultural fields, crossing of steep terrain and public roads, and a detailed assessment of compatibility with existing and proposed land uses will be presented in the Article 10 Application.

(k) Compatibility of Underground Interconnections with Existing and Proposed Land Uses

A detailed assessment of the compatibility of underground interconnects with existing, potential, and proposed land use within 300 feet of the interconnects will be presented in the Article 10 Application. The construction of buried interconnects in open land (e.g., agricultural fields) will result in a temporary disturbance; however, construction and installation will be conducted in accordance with the NYS Department of Agriculture and Markets *Guidelines for Agricultural Mitigation for Wind Power Projects*. Therefore, permanent land use impacts associated with underground interconnects are not anticipated. In addition, to minimize impacts in forested land, buried underground interconnect will be placed in areas of existing disturbance (e.g., existing forest logging roads) to the maximum extent practicable.

(l) Conformance with the Coastal Zone Management Act

The Project location is not within a designated coastal area or in direct proximity of a designated inland waterway. Therefore, conformance with the Coastal Zone Management Act is not applicable.

(m) Aerial Photographs

In satisfaction of this requirement, the Article 10 Application will use 1-meter resolution natural color orthoimagery from the USDA's National Agriculture Imagery Program (NAIP) captured during the 2013 growing season. The aerial photograph mapping will be prepared for all land within a 1-mile radius of the Project, and will be depicted on multiple 8.5 x 11 or 11x17 sheets at a scale that will allow the identification and discrimination of natural and cultural features. Example mapping at the intended scale is included as Appendix F to this PSS.

(n) Aerial Photograph Overlays

The Project footprint, and the proposed clearing and limits of disturbance will be overlaid on aerial photographs. These maps will be created using ArcGIS software and will depict centerlines of proposed access roads and electrical collection and transmission lines, point symbols to depict turbine and permanent meteorological tower locations, and polygon symbols to depict substations, operation and maintenance buildings, and construction laydown areas. A buffer around each of these features will also be depicted to show typical limits of clearing and disturbance relative to the respective feature (e.g., 20-foot permanent width and 50-foot temporary width for access roads).

(o) Source of Aerial Photographs

The aerial photographs to be used will be those captured in April 2012 by a contractor for the NYS Division of Homeland Security and Emergency Services Office of Cyber Security and are housed on the NYS GIS Clearinghouse website (https://gis.ny.gov), unless more recent photographs are available, and readily known to be available by the Applicant.

(p) Community Character

The Project is proposed to be located in a rural portion of Chautauqua County, which is characterized by a mix of agricultural and forested land. According to the Chautauqua County website, "Farming continues to contribute to the county's economy, as well as the associated food processing industry. With 1557 commercial farms (1997), 15,500 acres of grapes, and eight wineries, Chautauqua County has more farms and produces more grapes than any other county in New York State." According to the *Chautauqua County Profile 2013* obtained from the Chautauqua County Department of Planning & Economic Development website, there are 1,658 farms with an average size of 142 acres, and 1,335 of these farms have been present 10 years or more. A detailed description of community character will be

included in the Article 10 Application, including defining features and interactions of the natural, built and social environment and taking into account local land use and zoning. The Project will introduce new visible elements (i.e., wind turbines) into the existing landscape, which could be considered a change in community character for the primarily rural residential areas that surround the Project. However, the visibility and visual impact of the wind turbines will be highly variable based upon distance, number of turbines in the view, weather conditions, sun angle, extent of visual screening from topography and vegetation, scenic quality, viewer sensitivity and/or existing land uses. It should be noted that the host municipalities have adopted regulations for the purpose of promoting the effective and efficient use of the local wind resource through allowing wind turbines (referred to as wind energy conversion systems [WECS] in the local laws) as a permitted use with a special use permit. Creation of a special use is a determination by a Town's legislative body that a use is compatible with the community. The Application will review the applicable zoning regulations and land uses, along with the history of land uses in the areas of the Towns, such as oil and gas exploration, where the Project is proposed to be located and assess the compatibility of the Project with the existing and proposed future uses with respect to community character.

In addition, as indicated in Section 2.24 of this PSS (Visual Impacts), the definition of landscape types found in a given study area provides a useful framework for the analysis of available visual resources and viewer circumstances. These landscape types, referred to as Landscape Similarity Zones, will be defined based on the similarity of features such as landform, vegetation, water, and land use patterns.

The Article 10 Application will also include numerous Project-specific studies, such as a Visual Impact Assessment (see Exhibit 24), Noise Impact Assessment (see Exhibit 19), Cultural Resources Studies (see Exhibit 20), and a Shadow Flicker Assessment (see Exhibit 24). In addition to evaluating potential effects on their respective resources, these studies will also be used to evaluate the Project's potential effects on community character.

Any effect Land Use might have on the Chautauqua County Jamestown (JHW) and Dunkirk (DKK) airports along with the Spaulding Aerodrome (28NY) will be addressed in Exhibit 25 (Effect on Transportation) of the Article 10 Application.

2.5 ELECTRIC SYSTEM EFFECTS

(a) System Reliability Impact Study

Siemens Power Technologies International prepared a System Reliability Impact Study (SRIS) for the Project on behalf of the New York Independent System Operator (NYISO) in 2015. The SRIS will be provided as an Appendix to the Article 10 Application.

(b) Potential Reliability Impacts

The SRIS evaluated a number of power flow base cases, as provided by the NYISO, including 2018 summer peak, winter peak, and light load. Potential reliability impacts are summarized below. The Article 10 Application will describe the impact of the proposed facility on reliability in the State in greater detail.

In base case normal operating conditions, the power flow steady state analyses indicate that the Project will cause no thermal violations for summer peak and winter peak case loadings. Under contingency operating conditions with the Project, the summer peak case shows some overloads on the 230 kV and 115 kV lines under several contingencies. The addition of the Project reduced the overload on these lines, thus causing a positive impact on the system. The addition of the Project increased the 34.5 kV post-contingency voltage by as much as 2% and exceeded its 105% limit. Post-contingency load tap changes in the 115/34.5 kV transformers reduced the 34.5 kV voltages to acceptable levels.

For the winter peak case, the Project caused an adverse impact of about 11% on the Hartfield 115/34.5 kV transformer following the double circuit contingency. However, this overload can be mitigated by the construction of a new sub-T station 'West Asheville' (115-34.5kV 25 MVA), located at the junction of Dunkirk-Falconer Line 160 and Sherman-Ashville Line 863, a reliability project approved by National Grid. Hence, the Project does not require any additional network upgrades for interconnection. Voltage violations at some buses near the point of interconnection also occurred under several contingencies with the addition of the Project, but as with the summer peak case, load tap changes in the 115/34.5 kV transformers reduced most of the 34.5 kV voltage to acceptable levels (Siemens PTI, 2015).

(c) Benefits and Detriments of the Facility on Ancillary Services

As described above in (b), adding the Project to the summer peak case will be beneficial under contingency operating conditions by reducing overload on the 230 kV and 115 kV lines. An adverse impact was identified as a result of adding the Project to the winter peak case, but this overload can be resolved by construction of a new substation that is already approved by National Grid. The Article 10 Application will provide greater detail on benefits and detriments of the facility on ancillary services.

(d) Reasonable Alternatives to Mitigate Adverse Reliability Impacts

Load tap changes in the 115/34.5 kV transformers will be used to reduce post-contingency 34.5 kV voltages to acceptable levels.

(e) Estimated Change in Total Transfer Capacity

The Article 10 Application will provide an estimate of the increase or decrease in the total transfer capacity across each affected interface. If a forecasted reduction in transfer capability across affected interfaces violates reliability requirements, the discussion will include an evaluation of reasonable corrective measures that could be employed to mitigate or eliminate said reduction.

(f) Criteria, Plans, and Protocols

(1) Applicable Engineering Codes, Standards, Guidelines, and Practices

The facility and interconnection will be designed in accordance with applicable standards, codes, and guidelines. Such standards include (but are not limited to):

- ANSI - American National Standards Institute,
- IEEE - Institute of Electrical and Electronic Engineers,
- ASTM - American Society for Testing and Materials,
- OSHA - Occupational Safety and Health Administration,
- NESC - National Electrical Safety Code,
- ASCE – American Society of Civil Engineers,
- NEC – National Electric Code,

- NERC – North American Electric Reliability Council,
- NPCC - Northeast Power Coordinating Council, Inc.,
- NYSRC - New York State Reliability Council,
- Building Code of New York State,
- Germanischer Lloyd, and
- Underwriters Laboratories.

The Article 10 Application will describe which codes and standards are applicable to each facility and interconnection component.

(2) Generation Facility Type Certification

The Article 10 Application will provide the type certification for the wind turbine model to be installed at the proposed facility. This submittal will also include any supporting documents issued by the certifying organization.

(3) Procedures and Controls for Inspection, Testing, and Commissioning

Turbine commissioning will occur once the wind turbines and substation are fully installed and the NYISO is ready to accept transport of power to the New York grid. The commissioning activities will consist of testing and inspection of electrical, mechanical, and communications systems. The Article 10 Application will fully describe these procedures, which are summarized below:

- Equipment Required: Support trucks, which will be driven to the construction site.
- Materials brought on site: Gearbox oil, lubricating grease, two temporary portable generators. The only chemicals required for this phase are oils, gasoline, and grease used to operate construction equipment and portable generators, gearbox oil, and lubricants. Fuel-handling will be conducted in compliance with the required mitigation measures and the Project-specific NYSDEC approved SWPPP.
- Timing: This will preferentially be completed in late spring or summer to take advantage of typically drier weather. If necessary, this activity can be completed in the spring or fall or winter depending on weather conditions.
- Material generated: Some packing material waste will be generated. The recyclable material will be separated from the non-recyclable material on site. Both streams of waste will be removed by a licensed sub-contractor.

(4) Maintenance and Management Plans, Procedures, and Criteria

Operation and maintenance of the Project will follow industry standard best management practices, to be incorporated into the Project-specific plans and procedures. To maintain and operate the facility, the Project will be staffed by full time technical and administrative employees. The primary workers will be wind technicians, along with a site supervisor and administrator. O&M staff offices will be located in the O&M building. Staff will be on duty during normal business hours, with weekend shifts and extended hours as required. The Project will always have an on-call local technician who can respond quickly in the event of any emergency. In the event of turbine or facility outages, the supervisory control and data acquisition (SCADA) system will send alarm messages to on-call technicians to notify them of the outage.

The wind turbines will typically be operating whenever wind speeds are within the operating range and there are no component malfunctions or NYISO grid constraints. Each turbine has a comprehensive control system that monitors the subsystems within the turbine and the local wind conditions to determine whether the conditions are suitable for operation. If an event occurs which is considered to be outside the normal operating range of the turbine (such as low hydraulic pressures, unusual vibrations, or high generator temperatures), the wind turbine will immediately and automatically shut down and report the condition to the operations center. A communication line connects each turbine to the operations center, which closely monitors and, as required, controls the operation of each turbine. The wind turbine system will be integrated with the electric interconnection SCADA system to ensure that the Project critical controls, alarms, and functions are properly coordinated for safe and reliable operation.

The Project's Operations and Maintenance Plan will be submitted with the Article 10 Application. Additional information about what this plan will contain is provided below in section (i).

(g) Heat Balance Diagrams

Since there is no thermal component to the facility, this requirement is not applicable to the proposed Project.

(h) Interconnection Substation Transfer Information

(1) Description of Substation Facilities to be Transferred and Timetable for Transfer

National Grid is the connecting transmission owner for this Project. The point of interconnection (POI) will be National Grid's existing 115 kV Moon Switching Station, which will be rebuilt to a six (6) breaker ring bus and will connect to both 115 kV lines #161 and #162. The Hartfield Substation will be connected in one bay and the Applicant's collection station connected in another. The Article 10 Application will describe the substation facilities to be transferred and provide a timetable for the transfer.

(2) Transmission Owner's Requirements

The Article 10 Application will describe how the substation-interconnection design meets the transmission owner's requirement. In summary, the POI will be designed by National Grid (i.e., the transmission owner), and as such, will be in accordance with their requirements.

(3) Operational and Maintenance Responsibilities

National Grid, as the transmission owner, will define the operational and maintenance responsibilities for the POI substation. The Applicant will assume such responsibilities, to be implemented in accordance with the transmission owner's standards, as directed by National Grid.

(i) Facility Maintenance and Management Plans

The Applicant will be responsible for the operation, inspection, and maintenance requirements of all Project components. These activities can generally be classified as scheduled inspection/maintenance, unscheduled maintenance/repairs, or electrical system inspection/maintenance. Each of these are briefly described below.

(1) Turbine Maintenance and Safety Inspections

All maintenance and repair activities will be in accordance with applicable permits and associated conditions. To the extent practicable, repairs will be facilitated through use of existing Project-related infrastructure (e.g., permanent gravel access roads, crane pads, etc.). If existing infrastructure is not adequate to accommodate certain repairs, any additional infrastructure improvements will be conducted in accordance with the applicable regulations (e.g., widening of an access road within or adjacent to a wetland will be conducted in accordance with Section 401 and 404 of the Clean Water Act, and Article 24 of the Environmental Conservation Law, as applicable).

Scheduled Inspection and Maintenance

Routine and preventative wind turbine maintenance activities are scheduled at six month intervals with specific maintenance tasks scheduled for each interval. Maintenance is done by removing the turbine from service and having two to three wind technicians climb the tower to spend a full day carrying out maintenance activities. Consumables such as various greases used to keep the mechanical components operating and oil filters for gearboxes and hydraulic systems are used for routine maintenance tasks. Following all maintenance work on the turbine, the area is cleaned up. All surplus lubricants and grease-soaked rags are removed and disposed of as required by applicable regulations. All maintenance activities will adhere to the same spill prevention industry best practices undertaken during the construction phase.

Unscheduled Maintenance/Repairs

Modern wind turbines are very reliable and the major components are designed to operate for up to 30 years. However, wind turbines are large and complex electromechanical devices with rotating equipment and many components. As a result, at times, turbines will require repair, most often for small components such as switches, fans, or sensors; typically, such repairs will take the turbine out of service for a short period of time until the component is replaced. These repairs can usually be carried out by a single technician visiting the turbine for several hours. Events involving the replacement of a major component such as a gearbox or rotor are not typical. If they do occur, the use of large equipment, sometimes as large as that used to install the turbines, may be required. Typically only a small percentage of turbines would need to be accessed with large equipment during their operating life.

(2) Electric Transmission and Collection Line Inspections

(i) Vegetation Clearance Requirements

Vegetation control will be required immediately adjacent to the interconnect line to ensure safe operation and prevent damage to the line. The Article 10 Application will provide the vegetation clearance requirements for the gathering and interconnect lines.

(ii) Vegetation Management Plans and Procedures

Vegetation will be managed in accordance with best management practices, to be incorporated into the Project-specific plans and procedures. The Project's Vegetation Management Plan will be submitted with the Article 10 Application.

(iii) Inspection and Maintenance Schedules

The electrical system will require periodic preventative maintenance. Routine maintenance will include condition assessment for aboveground infrastructure and protective relay maintenance of the substation, in addition to monitoring of the secondary containment system for traces of oil. The Article 10 Application will contain an inspection and maintenance schedule for the electrical system.

(iv) Notifications and Public Relations for Work in Public Right-of-Ways

If work is to be performed in a public right-of-way, notification and any permit(s) to work will be addressed with the appropriate agencies prior to starting the work.

(v) Minimization of Interference with Distribution Systems

The Article 10 Application will describe measures that will be used to minimize interference with electric and communications distribution systems.

(j) Vegetation Management Practices for Substation Yards

The Article 10 Application will describe vegetation management practices for switchyard and substation yards, specifications for clearances, inspection and treatment schedules, and environmental controls to avoid off-site effects. The vegetation management practices for substation yards will be included in the Project's Vegetation Management Plan, to be submitted with the Article 10 Application in accordance with Section (i)(2)(ii) above.

(k) Criteria and Procedures for Sharing Facilities with Other Utilities

The Article 10 Application will describe the criteria and procedures by which the Applicant will review proposals for sharing above ground facilities with other utilities (e.g., communications, cable, phone, cell phone relays, etc.).

(l) Availability and Expected Delivery Dates for Major Components

The Article 10 Application will provide an assessment of equipment availability and expected delivery dates for major Project components, including wind turbines and transformers.

(m) Blackstart Capabilities

Blackstart is the procedure to recover from a total or partial shutdown of the transmission system. It entails isolated power stations being started individually, and then gradually being reconnected to each other to re-establish an interconnected system. In general, power stations need an electrical supply to start up; under normal operation this supply would come from the transmission or distribution system. Under emergency conditions, blackstart stations receive this electrical supply from small auxiliary generating plant located onsite. Not all power stations have or need blackstart capability (National Grid, 2015). Wind energy facilities, such as the proposed Project, are not suitable for blackstart because there is no guarantee that wind would be blowing at sufficient speed.

2.6 WIND POWER FACILITIES

(a) Statement of Setback Requirements/Recommendations

The primary goal of wind turbine siting and design is to maximize the capture of wind energy to assure economic viability, while providing a design that minimizes environmental impacts and meets turbine vendor site suitability requirements and local law considerations. As such, this is an iterative process with the final Project array design reflecting a balance of these factors. The proposed location and spacing of the wind turbines and support facilities is initially based upon site develop-ability, landowner participation, wind resource assessment, environmental resource factors, proximity to existing transmission and review of the site's zoning constraints. Factors considered during preliminary and final placement of turbines and other Project components include the following:

- Wind Resource Assessment
- Distance from Residences and Other Buildings, Non-participating Land Parcels, Roads, and Other Infrastructure
- Sufficient Spacing (i.e., avoid turbine wake effects)
- Agricultural Protection Measures
- Biological and Cultural Resources
- Unusual Landform Areas
- Wetland Avoidance
- Minimization of Visual, Shadow Flicker and Noise Impacts

As indicated previously, the Project Area has a rural and low-density character, and high density residential land use is not extensive. One of the primary objectives of developing the Project layout has been to avoid and/or minimize interaction with sensitive natural resources (e.g., wetlands, streams). More detailed discussion on the Project's

relationship to these features and other resources, such as schools, recreational lands, and historic properties is provided in other sections of this PSS, and will be further detailed in the respective sections of the Article 10 Application.

(1) Manufacturer's Setback Specifications

The Article 10 Application will outline how the Applicant plans to meet the manufacturer's setback specifications, if any. The Applicant is not currently aware of any such manufacturer specifications; however, the Article 10 Application will provide a review of manufacturer setback specifications (to the extent available) for the range of potential turbines to be presented in the Application.

(2) Applicant's Internal Setback Standards

When identifying appropriate setbacks for a given project, the Applicant generally considers the following: a) abiding by any applicable regulations, b) ensuring the safety of public and neighboring projects by siting turbines away from non-participating property lines, roads and other public infrastructure at a distance of at least the maximum blade tip height, and c) minimizing impacts at residential or other sensitive structures related to sound or shadow flicker.

(3) Setbacks Required by Local Law or Ordinance

Zoning jurisdiction within Chautauqua County is at the Town level. The Towns of Arkwright, Charlotte, Cherry Creek, and Stockton have adopted laws specific to wind energy development. The following table provides a summary of the required setbacks in each town.

Table 3: Setback Requirements for the Towns of Arkwright, Charlotte, and Cherry Creek[1]

Setback Requirement	Town of Arkwright	Town of Charlotte	Town of Cherry Creek
Site Boundaries	500 feet from all Project site boundaries.	500 feet from all Project site boundaries. Except the setback shall be 500 feet where the boundary is with state, county, town, or village owned property.	500 feet from all Project site boundaries. Except the setback shall be 500 feet where the boundary is with state, county, town, or village owned property.
Residences	1,200 feet from residences outside of the Project site, measured from the exterior of the residence.	1,000 feet from all residences, including those on the Project site and those not participating in the Project.	1,000 feet from residences outside of the Project site, measured from the exterior of the residence.
Public Roads	500 feet from all public roads.	500 feet.	500 feet.
Other Wind Turbines		1,000 feet.	
Wetlands		100 feet from the edge of state identified wetlands. May be adjusted at the discretion of the reviewing body.	100 feet from the edge of state identified wetlands. May be adjusted at the discretion of the reviewing body.
Gas Wells		500 feet from gas wells, unless waived in writing by the property owner.	500 feet from gas wells, unless waived in writing by the property owner and well owner.
Non-Wind Turbine Structure or Aboveground Utility	1.5 times the Total Height of the wind turbines from any existing non-wind turbine structure or any existing aboveground utilities, unless otherwise approved by the Town Board.		
Noise Related	Adequate distance from existing residences such that turbines are located outside a L_{90} – 50 dBA noise level zone. In the event a turbine emits a steady pure tone, the threshold is reduced to L_{90} – 45 dBA.	Adequate distance from existing residences such that turbines are located outside a L_{90} – 50 dBA noise level zone. In the event a turbine emits a steady pure tone, the threshold is reduced to L_{90} – 45 dBA.	Adequate distance from existing residences such that turbines are located outside a L_{90} – 50 dBA noise level zone. In the event a turbine emits a steady pure tone, the threshold is reduced to L_{90} – 45 dBA.

[1]The Project will not include any turbines in the Town of Stockton.

(b) Explanation of the Degree to which the Facility Layout Accommodates Turbine Setbacks

The Project will meet or exceed all turbine setback requirements set forth in the Towns of Arkwright, Charlotte, and Cherry Creek zoning regulations.

(c) Third-party Review and Certification of Wind Turbines

Equipment reliability is an important criterion in turbine selection. The Applicant has not made a final determination of the wind model or manufacturer. However, based on preliminary evaluations, 2.0 to 3.5 MW represent the range of turbine size types suitable for this Project. These turbines are independently certified as meeting international design standards by independent product safety certification organizations such as Germanischer Lloyd and Underwriters Laboratories. These certifications require that the wind turbines have a design life of at least 20 years for the specified wind regime. The wind regime considers factors such as weather extremes, average wind speed, wind gusts, and turbulence intensity.

In light of the fact that the turbine will not be selected at the time the Application is submitted, the Applicant will be seeking a waiver pursuant to 16 NYCRR 3.3(c) from the requirement to submit third party review and certification regarding the proposed turbines. The reason the waiver is necessary is because of turbine market volatility, which can affect turbine availability, price and the ability to select particular turbines for a site, and would prohibit the inclusion of potential new technologies. The Applicant proposes to submit this information as a compliance filing post-Certification and will ultimately select a turbine that has achieved the necessary certifications and qualifications, which will be provided to the Siting Board.

(d) Wind Meteorological Analyses

The intent of the wind resource analysis for this Project is to optimize the turbine layout to maximize energy production within the context of the existing, site-specific constraints. During the course of the wind analysis, micro-scale wind modeling tools such as WAsP (www.wasp.dk) and WindSim CFD (Computational Fluid Dynamics - www.windsim.com) are utilized in order to develop the energy yield analysis for the given layout. The WAsP model is a linear flow model, which will determine the resultant wind regime at all turbine positions given data from on-site meteorological towers and high-resolution terrain from a digital elevation model. Two meteorological towers were erected to generate the site-specific data necessary for modeling purposes. A preliminary turbine layout is then devised utilizing the resulting wind resource map from the WAsP model. The WindSim CFD model is a more advanced wind flow model and may be used to validate WAsP model results in areas of more complex terrain within the project site. WindSim is also used to maximize turbine efficiency utilizing multiple turbine wake models in order to determine the most production turbine array due to wake loss. The final layout is determined by correlating the most energetic layouts with the most constructible and logistically economical designs. The detailed results of these analyses are proprietary and are typically retained as trade secrets. Therefore, a copy of the wind meteorological analysis will not be provided with the Article 10 Application, but rather will be provided to DPS under separate cover.

The Applicant will seek the requisite trade secret protection for this information pursuant to NY Public Officer's Law Section 87(2)(d) and 16 NYCRR 6-1.3.

The Article 10 Application will demonstrate that the proposed facility will comply with all relevant applicability criteria of the Northeast Power Coordinating Council Inc., New York State Reliability Council, and the local interconnecting transmission utility, including any criteria regarding blackstart and fuel switching capabilities. These criteria will be identified in consultation with DPS, NYISO, and the local transmission owners.

2.7 NATURAL GAS POWER FACILITIES

The proposed Project is not a natural gas power facility, and as such, the requirements of this exhibit are not applicable to this Project.

2.8 ELECTRIC SYSTEM PRODUCTION MODELING

(a) Computer-based Modeling Tool

The analyses presented in this section of the Article 10 Application will be developed using GEMAPS, PROMOD, or a similar computer-based modeling tool. Prior to preparing this exhibit, the Applicant shall consult with DPS and NYSDEC to develop an acceptable input data set to be used in the simulation analyses, including modeling for the Applicant's proposed facility and inputs for the emissions analysis. Portions of the data to be provided below are proprietary and must be filed under a protective agreement. The data that is proprietary, which are typically retained as trade secrets, will be provided to DPS under separate cover. The Applicant will seek the requisite trade secret protection for this information pursuant to NY Public Officer's Law Section 87(2)(d) and 16 NYCRR 6-1.3.

(1) Estimated Statewide Levels of Greenhouse Gas Emissions

Wind turbines generate electricity without combusting fuel or releasing pollutants into the atmosphere. The operation of this Project is anticipated to have a positive impact on air quality by producing electricity with zero emissions (except for very small emissions from vehicles servicing the facility). The Article 10 Application will estimate the statewide levels of SO2, NOx, and CO2 emissions both with and without the proposed facility.

(2) Estimated Prices Representative of all NYISO Zones

The Article 10 Application will estimate the minimum, maximum, and average annual spot prices representative of all NYISO Zones within the New York Control Area, both with and without the proposed facility.

(3) Estimated Capacity Factor

The Article 10 Application will provide the estimated capacity factor for the proposed facility.

A wind resource campaign consisting of at least two meteorological towers equipped with anemometers, wind vanes, temperature and pressure sensors will be completed with at least 12 full and concurrent months of measurements at multiple heights from the surface to 60 meters above ground level. The data from these measurements is validated and screened for erroneous values to create annual wind frequency distributions at each mast position. Based on the observed time period of the measurements compared to a nearby long-term reference station, the observed mast data is adjusted to represent a long-term average at the positions to reduce the variability with time. Wind speed data from at least two levels on each mast will then be used to extrapolate and predict the mean wind speeds at the planned hub height of the wind turbines, and computer wind flow models will horizontally extrapolate this data to the wind turbine positions based on topography and elevation difference. A long-term adjusted and annual wind frequency distribution at each turbine position is then calculated in the wind flow model. From this validated and long-term adjusted distributions at each turbine position, the overall wind farm gross production is calculated based on the specific turbine power curve and the turbine specific wind distribution. Typical losses assumptions for availability, environmental, curtailment and any other potential sources of energy losses are then taken from the gross production to yield a long term net energy yield and capacity factor.

(4) Estimated Annual and Monthly Output Capability Factors

The Article 10 Application will provide the estimated annual and monthly, on peak, shoulder, and off-peak MW output capability factors for the proposed facility.

Data collection from the masts consist of 10 minute average values for wind speed, wind direction, ambient temperature and pressure. Gross monthly averages are determined from the observed 10 minute data in each specific month and long-term adjustments are made to the monthly data set based on historical monthly norms as described in (3) above. Based on the long-term adjusted average energy yield for each month, a monthly

energy distribution for the year can be determined. Monthly specific loss assumptions for availability, environmental and curtailment are then taken from the gross monthly production distribution to yield a long term net monthly energy yield. Based on the number of days in each month and the predicted net energy yield for that month, a monthly net capacity factor is determined. An annual net capacity factor can be determined from the sum of all monthly net energy yields and the total now of hours in each specific year.

(5) Estimated Annual and Monthly Production Output

The Article 10 Application will provide the estimated average annual and monthly production output for the facility in megawatt-hours (MWh).

Monthly energy yield averages are determined from the observed 10 minute data in each specific month and long-term adjustments are made to the monthly data set based on historical monthly norms as described in (3) above. Based on the long-term adjusted average energy yield for each month, a gross monthly energy distribution for the year can be determined. Monthly specific loss assumptions for availability, environmental and curtailment are then taken from the gross monthly production distribution to yield the 12 estimated monthly productions in MWh. An annual production output is determined from the sum of all monthly net energy yields in MWh.

(6) Estimated Production Curve Over an Average Year

The Article 10 Application will provide an estimated production curve for the facility over an average year.

The long-term adjusted annual wind frequency distributions at each turbine position calculated in the wind flow model, produces the number of hours at each specific wind speed bin for each turbine position. The specific wind turbine power curve will show the expected production at each wind speed bin. Combining these two sets of data at each turbine yields the expected annual production curve (MWh at each wind speed). The sum of all turbine's production at each wind speed bin produces the facility estimated production curve over an annual year.

(7) Estimated Production Duration Curve Over an Average Year

The Article 10 Application will provide an estimated production duration curve for the facility over an average year.

An estimated production duration curve can be calculated based on the long-term adjusted annual wind frequency distributions at all turbine positions and the specific turbine power curve. Each turbine's wind frequency distribution will describe the number of hours at each wind speed and resulting power level in MWh. The sum of all hours at each specific power level from all turbines results in a facility production duration curve (total Power in MWh versus number of hours expected at those MWh levels).

(8) Effect of the Facility on the Energy Dispatch of Existing Must-run Resources

The Article 10 Application will describe the estimated effects of the proposed facility on the energy dispatch of existing must-run resources, to include existing wind, hydroelectric and nuclear facilities, as well as co-generation facilities to the extent they are obligated to output their available energy because of their steam hosts.

(b) Digital Copies of Inputs Used in the Above Simulations

The Article 10 Application will provide digital copies of all inputs used in the simulations required in subdivision (a) of this section.

2.9 ALTERNATIVES

(a) Description of Reasonable Alternative Location Sites

In order to create an economically viable wind-powered electrical-generating facility, which will provide a significant source of renewable energy to the New York power grid, the Applicant proposes to take advantage of the available wind resource and bulk power transmission system in Chautauqua County, New York. Based on the System Reliability Impact Study (SRIS) prepared on behalf of the New York State Independent System Operators (NYISO), the Project will have a net capacity of 126 MW. Therefore, the preferred alternative is to construct a facility that can produce up to 126 MW of renewable energy. Total net generation delivered to National Grid's existing 115 kV line is expected to be approximately 397 GWh, or enough electricity to meet the average annual consumption of between approximately 36,791 and 55,187 households, based on average annual electric consumption of 10.8 MWh for the U.S. and 7.2 MWh for New York State, respectively (EIA, 2014).

Please also note that the Applicant is a private facility applicant, does not have, and does not anticipate having, eminent domain authority, and therefore the identification and description of reasonable and available alternate site

locations to be addressed in the Article 10 Application will be limited to sites owned by or under contract to the Applicant. Irrespective to this, it is worth noting that 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 (Class II or above)
- 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
- limited population/residential development
- avoiding areas of high statewide significance and/or environmental sensitivity (e.g., Adirondack Park, Great Lakes shoreline)

The location selected for the Project site is among the remaining areas in New York suitable for commercial scale wind energy production. Across New York State, the wind resource varies based upon a number of factors (and the interaction of these factors) including topography, prevailing wind direction, and location. Commercial scale wind power projects can only be located in certain locations within the state that are conducive to wind energy production. The higher the wind speed at a site the more desirable a site is; as the energy produced by a given turbine is a function of the cube of the wind speed. New York has a modest wind resource; however, this renewable resource is not evenly distributed throughout the state. Rather, the wind resource is limited to certain unique areas in the state, which generally include coastal areas, ridgelines, elevated plateaus, and mountain peaks. Further, the Project Area's proximity to an existing transmission line also makes this location relatively unique and desirable.

The Applicant selected the proposed site for the Project because of the presence of the wind resource, the presence of available land and willing landowners, the relative ease of access to the site, and the proximity and relative ease of connecting to the existing electric transmission grid. These factors combined to make the proposed site desirable from the standpoint of commercial-scale wind power development.

(b) Comparison of Advantages and Disadvantages of Proposed and Alternative Locations

Given the unique nature and constraints associated with the siting of wind-powered electric generation facilities (i.e. adequate wind resource, willing land lease participants and host communities, and adequate access to the bulk

power transmission system), the Applicant does not intend on providing a fully developed evaluation of comparative advantages and disadvantages of alternate locations. It is simply not practicable to procure land contracts, perform environmental and engineering studies, enter into and progress through multiple interconnection permit processes, and conduct community outreach for alternative locations. However, the Application will provide information in this section of the Article 10 Application regarding the general site selection process for the Project.

(1) Environmental Setting

The Project Area is located within the Allegheny Plateau physiographic province of New York State. Elevations in the area range from between 1,200 feet in eastern Chautauqua County to 1,900 feet (amsl) in the western portion of the county. The topography is strongly influenced by the underlying bedrock, which is nearly level bedded (Puglia 1994). Bedrock in this region is typified by stratified beds of shale, sandstone, limestone, and dolostone which gently tilt towards the southwest. The Article 10 Application will provide more detailed information on the environmental setting of the project.

(2) Recreational, Cultural, and Other Concurrent Uses of the Site

The Applicant has identified several recreational facilities in the area including, but not limited to trails (i.e., hiking, water, equestrian, etc.), state and local parks, forests and resorts. A Phase 1A Historic Architectural Resources Survey & Work Plan has prepared for the Project in support of this PSS. The information and recommendations included in this report are intended to assist the Department of Public Service (DPS) and the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) in their review of the proposed Project. In addition a Phase 1A Archeological Survey Report & Work Plan has also been developed for NYSOPRHP to determine if there are any potentially unidentified and/or previously identified cultural resources in the Project Area. The Article 10 Application will provide more detailed information on recreational, cultural, and other concurrent uses of the site. Please also see Section 2.20 (Cultural Resources) of this PSS for additional information.

(3) Engineering Feasibility

A Preliminary Geotechnical Evaluation is planned including a literature review of publicly available data. This information will be used to specifically address the suitability of the on-site surface/subsurface conditions to support turbine foundations, and provide specific recommendations based on the site-specific conditions. With respect to interconnections, please see (b)(4) below.

As discussed in Section 2.6(d) of this PSS, the Applicant is conducting a rigorous wind resource analysis for this Project, the intent of which is to optimize the turbine layout to maximize energy production within the context of the existing, site-specific constraints. The detailed results of these analyses are proprietary and are typically retained as trade secrets. Therefore, a copy of the wind meteorological analysis will not be provided with the Article 10 Application, but rather will be provided to DPS under separate cover. The Applicant will seek the requisite trade secret protection for this information pursuant to NY Public Officer's Law Section 87(2)(d) and 16 NYCRR 6-1.3.

(4) Reliability and Electric System Effects

A System Reliability Impact Study was conducted in January 2015 to evaluate the impact of the Project on the reliability of the New York State Transmission System and to evaluate alternatives to eliminate adverse reliability impacts, if any, resulting from the Project. The Project is not expected to result in adverse impacts to transmission system; however, the Article 10 Application will provide a more detailed description of the effects of reliability with the Project.

(5) Environmental Impacts

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 are anticipated to include turbine visibility. While the presence of the turbines will likely result in a change in perceived land use from some viewpoints, their overall contrast with the landscape, as determined through evaluation by an expert panel of landscape architects, will be detailed in the Article 10 Application. Project operation may also result in an increased level of sound at some receptor locations 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. The significance of these impacts will be evaluated in the Article 10 Application.

It should also be noted that electricity generated from zero-emission wind energy can displace the electricity generated from conventional power plants, thereby reducing the emissions of conventional air pollutants, such as sulfur and nitrogen oxides (acid rain precursors); mercury, and carbon dioxide (linked to global climate change). Displaced emissions occur because renewable electric generation sources have low marginal

operating costs (i.e., fuel). Therefore, renewable energy sources become first option sources because of their low marginal operating cost, displacing generation at fossil fuel plants that have higher marginal operating costs. The proposed Project is anticipated to have significant, long-term beneficial effects on the use and conservation of energy resources. The operating Project will generate up to 126 MW of electricity without consuming cooling water or emitting pollutants.

(6) Economic Considerations

The Application will provide an estimate of the total capital costs of the Project. This estimate will be more exact than an order of magnitude cost estimate but will nevertheless be only an estimate. Total estimated capital and intangible costs will be provided in a range and broken down by turbine model. Capital costs will include development costs, construction design and planning, equipment costs, and construction costs. The Application will include an internal work paper that describes the assumptions in estimating the total capital costs as described in 1001.14 (a). However, this information is proprietary and typically retained as trade secrets. Therefore, the Applicant will seek the requisite trade secret protection for this information pursuant to NY Public Officer's Law Section 87(2)(d) and 16 NYCRR 6-1.3.

(7) Environmental Justice

As indicated in the Public Information Program (PIP) plan, and Section 2.28 of this PSS, the Project is not expected to have an impact on any environmental justice areas.

(8) Security, Public Safety, and Emergency Planning

Overall safety and security risks associated with the Project are anticipated to be minimal. The Article 10 Application will describe the methodology to be used to determine potential security risks, during both construction and operation of the Project.

Please see Section 2.18 of this PSS (Safety and Security), which provides additional detail on preliminary plans for site security during construction and operation. As indicated in Section 2.18, an Emergency Action Plan (EAP) will be developed before the start of construction and will outline the safety plans of the Project throughout its lifecycle. The information contained in the EAP will be developed in conjunction with local emergency service providers, and will be made available to the employees of the Applicant and any visitors or workers to the Project Site of the procedures to follow in the event of an emergency.

(9) Public Health

The Project is not expected to result in any public health concerns. Although not accurate, the potential for low frequency noise effects is sometimes attributed to wind power projects. However, low frequency sound produced by wind turbines are comparable to or less than that of the natural sound levels typically present in rural environments and remain well below the level of perceptibility. See Section 2.15 of this PSS for additional detail. Additional detail will also be presented in the Article 10 Application.

(10) Vulnerability to Seismic Disturbances and Climate Change Impacts

Based on the 2014 New York State Hazard Map (USGS 2014), the Project Area is located in an area of relatively low seismic hazard, with a 2 % or less chance that peak ground acceleration in a 50 year window is between 4% and 8% of standard gravity. An earthquake occurred in Attica, New York (about 75 miles northeast of the Project Area) in 1966 with a Richter scale magnitude of 4.7 (USGS 2015). There are several faults mapped in Chautauqua County (Jacobi 2002). The Mayville fault, Charlotte Center fault and an unnamed fault are located within the vicinity of the Project Area. However, these faults are not associated with any historic earthquakes (USGS 2015). Furthermore, the USGS Earthquake Hazards Program does not list any young faults, or faults that have had displacement in the Holocene epoch within the vicinity of the Project Area. The Article 10 Application will provide a more detailed description of the Project's potential vulnerability to seismology.

With respect to climate change, as stated above electricity generated from zero-emission wind energy can displace the electricity generated from conventional power plants, thereby reducing the emissions of conventional air pollutants, such as sulfur and nitrogen oxides (acid rain precursors); mercury, and carbon dioxide (linked to global climate change). Displaced emissions occur because renewable electric generation sources have low marginal operating costs (i.e., fuel). Therefore, renewable energy sources become first run sources because of their low marginal operating cost, displacing generation at fossil fuel plants that have higher marginal operating costs. The proposed Project is anticipated to have significant, long-term beneficial effects on the use and conservation of energy resources. The operating Project will generate up to 126 MW of electricity without consuming cooling water or emitting pollutants.

(11) Objectives and Capabilities of the Applicant

With respect to capabilities, the Applicant is a wholly owned subsidiary of EverPower Wind Holdings, Inc. ("EverPower"). Headquartered in Pittsburgh, Pennsylvania with offices in New York and Ohio, EverPower is a

developer of utility grade wind projects. Since its founding in 2002, EverPower has used a unique approach to wind power development by partnering with landowners and communities to establish itself as a premier developer, owner, and operator of wind projects in the U.S. To date, EverPower currently has seven operational wind facilities with a nameplate capacity of approximately 752 MW, including the Howard Wind Project in Steuben County, New York. The Howard Wind Project has a total generating capacity of 55.35 MWs and uses 27 Repower MM92 turbines. The first 25 turbines became commercial operational in 2011, and the two-turbine second phase became operational in 2012.

The objective of the proposed Project is to create an economically viable wind-powered electrical-generating facility that will provide a source of renewable energy to the New York power grid to:

- Satisfy regional energy needs in an efficient and environmentally sound manner;
- Supplement and offset fossil-fuel electricity generation in the region, with emission-free, wind-generated energy;
- Reduce the amount of electricity imported to New York State;
- Realize the full potential of the wind resource at the Project Site;
- Provide energy that is not susceptible to fluctuations in commodity prices;
- Produce electricity without the generation of carbon dioxide or other greenhouse gases that contribute to climate change;
- Promote the long-term economic viability of rural areas in New York; and
- Assist New York State in meeting its proposed Renewable Portfolio Standard and State Energy Plan goals for the consumption of renewable energy in the State.

(c) Description of Reasonable Alternatives to the Proposed Facility at the Proposed Location

Unlike state or municipal entities, private developers do not have the power of condemnation or eminent domain. Consequently, the Applicant does not have the unfettered ability to locate projects in any area or on any parcel of land. Facilities can only be sited on private property where the landowner has agreed to allow such construction. Moreover, private landowner agreements strictly limit the use of land to a wind power project, and as such, do not allow for the siting of other alternative energy production facilities (e.g., solar, hydro, biomass, or fossil fuel). Accordingly, other power generation technologies are not reasonable alternatives, and do not warrant consideration in the Article 10 Application.

(1) General Arrangement and Design

The general arrangement and design of the Project is influenced by a number of factors, as discussed in detail in (c)(4) below.

(2) Technology

The turbines proposed for the Project will utilize the latest in wind power generation technology to enhance project efficiency and safety and minimize impacts such as noise. Additional detail regarding wind turbine technology will be provided in the Article 10 Application.

(3) Scale or Magnitude

As mentioned previously, various siting constraints dictate the size and layout of a wind power project. These constraints make a significantly larger number of turbines than what is proposed within the Project site highly unlikely. A larger project would result in location of wind turbine towers in areas that do not have ideal wind resources, and which may not have willing landowner participants. The Applicant is doing business in a wholesale electric market that is highly competitive and extremely price-sensitive. Given the economies of scale involved in the development and construction of a wind project, all other things being equal, a larger scale project will produce lower cost energy. Project components of alternate size and number will be considered. The Article 10 Application will address alternate scale and magnitude of the Project in the context of the interconnection agreement (i.e., a 126 MW Facility). Information regarding economic benefit to local communities such as PILOT payments, landowner payments, and construction expenditures related to a project of this size will also be addressed.

(4) Alternative Turbine Layouts

The proposed location and spacing of the wind turbines are directly related to a number of factors, including landowner participation, a wind resource assessment, environmental resource factors, and review of the site's zoning constraints. Factors considered during the layout design process include the following:

- *Wind Resource Assessment*: Through the use of on-site meteorological data, topographic and surface roughness data, wind flow modeling, and wind plant design software, the wind turbines will

be sited to optimize exposure to wind from all directions, with emphasis on exposure to the prevailing southwest wind direction in the Project area.

- *Sufficient Turbine Spacing*. Siting turbines too close to one another can result in decreased electricity production and excessive turbine wear, due to the creation of wind turbulence between and among the turbines. Each operating wind turbine creates downwind turbulence in its wake. As the flow proceeds downwind, there is a spreading of the wake and recovery to free-stream wind conditions. The Project turbines will be located with enough space between them to minimize wake losses and maximize the capture of wind energy.
- *Local Zoning*. The Town's of Arkwright, Charlotte, and Cherry Creek have adopted Wind Energy Regulations as amendments to the Town's Zoning Ordinances. These regulations specify criteria under which applications for commercial wind energy conversion systems will be evaluated. The Project will be consistent with all Town Zoning Ordinance and Wind Energy Regulations.
- *Wetlands and Waterbodies.* Project components will avoid and/or minimize impacts to wetlands/streams to the greatest extent practicable.
- *Communication Interference*. Turbines will be sited outside of known microwave pathways or Fresnel zones to minimize the effect that they may have on existing communications.
- *Recreational Resources*. Turbines will be sited in such a way that does not cause any adverse effect to the Town's or County's existing or proposed trails, trail facilities, and recreation areas.
- *Cultural Resources*. Project construction will be conducted in such a way that does not cause any effect to prehistoric or historic archeological resources.

The Project's turbine layout is also a function of the turbine model that will ultimately be used at the site. As previously mentioned, the Project to be evaluated in the Article 10 Application consists of up to 62 wind turbine sites. The actual number of turbines constructed will depend on the capacity of the turbine model selected, in order to reach a total generating capacity of up to 126 MW. For example, if a 2.1 MW model is selected then up to 60 turbines will be constructed, whereas if a 2.5 MW model is selected then up to 50 turbines will be constructed, and if a 3.0 MW model is selected then up to 42 turbines will be constructed. The turbine model ultimately selected for this Project will be based on numerous factors, such as site suitability, availability, and price.

Turbine locations will ultimately be chosen from among the specific locations identified in the Article 10 Application, and will be based on the wind resource and other siting factors such as distance to the collection substation, environmental impacts, etc. However, to assure a worst-case evaluation, the Article

10 Application will assess the impacts associated with all 62 turbine locations, even though fewer than 62 turbines may be built.

(5) Timing of In-service Date in Relation to Other Capacity Changes to the Electric System

Based upon the findings in the SRIS this Project is not anticipated to have any adverse effects on the New York State Power Grid. Please see Section 2.5 of this PSS for additional information.

(d) Why the Proposed Location Best Promotes Public Health and Welfare

The Applicant will design the Project layout to optimize the balance between energy generation and the protection of agricultural, environmental, and aesthetic resources, as well as community safety and welfare. The Article 10 Application will include a statement of the reasons why the proposed location is best suited to promote public health and welfare.

(e) Why the Proposed Facility Best Promotes Public Health and Welfare

The benefits of the Project are anticipated to include positive impacts on socioeconomics (e.g., increased employment, increased revenues to Local municipalities and lease revenues to participating landowners and neighbors), air quality (through reduction of emissions from fossil-fuel-burning power plants), and climate (reduction of greenhouse gases that contribute to global warming). By eliminating pollutants and greenhouse gases, the Project will also benefit ecological and water resources and human health. The Article 10 Application will include a statement of the reasons why the proposed technology, scale, and timing of the Project is best suited to promote public health and welfare.

(f) No Action Alternative

The no action alternative assumes that the Project Area would continue to exist as is. This no action alternative would not beneficially nor adversely affect current land use, ambient noise conditions, traffic or public road conditions, television/communication systems, and would maintain the area's current community character, socioeconomic, and energy-generating conditions as they currently exist. The Article 10 Application will include a statement of the reasons why the no action alternative to the Project is not best suited to promote public health and welfare.

(g) Energy Supply Source Alternatives

Alternative power generation technologies, such as fossil-fuel and biomass combustion, would not meet the goals of the Project, are not the area of expertise of the Applicant, and would pose more significant adverse environmental impacts, particularly on air quality but also on land use, water resources and public health and welfare.

In regard to other renewable sources of generation, hydroelectric plants have significant impacts on terrestrial and aquatic ecological resources, land use, and aesthetics. Like wind power projects they are also resource dependent, and can also only be developed in places with appropriate water volumes and topographic conditions (which do not exist within the Project Area). Other renewable energy technologies, such as solar power and hydrogen, would result in different impacts and would not result in the same energy generation capacity, in this location, as a wind power project. The Article 10 Application will limit the identification and description of alternative energy supplies to those that are feasible considering the objectives and capabilities of the Applicant (i.e., a wind power project).

(h) Comparison of Advantages and Disadvantages of Proposed and Alternative Energy Sources

Due to the nature of the Project (wind), source and demand – reducing alternatives will not be evaluated in the Article 10 Application.

(i) Why the Proposed Project Best Promotes Public Health and Welfare

As previously described in (d) and (e) above, the Article 10 Application will include a statement of the reasons why the proposed Project is best suited to promote public health and welfare.

2.10 CONSISTENCY WITH ENERGY PLANNING OBJECTIVES

(a) Consistency with State Energy Plan

The Project will help the State achieve the goals of the 2015 State Energy Plan. State Energy Law 6-104 requires the State Energy Planning Board to adopt a State Energy Plan. The latest iteration of the New York State Energy Plan was announced on June 25, 2015. The State Energy Plan contains a series of policy objectives to increase the use of energy systems that enable to the State to significantly reduce greenhouse gas (GHG) emissions while stabilizing energy costs. According to the Plan, “Renewable Energy sources, such as wind, will play a vital role in reducing electricity price volatility and curbing carbon emissions” (NYSEPB, 2015). The Article 10 Application will

explain how the Cassadaga Wind Project advances the objectives of the State Energy Plan and assists the State in achieving the renewable energy generation objective set forth therein.

(b) Impact on Reliability

Siemens Power Technologies International prepared a System Reliability Impact Study (SRIS) for the Project on behalf of the New York Independent System Operator (NYISO) in 2015. The SRIS evaluated a number of power flow base cases, as provided by the NYISO, including 2018 summer peak, winter peak, and light load.

In base case normal operating conditions, the power flow steady state analyses indicate that the Project will cause no thermal violations for summer peak and winter peak case loadings. Under contingency operating conditions with the Project, the summer peak case shows some overloads on the 230 kV and 115 kV lines under several contingencies. The addition of the Project reduced the overload on these lines, thus causing a positive impact on the system. The addition of the Project increased the 34.5 kV post-contingency voltage by as much as 2% and exceeded its 105% limit. Post-contingency load tap changes in the 115/34.5 kV transformers reduced the 34.5 kV voltages to acceptable levels. For the winter peak case, the Project caused an adverse impact of about 11% on the Hartfield 115/34.5 kV transformer following the double circuit contingency. However, this overload can be mitigated by the construction of a new sub-T station 'West Asheville' (115-34.5kV 25 MVA), located at the junction of Dunkirk-Falconer Line 160 and Sherman-Ashville Line 863, a reliability project approved by National Grid. Hence, the Project does not require any additional network upgrades for interconnection. Voltage violations at some buses near the point of interconnection also occurred under several contingencies with the addition of the Project, but as with the summer peak case, load tap changes in the 115/34.5 kV transformers reduced most of the 34.5 kV voltage to acceptable levels (Siemens PTI, 2015).

The Article 10 Application will describe the impact of the proposed facility on reliability in the State in greater detail.

(c) Impact on Fuel Diversity

The Cassadaga Wind Project will improve fuel diversity within the state by increasing the amount of electricity produced by wind power. The New York electric utility system relies on supply from numerous fuel sources, including natural gas, hydroelectric, nuclear, wind, oil, and coal, as well as interconnections with its neighbors and demand-response resources. Maintaining and improving fuel diversity in New York will lead to less volatile electric prices, improved reliability, and positive environmental impacts (NYISO, 2008). The Article 10 Application will include

discussion of the current electric generation capacity by fuel type to demonstrate that the addition of the Project will increase fuel diversity. Current fuel mix data will be obtained from NYISO.

(d) Impact on Regional Requirements for Capacity

The regional capacity requirements of New York's wholesale electricity markets and location-based pricing encourage investments in areas where the demand for electricity is the highest. As a result, over 80 percent of the generating capacity brought online since 2000 is located in New York City, on Long Island, and in the Lower Hudson Valley. Other additions to New York's power-producing resources are determined by physical factors, such as the suitability of wind conditions in the northern and western regions of the state, and upgrades to existing nuclear and hydropower plants in upstate regions (NYISO, 2014). The proposed facility falls into the latter category, with siting driven by available wind resource. The Article 10 Application will discuss Project impacts on regional requirements for capacity.

(e) Impact on Electric Transmission Constraints

New York State has a diverse mix of generation resources compared to many other states. However, much of the renewable power is provided by hydroelectric projects and wind farms located in western and northern localities, while the southeastern region hosts power plants fueled primarily by natural gas. Taking full advantage of statewide fuel diversity will require upgrades and enhancements of the transmission system. These transmission enhancements will help move energy from upstate regions with a surplus of generating capacity to more populous areas with higher power demands, such as the Hudson Valley, New York City, and Long Island (NYISO, 2014). The Article 10 Application will discuss Project impacts on electric transmission constraints, based on the New York State Transmission Assessment and Reliability Study and other NYISO reports/data.

(f) Impact on Fuel Delivery Constraints

The proposed facility will generate electricity without the use of fuel. Consequently, there will be no adverse fuel delivery impacts. By producing additional electricity that does not require fuel, the Project will contribute toward reducing overall demand for fuel and easing fuel delivery constraints.

(g) Impact on Energy Policy

The immediate benefits of utility scale renewable energy projects, such as the Cassadaga Wind Project, include economic development and jobs for the community, greater stability in customer bills, cleaner air, and compliance with State and Federal mandates. As recognized by the State Energy Plan, long-term benefits may be similar to those New York currently enjoys from the State's hydroelectricity facilities: below-market electricity prices and a healthier environment. Through the State Energy Plan, New York has committed to achieving a 40% reduction in GHG emissions from 1990 levels by 2030 and reducing total carbon emissions 80% by 2050. In addition, the State Energy Plan calls for 50% of generation of electricity from renewable energy sources by 2030 (NYSEPB, 2015).

In an effort to encourage and incentivize the shift of New York State's energy sector from reliance on GHG emitting fuel sources to renewable energy sources, the State has established a Renewable Portfolio Standard (RPS) which initially called for an increase in renewable energy used in the State to 25% by the year 2013 (PSC, 2004). In an Order issued in January 2010, the New York Public Service Commission (PSC) expanded the RPS target from 25% to 30% and extended the target date from 2013 to 2015. The RPS is expected to reduce CO2 emissions by 50 million tons over the life of the projects (NYSERDA, 2015). NYSERDA has proposed a comprehensive Clean Energy Fund (CEF) to ensure continuity of the State's clean energy programs after 2015. The CEF is one part of New York State's Reforming the Energy Vision (REV) initiative, a 10-year $5 billion funding program to support clean energy market development and innovation and to secure renewable energy resources as part of New York's clean energy future. As stated by the PSC in the REV Order, "A significant increase in the penetration of renewable resources is essential to meeting our objectives, state goals and proposed federal requirements" (PSC, 2015).

Large-scale renewables (LSR), which are larger utility-scale renewable energy project developments, such as the Cassadaga Project, are a key component of the REV Order, which outlines the issues and tasks to begin to resolve the technical, marketplace, and regulatory challenges necessary to achieve the REV plan and goals. REV recognizes that large-scale renewables, such as wind farms, which require more capital and take more planning than other facilities, will be critically important to meeting greenhouse gas emissions reduction goals. However, due to the issues and concerns raised about how to maximize the benefits associated with large-scale renewables, the REV Order created a separate REV LSR track devoted to addressing issues related to LSR. To begin development of the LSR track, PSC staff and NYSERDA began working together to develop an options and assessment paper, which was submitted June 1, 2015 for public comment. The paper examines a range of policies, frameworks and structures available for procuring and financing LSR resources. The deadline for submitting initial comments was July 22, 2015, with replies due August 24, 2015. The LSR track process will determine how to promote and encourage post-2016 development of these LSR resources.

In addition to policies in New York State, federal policy has also recognized the need for increased supply of energy to the U.S., and for new renewable energy resources. The Project is consistent with Executive Order 13212 (dated May 18, 2001), which states, "The increased production and transmission of energy in a safe and environmentally sound manner is essential to the well-being of the American people. In general, it is the policy of this Administration that executive departments and agencies shall take appropriate actions, to the extent consistent with applicable law, to expedite projects that will increase the production, transmission, or conservation of energy." On June 25, 2013, President Obama announced the Climate Action Plan, and on August 3, 2015, the final rule of EPA's Clean Power Plan was announced. The Plan represents a national plan for tackling climate change. The Plan directs the Environmental Protection Agency (EPA) to establish the first ever restrictions on carbon pollution from power plants, the largest source of unregulated CO2 emissions in the U.S. The Plan states, "With abundant clean energy solutions available, and building on the leadership of states and local governments, we can make continued progress in reducing power plant pollution to improve public health and the environment while supplying the reliable, affordable power needed for economic growth. By doing so, we will continue to drive American leadership in clean energy technologies" (Executive Office of the President, 2013).

In fulfillment of President Obama's commitment under the 2013 Climate Action Plan, EPA proposed "Clean Power Plan" regulations in 2014 establishing a framework for states to regulate carbon dioxide emissions from existing fossil fuel-fired electric generating units (see 79 Federal Register 34830; June 18, 2014). Once the guidelines are finalized, states must develop plans that explain how they will achieve those guidelines. Nationwide, the Plan calls for reducing CO2 from the power sector by approximately 30% from 2005 emission levels by 2030. The Plan establishes emission rate-based CO2 goals for each state as well as guidelines for the development, submission and implementation of state plans to achieve those goals. Each state must then develop a plan that explains how they intend to achieve their state-specific CO2 emission rate goal that includes enforceable CO2 emission limits applicable to each affected unit. States would be expected to begin making CO2 emission reductions by 2022, with full compliance to be achieved by 2030.

The Article 10 Application will address Project impacts on state and federal energy policies.

(h) Comparison of Advantages and Disadvantages of Proposed and Alternative Locations

Given the unique nature and constraints associated with the siting of wind-powered electric generation facilities (i.e. adequate wind resource, willing land lease participants and host communities, and adequate access to the bulk power transmission system), the Applicant has not developed a full comparison between the proposed and

alternative Project Site locations. Rather, the Article 10 Application will focus on comparing alternative facility configurations within the proposed Project Site. Such alternatives will include alternative project layouts, alternative project size, alternative turbine models, and a no action alternative.

(i) Why the Proposed Location and Source Best Promotes Public Health and Welfare

Some level of operational-related impacts will result from the Project due to its location near rural residential areas and surrounding hamlets and villages (e.g. sound, shadow flicker, visual impact). The Applicant will design the Project layout to optimize the balance between energy generation with the protection of agricultural, environmental, and aesthetic resources, as well as community safety and welfare. Public health concerns associated with wind energy projects typically focus on audible noise, low frequency noise/vibrations, and shadow flicker. The Article 10 Application will demonstrate how the proposed Project minimizes these impacts when compared to other alternatives considered.

Please also note that the Project will also have a positive impact on public health and welfare by producing electricity with zero emissions (except for very small emissions from vehicles servicing the facility). However, despite recent developments in clean and renewable energy, conventional power plants still comprise the majority of the United States' energy generation. As of 2014, fossil fuel combustion was responsible for about 66% of total electricity generation, while wind energy was only around 4%. Of the fossil fuels used for electricity generation, coal is still the most prevalent, representing about 58% of overall fossil fuel combustion (USEIA, 2015b). There have been some reductions in emissions by coal combustion in recent years. Much of the reduction has been due to regulations imposed by the EPA for coal emissions, first under the Clean Air Interstate Rule (CAIR) of 2005 and later under the Cross-State Air Pollution Rule (CSAPR) of 2011. These regulations were passed in order to reduce emissions that contribute to ozone and fine particle pollution, which negatively impact human health. The target of CSAPR is to reduce SO2 and NOx emissions by 73% and 54%, respectively (EPA, 2011). Despite these reductions, the coal industry is still a major polluter and adverse impacts to human health from air pollution are well documented (Burt et al., 2013).

In addition, state, federal, and international agencies agree that the scientific evidence for the existence of climate change is unambiguous and that society will experience adverse impacts from it. The NYSDEC determined that "air and water quality, forests, fish and wildlife habitats, and people and communities, are at risk from climate change" (NYSDEC 2015). In the Commissioner's Policy on Climate Change and DEC Action, NYSDEC outlined a strategy containing climate change mitigation objectives, including curbing greenhouse gas emissions, so that New York can play its part in reducing the severity of global warming (NYSDEC, 2015a). On an international level, the

Intergovernmental Panel on Climate Change (IPCC), a consortium of experts on climate change from around the world, agree that "Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems" (IPCC, 2014). Fossil fuel-based energy production has played a major part in causing global warming. Electricity generation from coal and natural gas is responsible for about one third of all greenhouse gas emissions in the U.S., so moving toward renewable energy technologies in the energy industry represents one important way to mitigate climate change and improve public health and welfare. Although efforts have been made to reduce greenhouse gas emissions, current levels are about six percent higher than they were in 1990 (EPA, 2015b).

Historically, New York State has been proactive in establishing goals to reduce greenhouse gas emissions, including Executive Order 24, which seeks to reduce GHG emissions by 80% by the year 2050 and also includes a goal to meet 45% of New York's electricity needs through improved energy efficiency and clean renewable energy by 2015 (Paterson, 2009). Fuel combustion accounts for approximately 89% of total GHG emissions in New York State (NYSDEC, 2009). The operation of this Project is anticipated to have a positive impact on air quality and public health and welfare by producing electricity with zero emissions (except for very small emissions from vehicles servicing the facility). Electricity delivered to the grid from wind energy projects can off-set the generation of energy at existing conventional power plants. According to a 2008 U.S. Department of Energy National Renewable Energy Laboratory report, "Wind energy is a preferred power source on an economic basis, because the operating costs to run the turbines are very low and there are no fuel costs. Thus, when the wind turbines produce power, this power source will displace generation at fossil fueled plants, which have higher operating and fuel costs." On a long-term basis, wind generated power also reduces the need to construct and operate new fossil fueled power plants (Jacobsen & High, 2008). Natural gas is the most frequent marginal fuel unit in New York's power pool, or the one that is turned on or off as the load fluctuates (Patton et al., 2015). When the proposed Project is generating power, electricity generation from natural gas would be reduced within the region, thereby eliminating the associated emissions.

2.11 PRELIMINARY DESIGN DRAWINGS

All drawings prepared in support of the Article 10 Application will be prepared using computer software (e.g., AutoCAD, MicroStation), will be labeled "preliminary" and "not for construction purposes", and will be prepared under the direction of a professional engineer, landscape architect, or architect who is licensed and registered in New York State.

(a) Site Plan

Drawings generated in support of the site plan will likely be prepared at a scale of 1" = 100', and will depict the layout of the Project components (turbines, access roads, buried and above-ground interconnect, permanent meteorological towers, O&M building, collection substation, generator lead line, and point of interconnection substation). Adjoining properties will be depicted using publicly available parcel data.

(b) Construction Operations Plan

The construction operations plan will depict the location of all anticipated construction staging/material laydown areas work spaces, contractor trailers/offices and parking areas. Notable excavations associated with the Project are anticipated to be limited to turbine foundation locations, which will be identified on the construction operations plan, and excess soil will be stockpiled along the construction corridors and used in site restoration.

(c) Grading and Erosion Control Plans

Unlike a conventional energy generating facility in which a large tract of contiguous acreage must be graded in order to properly site the facility, the footprint of a wind power project is relatively small, is more spread out, and is designed to fit within the existing land form. Publicly available data from Chautauqua County will be used to identify existing contours (data available at 5-foot intervals). Information regarding soil types and depth to bedrock will also be based on publicly available data, which will be supplemented by a limited number of test borings conducted at a sub-set of turbine locations and substation locations.

The Application will include preliminary cut and fill calculations based on the publicly available 5-foot contours, and proposed (preliminary) 5-foot contours. The Article 10 Application will also generally describe the typical scenarios that would result in cut and fill necessary to construct the facility, such as constructing an access road on a side slope.

(d) Landscaping Plan

Based on the Applicant's experience with wind power development, the only potential locations for significant landscaping plans would be associated with the collection station and/or interconnection station, if the visual impact analysis determines that visual screening is needed in these locations to mitigate potential impacts. Therefore, the Article 10 Application will discuss the need for landscaping in the form of visual screening, and prepare conceptual

screening plans if needed. To determine those areas where trees may be removed, the Project footprint will be depicted on recent aerial imagery, and the acreage of tree removal will be discussed in the Article 10 Application. However, an on-site survey of all trees to be removed will not be included in the Application.

(e) Lighting Plan

Lighting specifications for FAA lights on turbines, and typical lights to be used at the substations and O&M facility, will be included in the Article 10 Application. Measures to be taken to prevent unnecessary light trespass beyond the Project property line will also be addressed.

(f) Architectural Drawings

The Application will contain a typical drawing of an O&M building based on the Applicant's experience. Specifically, the typical drawing will be based on the Applicant's operational project's O&M building design, layout and specifications, and current industry standards along with any specific state building code requirements or the local law provisions. Minor changes to the typical O&M building drawings may be necessary based on final design. The O&M building is the only stand-alone building the Applicant anticipates constructing as part of the Project.

(g) Typical Design Detail Drawings

The preliminary design drawings will include sheets depicting typical design details associated with the Project, such as access roads, buried and above-ground interconnect, turbine laydown areas, wind turbines, and wind turbine foundations. In addition, the Article 10 Application will include brochure material associated with the range of turbine types anticipated to be used for the Project.

(h) Interconnection Facility Drawings

The Application will provide a single line drawing of the interconnection substation facility. The single line drawing will be from the Applicant's System Impact Study. Additional details on the interconnection substation will be available once the Facilities study is complete. However, the Facilities study will not be completed until post-certification.

(i) Engineering Codes, Standards, Guidelines, and Practices

The list of codes and standards that have been and will be considered during the design, construction, and operation of this facility is extensive. The following is provided as a representative list of applicable codes and standards, which will be updated as needed in support of the Article 10 Application:

- American National Standards Institute (ANSI)
- Institute of Electrical and Electronics Engineers (IEEE)
- Insulated Cable Engineers Association (ICEA)
- American Society of Mechanical Engineers (ASME)
- National Electric Code (NEC)
- National Electrical Safety Code (NESC)
- National Electric Manufacturers Association (NEMA)
- National Fire Protection Association (NFPA)
- Uniform Building Code (UBC)
- Uniform Plumbing Code (UPC)
- United Laboratories (UL)
- American Iron and Steel Institute
- American Institute of Steel Construction
- International Building Code (IBC) 2006
- AASHTO Standard for Aggregates
- ASCE 7-05 Minimum Design Loads for Buildings and Other Structures
- Federal OSHA 1910.269 Training

2.12 CONSTRUCTION

(a) Preliminary Quality Assurance and Control Plan

A Quality Assurance and Control Plan is typically the responsibility of the Balance of Plant (BOP) contractor, who is responsible for the construction of the wind farm, and to create and implement the Quality Assurance and Control Plan. The Applicant will require the BOP to provide a final Quality Assurance and Control Plan prior to starting construction. All sub-contractors will be required to follow the Quality Assurance and Control Plan. The Quality Assurance and Control Plan is site specific and therefore not developed until the BOP has been selected and the

Project is proceeding with construction. The Applicant will submit the final Quality Assurance and Control Plan to the Board prior to the start of construction.

Below is a general outline of the components of a Quality Assurance and Control Plan. This outline was developed based on the Applicant's historical experience and quality assurance and control plans for its operational wind farms. The Preliminary Quality Assurance and Control Plan that will be provided in the Application will be based upon this outline. In addition, the Preliminary Quality Assurance and Control Plan will be provided to all BOP contractors who bid on the construction of the Project. At a minimum, the final Preliminary Quality Assurance and Control Plan to be included with the Article 10 Application will include the following components.

1. Statement of Authority and Responsibility
2. Organization
3. Safety
4. Quality Assurance Program
5. Project Communication
6. Document Control
7. Control of Client/Customer Supplied Material and Services
8. Inspections and Test Control
9. Non-conformance reporting
10. Corrective and Preventive Action & Continual Improvement
11. Documentation
12. Field Audits and Surveillances

(b) Conformance with Public Service Commission Requirements

(1) Protection of Underground Facilities

The Applicant and its BOP contractor will follow the requirements of Public Service Law §119-b. The Application will include a statement from a responsible company official that the Applicant and its contractors will conform to the requirements for protection of underground facilities contained in Public Service Law §119-b, as implemented by NYCRR Part 753.

(2) Pole Numbering and Marking Requirements

The Applicant will comply with pole number and marking requirements, as implemented by 16 NYCRR Part 217.

(c) Plans to Avoid Interference with Existing Utility Systems

Because the Project Area is rural in nature, rather than a more suburban or urban setting, there are fewer existing utility systems with which the Project may interfere. Specifically, there are few water and sewage lines within the Project Area. The first step in avoidance of interference with existing utility systems is to identify those entities that have utilities within the Project Area. Certain known utilities have been included in the stakeholder list for the Public Involvement Program. These utilities have received and will continue to receive updates and notifications on the Project. The Applicant also consults with landowners regarding utilities located on their properties. This information on utilities will be taken into account during Project component siting in order to avoid and minimize conflicts with utilities.

Furthermore, the Applicant has begun to gather data on utilities. This data includes natural gas power plants, natural gas pipelines, transmission lines, and substations, which was obtained from Platts, a division of McGraw Hill Financial, Inc.

The Applicant will provide the results of any PIP and landowner utility contacts and information to the BOP contractor. Prior to construction, the BOP will be required to conduct a one-call service to verify the extent and known location of all utilities. This effort will include a confirmation of utility response through the Dig Safely New York system. The BOP will also be required to mark out any locations of planned excavating. This will ensure that both the Project excavation and existing utilities are marked to determine any conflicts.

The Application will include a summary of all existing utility systems known at that time. This summary will likely not be comprehensive but will establish what has been identified to date and the plan for continuing to identify existing utilities. It is not appropriate to do a comprehensive utility-locating effort prior to construction (i.e. one-call), because utilities typically prefer to mark out their facilities only once, and there may be changes to utilities between the time the Project is certificated and the initiation of construction. Should conflicts with existing utilities arise during the one-call process, the Applicant will microsite Project components in order to mitigate any potential impact on existing utilities.

Following construction the Applicant will register with one-call to ensure that its utilities and any underground collection lines are registered so that they are not impacted by future utility work.

(d) Procedures for Addressing Public Complaints and Disputes

The Applicant will develop a Complaint Resolution Plan that will be provided in the Application. The Complaint Resolution Plan will discuss specifically how public complaints and disputes should be raised, documented and resolved during construction and operation. The Complaint Resolution Plan will consist of the following components:

- Communications protocol and contacts for construction and operation
- Registering a complaint
- Process for gathering and analyzing information regarding the complaint
- Complaint Response and Tracking
- Complaint Response follow up

The Application will describe each of these steps in the Complaint Resolution process in significant detail and will also include general information on community outreach and communications in the Article 10 Application.

2.13 REAL PROPERTY

(a) Real Property Map of Generating Site

The Article 10 Application will include a tax parcel map of the Project Site which clearly depicts the tax parcel ID, current land use and zoning, relevant easements, grants and related encumbrances, and public and private roads planned for use as access to the site. Data for this map will be obtained from the Chautauqua County GIS (parcels) along with the United States Census Bureau (TIGER/line files) and the NYS GIS Clearinghouse. These data will also be used to identify owners of record of all parcels included within the Project Site and for all adjacent properties (such information may be depicted on the maps and/or included on associated tables).

(b) Real Property Map of Interconnection Facilities

Using the data referenced above, maps showing all proposed interconnection facilities and associated access drives/laydown areas will be prepared. However, all interconnection facilities and associated access roads/laydown areas will be located on land controlled by the Applicant, and therefore no off-property access is anticipated.

(c) Demonstration that the Applicant Has Obtained Title or Lease Interest in Facility Site

The Article 10 Application will provide a description of titles or leases for parcels that are secured or under option for the Project, including ingress/egress access to public roads, and will provide a statement that the Applicant has or can obtain access to parcels needed for title or lease interest in the Project. The Applicant will continue its internal due diligence to assure that the Project parcels are not encumbered in a manner that is inconsistent with future wind power use. Please also note that the Applicant has been working with all public and private landowners to obtain leasing or easement rights for the Project since 2009, and will continue to work towards securing all land necessary to construct and operation the Project.

(d) Demonstration that the Applicant Has Obtained Property Rights to Interconnection Site

The Article 10 Application will provide a statement that the Applicant has or can obtain access to parcels needed for the Project interconnects.

(e) Improvement District Extensions

Based on preliminary discussion with local municipal representatives, the Project will not need any improvement district extensions, and therefore demonstration that the Applicant can obtain such extensions is not applicable.

2.14 COST OF FACILITIES

(a) Total Capital Costs

The Application will provide an estimate of the total capital costs of the Project. This estimate will be more exact than an order of magnitude cost estimate but will nevertheless be only an estimate. Total estimated capital and intangible costs will be provided in a range and broken down by turbine model. Capital costs will include development costs, construction design and planning, equipment costs, and construction costs. Capital costs will be broken down by:

- Turbine
- Civil and electrical
- Construction contingency
- Development

- Insurance
- Legal
- Development contingency

(b) Source of Cost Estimates

The cost estimate will be based on the following sources:

- Wind industry standards
- Company experience
- Historical and current price quotes

The cost estimate will be provided in 2015 dollars.

(c) Work Papers

The Application will include an internal work paper that describes the assumptions in estimating the total capital costs as described in 1001.14 (a). However, this information is proprietary and typically retained as trade secrets. Therefore, the Applicant will seek the requisite trade secret protection for this information pursuant to NY Public Officer's Law Section 87(2)(d) and 16 NYCRR 6-1.3.

2.15 PUBLIC HEALTH AND SAFETY

Wind generated power is in many ways safer and healthier than other forms of electricity generation. Unlike conventional power plants, wind farms produce energy without emitting pollutants that decrease air quality. This is a major public health benefit since the negative effects of air pollution and climate change are well understood.

New York State's 2015 State Energy Plan involves reducing GHG emissions from the energy sector, as this is critical to protecting the health and welfare of New Yorkers. Clean air is essential to New Yorkers' health and quality of life. New York's energy system is the source of many benefits for New Yorkers; however, it is also the cause of significant impacts on the State's natural resources and public health, principally because of emissions of a variety of substances, some of which find their way into water and other resources. Air pollutants emitted when carbon-based fuels are burned are associated with serious health conditions and contribute to the climate change that threatens New York's residents. Combustion of fossil fuels is the dominant source of energy-related emissions. The kinds of

health risks associated with the combustion of carbon-based fuels are not associated with solar energy, wind, and hydroelectric power. While the use of these means of producing electric power is not risk-free, increasing the fraction of electricity need met by wind, solar, and water will, in general, decrease health risks associated with electricity production.

Ice shedding, tower collapse, blade failure, stray voltage, and fire in the turbines are all possible, though proper siting and setbacks as described below from dwellings, roads, and other existing facilities minimize the potential risks from these types of incidents. To the best of the Applicant's knowledge, there are no known instances of a member of the general public being injured at an operating wind farm in the United States.

(a) Gaseous, Liquid, and Solid Wastes to be Produced During Construction and Operation

One of the advantages of producing electricity from wind is that it does not produce gaseous, liquid or solid wastes during operation. With respect to construction, the generation of gaseous, liquid and/or solid waste is primarily limited to standard operation of construction equipment and will be handled by the BOP contractor in accordance with all applicable laws and regulations pertaining to such wastes.

Project construction will generate relatively minor amounts of solid waste, primarily plastic, wood, cardboard and metal packing/packaging materials, construction scrap, and general refuse. This material will be collected from turbine sites and other Project work areas, and disposed of in dumpsters located at the construction staging area(s). A private contractor will empty the dumpsters on an as-needed basis, and dispose of the refuse at a licensed solid waste disposal facility. The Article 10 Application will identify the local solid waste collection services and landfills/transfer stations.

(b) Anticipated Volumes of Wastes to be Released to the Environment

This is not applicable to wind power facilities. Please see (a) above and (e) below.

(c) Treatment Processes to Minimize Wastes Released to the Environment

This is not applicable to wind power facilities. Please see (a) above and (e) below.

(d) Procedures for Collection, Handling, Storage, Transport, and Disposal of Wastes

This is not applicable to wind power facilities. Please see (a) above and (e) below.

(e) Wind Power Facility Impacts

(1) Blade Throw and Tower Collapse

A potential public safety concern with wind power projects is the possibility of a wind turbine tower collapsing or a rotor blade dropping or being thrown from the nacelle. While extremely rare, such incidents have occurred; however, to the best of the Applicant's knowledge, no member of the public has ever been injured as a result of these incidents and local setbacks have proved to be sufficient to protect area homes and public roads.

The reasons for a turbine collapse or blade throw vary depending on conditions and tower type. The main causes of blade and tower failure are a control system failure leading to an over speed situation, a lightning strike, or a manufacturing defect in the blade (Garrad Hassan America, Inc., 2010) Technological improvements and mandatory safety standards during turbine design, manufacturing, and installation have significantly reduced the instances of blade throw (Garrad Hassan, 2007).

The Article 10 Application will include the results of additional literature review to identify the potential public health and safety concerns associated with potential blade throw and tower collapse.

(2) Audible Frequency Noise

The Project is not expected to result in any public health and safety issues due to audible frequency noise. Please see Section 2.19 of this PSS for additional information on the proposed noise analysis.

(3) Low-Frequency Noise

No impact is expected from Project-related infrasound or low frequency noise. Infrasound is sound pressure fluctuations at frequencies below about 20 Hz, and is generally not audible. Low frequency sound is in the audible range of human hearing (i.e., above 20 Hz, but below 100 to 200 Hz, depending on the definition). Numerous studies show that the low frequency content in the sound spectrum of a typical modern wind turbine, like those proposed for this Facility, is no higher than that of the natural background sound level in rural areas (e.g., Sondergaard & Hoffmeyer, 2007; Hessler et al., 2008). There is no evidence that the audible or sub-audible sounds produced by operating wind turbines have any direct adverse physiological effects and the

ground-borne vibrations from wind turbines are too weak to be detected by, or to affect, humans (Colby et al., 2009).

(4) Ice Throw

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, no serious accidents caused by ice being "thrown" from an operating wind turbine have been reported (IEA Wind, 2012). However, ice shedding and ice throw do occur, and could represent a potential safety concern.

Under certain weather conditions, ice may build up on the rotor blades and/or sensors, slowing the rotational speed, and potentially creating an imbalance in the weights of the individual blades. Such effects of ice accumulation can be sensed by the turbine's computer controls and would typically result in the turbine being shut down until the ice melts. Field observations and studies of ice shedding indicate that most ice shedding occurs as air temperatures rise and the ice on the rotor blades begins to thaw. Therefore, the tendency is for ice fragments to drop off the rotors and land near the base of the turbine (Morgan et al., 1998; Ellenbogen, et al., 2012). Ice can potentially be “thrown” when ice begins to melt and stationary turbine blades begin to rotate again; if ice falls from a stationary turbine during very high wind conditions that are strong enough to carry the ice some distance; or in the event of a failure of the turbine’s control system.

The distance traveled by a piece of ice depends on a number of factors, including: the position of the blade when the ice breaks off, the location of the ice on the blade when it breaks off, the rotational speed of the blade, the shape of the ice that is shed (e.g., spherical, flat, smooth), and the prevailing wind speed. Data gathered at existing wind farms have documented ice fragments on the ground at a distance of 50 to 328 feet from the base of the tower. These fragments were in the range of 0.2 to 2.2 pounds in mass (Morgan et al., 1998). Ice throw observations are also available from a wind turbine near Kincardine, Ontario, where the operator conducted 1,000 inspections between December 1995 and March 2001. Only 13 of the 1,000 inspections noted ice fragments, which were documented on the ground at a distance up to 328 feet (100 meters) from the base of the turbine, with most found within 164 feet (50 meters) (Garrad Hassan America, Inc., 2007). While the height of wind turbines is also a factor to be considered, the “Wind Turbine Health Impact Study” prepared by an independent expert panel for the Massachusetts Department of Public Health concluded that, “ice is unlikely to land farther from the turbine than its maximum vertical extent” (Ellenbogen, 2012).

The Article 10 Application will include the results of additional literature review to identify the potential public health and safety concerns associated with ice throw, operational measures that can be employed to minimize the potential for ice throw and siting criteria and setbacks to protect nearby residents, snowmobilers, and motorists from falling ice. However, the general public is not likely to be at risk from falling ice because the turbines will be located on leased private land and access by the general public is restricted.

(5) Shadow Flicker

Shadow flicker refers to the moving shadows that an operating wind turbine casts over an identified receptor at times of the day when the turbine rotor is between the sun and a receptor's position. Shadow flicker is most pronounced in northern latitudes during winter months because of the lower angle of the sun in the winter sky. However, it is possible to encounter shadow flicker anywhere for brief periods before sunset and after sunrise (U.S. Department of the Interior, 2005).

The distance between a wind turbine and a potential shadow-flicker receptor affects the intensity of the shadows cast by the blades, and therefore the intensity of flickering. Shadows cast close to a turbine will be more intense, distinct, and focused. This is because a greater proportion of the sun's disc is intermittently blocked by the turbine (BERR, 2009). At distances beyond roughly 10 rotor diameters, shadow-flicker effects are generally considered negligible (BERR, 2009; DECC, 2011).

Although shadow flicker has been alleged to cause or contribute to health effects, blade pass frequencies for modern commercial scale wind turbines are very low. According to the Epilepsy Society (2012), approximately five percent of individuals with epilepsy have sensitivity to light. Most people with photosensitive epilepsy are sensitive to flickering around 16-25 Hz (Hertz or Hz = 1 flash per second), although some people may be sensitive to rates as low as 3 Hz and as high as 60 Hz. Modern wind turbines operate at a frequency of 1 Hz or less, and there is no evidence that wind turbines can trigger seizures. The primary concern with shadow flicker is the annoyance it can cause at certain levels for adjacent homeowners. However, it is important to note that annoyance is not a disease or physical illness in and of itself; rather it is a variable and subjective response to stimuli. (British Epilepsy Association, 2007; Ellenbogen et al., 2012; Parsons Brinckerhoff, 2011; NHMRC, 2010).

The Article 10 Application will include a Project-specific shadow flicker analysis. Specifically, a study of potential shadow flicker occurrence on nearby residences will be conducted, including number of potential receptors and predicted annual hours of shadow flicker at each receptor. A maximum distance of potential effect 10 rotor diameters will be used for this analysis to ensure that all potentially impacted structures were assessed.

The shadow flicker analysis for the proposed Project will use *WindPRO* software and the associated Shadow module, which is a widely accepted modeling software package developed specifically for the design and evaluation of wind power projects. Input variables and assumptions used for shadow flicker modeling calculations for the proposed Project will include:

- Latitude and longitude coordinates of proposed wind turbine sites
- Latitude and longitude coordinates for residential structures located within a 10 rotor diameter radius of all proposed turbine locations.
- USGS 1:24,000 topographic mapping and USGS digital elevation model (DEM) data (10-meter resolution).
- The rotor diameter and hub height of the proposed turbine model.
- Annual wind rose data.
- The average monthly percent of available sunshine for the nearest National Oceanic and Atmospheric Administration weather station in Buffalo, NY.

Shadow flicker occurrence on receptors are expressed in terms of predicted frequency (hours per year). Shadow isolines (i.e., contours indicating total number of hours of shadowing per average year) are calculated based on the data and assumptions outlined above. These isolines define the theoretical number of hours per year that shadow flicker would occur at any given location within 10 rotor diameters of all proposed turbines. The model calculations will include the cumulative sum of shadow hours for all Project turbines. This omni-directional approach reports total shadow flicker results at a receptor regardless of the presence or orientation of windows at that particular residence (i.e., it assumes shadows from all directions can be perceived at a residence, which may or may not be true). A receptor in the model will be defined as a one square meter area located one meter above ground; consistent with industry standards, actual house dimensions are not taken into consideration.

No consistent national, state, county, or local standards exist for allowable frequency or duration of shadow flicker from wind turbines at the proposed 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 (USDOE, 2008, 2012; NRC, 2007). However, standards developed by some states and countries provide guidance in this regard. The New Hampshire Office of Energy and Planning (2008) issued a model ordinance for small wind energy systems (<100kW) that defines significant shadow flicker impacts as more than 30 hours per year on abutting occupied buildings. A model wind ordinance prepared by the North Carolina Wind Working Group

in 2008 suggests a limit of 30 hours per year (generally less than 1% of annual daylight hours) at any occupied building on a non-participating landowner's property (NCWWG, 2008). The Wisconsin Administrative Code (WAC) specifies a limit of 30 hours per year at any non-participating residence or occupied community building (Wisconsin Public Service Commission, 2012). The WAC also requires mitigation for non-participating residences or occupied community buildings experiencing 20 hours or more per year of shadow flicker. The Ohio Power Siting Board uses 30 annual hours of shadow flicker as a threshold of acceptability in reviewing commercial wind power projects (OPSB, 2011a, 2011b, 2012). Additionally, international guidelines from Europe and Australia have suggested 30 hours of shadow flicker per year as the threshold of significant impact, or the point at which shadow flicker is commonly perceived as an annoyance (NRC, 2007; DECC, 2011; DPCD, 2012). Accordingly, a threshold of 30 shadow flicker hours per year will be applied to the analysis of the proposed Project to identify any non-participating residences that are conservatively modeled to receive more than 30 shadow flicker hours per year.

The results of the shadow flicker analysis will be summarized in a stand-alone study, which will be included with the Article 10 Application.

(f) Public Health and Safety Maps

The required maps will be prepared and included in the Article 10 Application, and data sources are anticipated to include the NYS GIS Clearinghouse, FEMA, and the USGS.

(g) Significant Impacts on the Environment, Public Health, and Safety

As indicated above in subsections (a) through (d), the Project is not expected to result in any significant public health or safety concerns associated with gaseous, liquid, or solid wastes. Wind energy facilities are safer than other forms of energy production, since significant use and storage of combustible fuels are not required. Public safety concerns associated with the operation of a wind power project are somewhat more unique. As discussed in subsection (e) above, such concerns include blade throw and tower collapse, audible frequency and low frequency noise, ice shedding and ice throw, and shadow flicker. The Article 10 Application will include a summary of all significant impacts on the environment, public health, and safety associated with the information identified above in subsection (a) through (e).

(h) Unavoidable Adverse Impacts and Appropriate Mitigation/Monitoring Measures

The Article 10 Application will address potential adverse impacts on the environment, public health, and safety that cannot be reasonably avoided, and measures for monitoring and mitigating such impacts.

(i) Irreversible and Irretrievable Commitment of Resources

The proposed Project will require the irreversible and irretrievable commitment of certain human, material, environmental, and financial resources. Human and financial resources will be expended by numerous entities including the Applicant, the State of New York (i.e., various state agencies), Chautauqua County, and the Towns of Charlotte, Cherry Creek, Arkwright and Stockton for the planning and review of the Project. The expenditure of funds and human resources will continue throughout the permitting and construction phases of the Project.

The Project will also represents a commitment of land for the life of the Project, which is expected to be approximately 25 years, associated with its footprint (e.g., the land to be developed for wind turbines, access roads, the O&M building, permanent meteorological towers, the overhead generator lead line, collection substation and the point of interconnect facility). However, because the turbines /met towers may be removed at the end of their useful life, the commitment of this land to the Project may not be irreversible or irretrievable.

Various types of manufacturing and construction materials and building supplies will be committed to the Project. The use of these materials, such as gravel, concrete, reinforcement steel, cables 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) may be retrievable following the operational life of the Project.

The Article 10 Application will provide additional detail regarding the Project's irreversible and irretrievable commitment of resources.

(j) Impact Minimization Measures

Impact minimization efforts begin early in the development of a wind power project, and initially is associated primarily with appropriate siting of the individual wind turbines. As previously indicated, at a minimum all wind turbines to be constructed for this Project will adhere to the setbacks established in the local zoning ordinances. Based on the Applicant's experience developing and operating other wind power projects, such setbacks should adequately protect nearby residents and motorists from falling/thrown ice or blade failure/tower

collapse. In addition, unauthorized public access to the site will be limited by posting signs to alert the public (and maintenance workers) of potential ice shedding risks. Based upon the results of studies/field observations at other wind power projects, the Project's siting criteria, and the proposed control of public access to the turbine sites, it is not anticipated that the Project will result in any measurable risks to the health or safety of the general public due to ice shedding, ice throw, blade failure, or tower collapse. The Article 10 Application will provide additional detail regarding any measures proposed by the Applicant to minimize such impacts, including any measures identified in the Project-specific studies associated with noise and shadow flicker.

(k) Mitigation Measures

In the Applicant's experience, if a given project is properly sited and designed, mitigation measures are generally not necessary because significant impacts to public health and safety typically do not occur. However, any mitigation measures that are warranted based on the Project-specific studies associated with noise and shadow flicker will be identified in the Article 10 Application. For example, if a non-participating residence is modeled to experience in excess of 30 hours of shadow flicker per year, mitigation measures may include implementation of screening(s) at the residence. In addition, as previously mentioned the Applicant will implement a Complaint Resolution Plan, which will consist of the following:

- Communications protocol and contacts for construction and operation
- Registering a complaint
- Process for gathering and analyzing information regarding the complaint
- Complaint Response and Tracking
- Complaint Response follow up

The Application will describe each of these steps in the Complaint Resolution process in significant detail, and will identify any other measures proposed by the Applicant to mitigate such impacts.

(l) Proposed Monitoring

In addition to the measures identified above in subsection (k), the engineering standards of the wind turbines that will be used for this Project will be of the highest level and meet all federal, state, and local codes. In the turbine design phase, state and local laws require that licensed professional engineers review and approve the structural elements of the turbines. State of the art braking systems, pitch controls, sensors, and speed controls on wind turbines have greatly reduced the risk of tower collapse and blade throw, and sensors also monitor for ice buildup on blades. The wind turbines will be equipped with two fully independent braking systems that allow the rotor to be brought to a halt

under all foreseeable conditions, and they will also cease operation if significant vibrations or rotor blade stress is sensed by the turbines' blade monitoring systems. The Article 10 Application will identify any monitoring proposed by the Applicant.

2.16 POLLUTION CONTROL FACILITIES

The proposed Project is not expected to require pollution control facilities, and as such, the requirements of this exhibit are not applicable to this Project.

2.17 AIR EMISSIONS

Global climate change has been recognized as one of the most important environmental challenges of our time (NYSCAC, 2010; NYSDEC, 2009, 2010). There is scientific consensus that human activity is increasing the concentration of greenhouse gases (GHGs) in the atmosphere and that this, in turn, is leading to serious climate change. By its nature, climate change will continue to impact the environment and natural resources of the State of New York (NYSDEC, 2009). Historically, New York State has been proactive in establishing goals to reduce GHG emissions, including Executive Order 24, which seeks to reduce GHG emissions by 80% by the year 2050 and also includes a goal to meet 45% of New York's electricity needs through improved energy efficiency and clean renewable energy by 2015 (Paterson, 2009). Fuel combustion accounts for approximately 89% of total GHG emissions in New York State (NYSDEC, 2009).

(a) Compliance with Applicable Federal, State, and Local Regulatory Requirements

In accordance with Section 111 of the Clean Air Act Extension of 1970, the U.S. Environmental Protection Agency (EPA) established New Source Performance Standards (NSPSs) to regulate emissions of air pollutants from new stationary sources. These standards apply to a variety of facilities including landfills, boilers, cement plants, and electric generating units fired by fossil fuels. The NYSDEC Division of Air Resources administers an air permitting program as required by the Clean Air Act and 6 NYCRR Part 201. The two most common types of permit for air contamination sources are State facility and Title V facility permits. Because wind turbines generate electricity without releasing pollutants into the atmosphere, the proposed facility will not be subject to NSPSs, and will not require air pollution control permits under Clean Air Act or New York State law or regulation.

The 1984 State Acid Deposition Control Act required the reduction of sulfur dioxide (SO2) emissions from existing sources and nitrogen oxides (NOx) emission controls on new sources in New York State. SO2 and NOx are the

primary causes of acid rain. The Acid Rain Program was created under Title IV of the 1990 Clean Air Act Amendments, with the goal of reducing emissions of SO2 and NOx for the environmental and public health benefits. These regulations are also not applicable to the proposed facility, since it will generate electricity without releasing SO2 or NOx.

There are no applicable local regulatory requirements pertaining to air emissions.

(b) Assessment of Existing Ambient Air Quality Levels and Trends in the Region

The NYSDEC Division of Air Resources publishes air quality data for New York State annually. The most recent summary of air quality data available for the state is the *New York State Air Quality Report for 2014* (NYSDEC, 2015). Included in this report are the most recent ambient air quality data, as well as long-term air quality trends derived from data that have been collected and compiled from numerous state and private (e.g., industrial, utility) monitoring stations across the state. These trends are assessed and reported by NYSDEC regions. The proposed facility is located in NYSDEC Region 9, which encompasses Niagara, Erie, Wyoming, Allegany, Cattaraugus, and Chautauqua Counties. There are nine monitoring stations in Region 9, five in Erie County (Buffalo, Buffalo Near Road, Amherst, Grand Isle Blvd, and Brookside Terrace), and two each in Niagara (Middleport and Niagara Falls) and Chautauqua (Dunkirk and Westfield) Counties. Dunkirk and Westfield both monitor ozone (O3), SO2, and inhalable particulates (PM2.5); Niagara Falls monitors for SO2 and PM2.5; Middleport monitors for O3; Grand Isle Blvd and Brookside Terrace both monitor for SO2; Amherst monitors for O3 and nitrogen dioxide (NO2); Buffalo Near Road monitors for carbon monoxide (CO) and PM2.5; and Buffalo monitors for SO2, PM2.5, NO2, and CO.

The Clean Air Act requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. In 2014, all Region 9 sampling points were within the acceptable levels established by the NAAQS for all tested parameters (NYSDEC, 2015). No local air monitoring data is available to further characterize air quality in the immediate vicinity of the proposed facility.

(c) Emissions by Combustion Sources Table

Wind turbines generate electricity without combusting fuel or releasing pollutants into the atmosphere. Therefore, the table required by 1001.17(c) summarizing the rate and amount of emissions is not applicable to the proposed facility and will not be included in the Article 10 Application.

(d) Potential Impacts to Ambient Air Quality

The Article 10 Application will include a discussion of the anticipated impacts to air quality expected to result from Project construction and operation. These impacts are briefly summarized herein. However, as indicated above, wind turbines generate electricity without combusting fuel or releasing pollutants into the atmosphere. Therefore, the specific requirements of 1001.17(d) pertaining to pollutant emissions are not applicable to the proposed facility and will not be included in the Article 10 Application.

During the site preparation and construction phases of the Project, temporary minor 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. Any impacts from fugitive dust emissions from travel on unpaved roads are anticipated to be short-term and localized and will be avoided or corrected quickly. Dust control procedures will be implemented to minimize the amount of dust generated by construction activities, in a manner consistent with the Standards and Specifications for Dust Control, as outlined in the *New York State Standards and Specifications for Erosion and Sediment Controls* (NYSDEC, 2005).

The operation of this Project is anticipated to have a positive impact on air quality by producing electricity with zero emissions (except for very small emissions from vehicles servicing the facility). Electricity delivered to the grid from wind energy projects can off-set the generation of energy at existing conventional power plants. According to a 2008 U.S. Department of Energy National Renewable Energy Laboratory report, "Wind energy is a preferred power source on an economic basis, because the operating costs to run the turbines are very low and there are no fuel costs. Thus, when the wind turbines produce power, this power source will displace generation at fossil fueled plants, which have higher operating and fuel costs." On a long-term basis, wind generated power also reduces the need to construct and operate new fossil fueled power plants (Jacobsen & High, 2008).

Natural gas is the most frequent marginal fuel unit in New York's power pool, or the one that is turned on or off as the load fluctuates (Patton et al., 2015). When the proposed facility is generating power, electricity generation from natural gas would be reduced within the region, thereby eliminating the associated emissions. The Article 10 Application will quantify, in tons, the estimated annual displacements resulting from facility operation for the following pollutants: CO2, NOx, SO2, mercury compounds, and lead compounds. However, the Article 10 Application will not include a detailed air emissions analysis or study typically associated with a fossil fuel generation facility.

(e) Offsite Consequence Analysis for Ammonia Stored Onsite

No ammonia will be stored onsite during Project construction or operation. Therefore, the offsite consequence analysis required by 1001.17(e) is not applicable to the proposed facility and will not be included in the Article 10 Application.

2.18 SAFETY AND SECURITY

Overall safety and security risks associated with the project are anticipated to be minimal. The Application will describe the methodology to be used to determine potential security risks, during both construction and operation of the Project, based on the Applicant's experience with other projects and reasonable expectations associated with the Cassadaga Wind Project. The Application will also identify a "Safety Protocol" regarding the safety and security of the wind turbine construction and operation stages, starting with off-site transport and including all the steps through turbine erection and operation.

(a) Preliminary Plans for Site Security During Facility Construction

To reduce safety and security concerns, public access to the facility shall be limited. The contractor will be required to provide a site security plan for Project construction, which will be developed by the contractor selected to lead the construction of the facility (i.e., BOP contractor) post certification. Preparation of the site security plan will initiate immediately following selection of the BOP contractor, and will be provided to the Energy Siting Board upon completion. The Application will provide a preliminary, typical site security plan for construction, which will include the following:

(1) Access Controls

Typical safety and security plans employed include restricting public access to the Project site during construction by locked gates and signage. The general public would not be allowed on the construction site, and, after hours, vehicular access to such sites would be blocked by parked equipment or temporary fencing. Temporary construction fencing or other visible barriers would be placed around excavations that remain open during off hours.

(2) Electronic Security and Surveillance Facilities

Trespassing is generally not an issue during construction of wind power projects. However, if problems arise, video cameras or other surveillance technology may be set up to monitor activity.

(3) Security Lighting

Security lighting activities associated with Project construction will include lighting of the staging area(s) and areas immediately around the office trailers. Lighting will be directed downward where possible to minimize the effects of light pollution and will be minimized to the extent practical in order to reduce potential wildlife attraction.

(4) Setback Considerations

Please see Section 2.6(a) of this PSS for information related to setbacks, and Section 2.15(j) regarding minimizing safety concerns through appropriate setbacks. The Application will provide additional detailed associated with setbacks and related safety concerns.

(b) Preliminary Plans for Site Security During Facility Operation

It is anticipated that the Applicant will own and operate the Cassadaga Wind Project. Therefore, the Applicant will be responsible for site safety and security during operation, and preparation of the associated plan. The Article 10 Application will contain a preliminary site security plan for operation, which will likely include the following:

(1) Access Controls

Access roads will have gates that are kept locked to keep the general public out. All wind turbines have access doors at their bases that are closed and locked, and substations are fenced, gated, and locked at all times. In the Applicant's experience, door locks have proven to be sufficient to prevent access by unauthorized personnel. However, if tower trespass and access becomes a problem, intrusion detection can be added as needed.

(2) Electronic Security and Surveillance Facilities

Substations will have alarms systems and video recording in place. No other electronic security is currently anticipated for the Project. However, as mentioned above, intrusion detection can be added to the wind turbine towers if needed.

(3) Security Lighting

The Article 10 Application will provide a detailed description of security lighting activities associated with the Project. External lighting on all buildings will be designed in consideration of required ingress and egress during emergency situations. Lighting will be directed downward where possible to minimize the effects of light pollution to the extent practical. Lights will be kept turned off when not in use, either manually or through the use of motion sensors, heat sensors, timers, or other automatic means.

(4) Aircraft Safety Lighting

Lighting of the turbines (and other infrastructure as needed) will be in accordance with FAA regulations, and will follow specific design guidelines to reduce collision risk. The Article 10 Application will provide details associated with preliminary consultation with the FAA, including correspondence received specific to the Cassadaga Wind Project.

(5) Setback Considerations

Please see Section 2.6(a) of this PSS for information related to setbacks, and Section 2.15(j) regarding minimizing safety concerns through appropriate setbacks. The Application will provide additional detailed associated with setbacks and related safety concerns.

(6) Cyber Security Program

The Article 10 Application will provide a discussion on how the Applicant will comply with the North American Electric Corporations (NERC's) CIP standards. These mandatory Reliability Standards include CIP standards 001 through 009, which address the security of cyber assets essential to the reliable operation of the electric grid. To date, these standards (and those promulgated by the Nuclear Regulatory Commission) are the only mandatory cybersecurity standards in place across the critical infrastructures of the United States. Subject to

FERC oversight, NERC and its Regional Entity partners enforce these standards, which are developed with substantial input from industry and approved by FERC, to accomplish NERC's mission of ensuring the security and reliability of the electric grid (NERC 2013).

The Applicant is partnered with an Industry Leading Managed Security Services Provider that is compliant with the necessary NERC CIP standards. All firewalls and servers are monitored 24 hours/day, 7 days/week by a Security Operations Center.

(c) Preliminary Safety Response Plan

An Emergency Action Plan (EAP) will be developed before the start of construction and will outline the safety plans of the Project throughout its lifecycle. The information contained in the EAP will be developed in conjunction with local emergency service providers, will be made available to the employees of the Applicant and any visitors or workers to the Project, and will outline the procedures to follow in the event of an emergency. The EAP, a draft of which will be provided with the Application, is established to give additional awareness to the following:

- Identify alarm and emergency evacuation procedures.
- Identify procedures to be followed by site personnel who remain to operate critical operations before they evacuate.
- Identify rescue and medical duties for all site personnel following emergency evacuation.
- Identify persons who can be contacted for further information or explanation of duties under this plan.
- Establish training guidelines for site personnel regarding this plan to support safe practices in the event of an emergency.

(1) Identification of Contingencies that Would Constitute an Emergency

The EAP as described above will outline the contingencies that would constitute a safety or security emergency. A draft EAP will be provided in the Article 10 Application.

(2) Emergency Response Measures by Contingency

In the event an emergency response measure is necessary the EAP described above will provide detailed instructions to site personnel, the general public, and emergency responders.

(3) Evacuation Control Measures by Contingency

Unlike a nuclear facility or a natural gas facility, a wind power project does not create safety concerns of a magnitude that would necessitate an evacuation. Therefore, Project-related operations are not anticipated to require evacuation. Although unlikely, natural disasters (e.g., tornadoes, earthquakes) represent the only possible circumstances that may require excavation. However, in the event an evacuation from the Project Site is necessary the EAP described above will provide detailed instructions to site personnel, the general public, and emergency responders.

(4) Community Notification Procedures by Contingency

The EAP as described above will outline the community notification procedures should an emergency situation occur.

(d) Provision of Security and Safety Plans to NYS Division of Homeland Security

The Application will include documentation of submittal of the preliminary security plans to the New York State Division of Homeland Security and Emergency Services. Upon approval the plan would be implemented within the first 3 months of operation.

(e) Provision of Security and Safety Plans to Local Office of Emergency Management

The Project site is not located within any part of a city that has a population over one million and therefore a review by the local office of emergency management is not required. However, the Applicant will coordinate with the Chautauqua County Emergency Services Department and provide a copy of our Emergency Action Plan to them.

(f) Onsite Equipment to Respond to Fire Emergencies or Hazardous Substance Incidences

The EAP, as described above, will include a detailed list of all equipment available for responding to fire emergencies or hazardous substance incidences. In general the Applicant will provide fire extinguishers in all turbines, automated external defibrillators, first aid kits, spill kits, and Spec Pak at all sites. There will also be emergency descent rescue devices in the nacelles of every turbine to allow personnel to escape from a turbine in the event of a serious injury, fire, etc. Sliders for the fall arrest system will be provided to emergency responders who have been specifically qualified to climb wind turbines.

(g) Contingency Plans for Fire Emergencies or Hazardous Substance Incidences

The Application will include contingency plans that would be implemented in the event a fire emergency or hazardous substance incident occurs. Drills with emergency responders at each site would occur at least once a year. Drill activities would be jointly decided between site management and emergency responders and typically cover a different rescue aspect each time. In addition, a detailed Spill Prevention, Control and Countermeasure (SPCC) plan will be prepared, and implemented, for both the construction and operation phases of the Project. The SPCC plans will provide a detailed assessment of potential hazardous substances that could be utilized during the construction, operation or maintenance of the Project. Typically, potential hazardous substances would consist of various oils such as hydraulic oil, mineral oil, and lubricating oil.

(h) Provision of Security and Safety Plans to Local Emergency First Responders

The EAP, as described above, will be provided to the local emergency first responders that serve the Project, and such consultation will be documented in the Article 10 Application.

2.19 NOISE AND VIBRATION

A study of the noise impacts of the construction and operation of the facility, related facilities and ancillary equipment will be prepared by Isaac Old and Ken Kaliski of RSG Inc. (RSG). Mr. Kaliski is Board Certified through the Institute of Processional Engineers and is a licensed professional engineer (VT, NH, MA, MI, IL). Modeling will be done in accordance with ISO 9613. Sound monitoring will be done in accordance with ANSI S12.18, as appropriate.

(a) Sensitive Sound Receptor Map

A map of the study area showing the location of sensitive sound receptors in relation to the Project, related facilities and ancillary equipment (including any related substations) will be created by data generated by the Applicant. A desktop analysis using aerial imagery and field verification was used to develop and classify sensitive sound receptors within the Project boundary. For sensitive receptors outside the Project boundary, only aerial imagery was used to identify those receptors within 1 mile of the nearest turbine. If access for field verification was not possible and aerial imagery could not provide an obvious classification of a structure (i.e. residential vs. non-residential) then the structure was assumed to be a sensitive sound receptor. The sensitive sound receptors shown will include residences, outdoor public facilities and areas, hospitals, and schools.

(b) Ambient Pre-construction Baseline Noise Conditions

On behalf of the Applicant, RSG has completed winter background sound level monitoring at six representative locations within the Project Area. The locations of these monitors are shown in Figure 3. Monitoring was performed over a period of approximately fourteen days and nights. This length of time allows for measurement during a variety of meteorological conditions and vehicle traffic levels for each area. At all locations, 1/3 octave band and A-weighted equivalent sound pressure levels were measured once each second. The relatively short data integration interval will allow for calculation of sound levels at each location that will be exceeded 10%, 50%, and 90% of the time and collection of 1/3 octave band data will allow for identification of tones. All data is time stamped, allowing for separation of data into daytime and nighttime periods. One second equivalent average sound levels (L_{eq}) can be energetically averaged to allow for calculation of overall daytime and nighttime equivalent average sound levels. Each monitor was also equipped with an audio recorder for sound source determination. All monitors are lab calibrated at least every two years and calibrated on-site before and after the measurement periods. Summer monitoring is scheduled for 2015 and will be conducted in the same manner described above.

(c) Future Noise Levels at Receptors During Facility Construction

To evaluate noise levels during construction, A-weighted construction noise will be provided for equipment typically used to construct wind power projects. Sound levels due to construction equipment will be modeled at the closest residential location to the project using the Cadna /A sound propagation model.

(d) Estimated Noise Levels to be Produced by Operation of the Facility

The wind turbines and substation will be modeled under the standard ISO 9613-2 conditions relating to a moderate nighttime inversion or, equivalently, downwind propagation, and the least attenuation due to temperature and humidity (10 degrees Celsius, 70 percent relative humidity).

(e) Future Noise Levels at Receptors During Facility Operation

The model will predict A-weighted sound levels at each sensitive receptor. Tonal prediction will be based upon the sound power of the wind turbines. That is, if the sound power is not tonal, the receiving sound will not be tonal. For substation transformers, the modeled results at the worst-case receiver will be evaluated to assess the prominence

of transformer tones. Amplitude modulation will be addressed by determining whether the area has unusually high wind shear or turbulence that could contribute to the phenomenon.

Specifically, RSG will perform sound propagation modeling for the proposed Project. RSG will model project sound levels, using the ISO 9613-2 algorithm relating to a moderate nighttime inversion or, equivalently, downwind propagation, and the least attenuation due to temperature and humidity (10˚C, 70% relative humidity), as implemented in Datakustik's Cadna/A modeling package. Sound levels will be calculated for a variety of operational conditions and meteorological conditions at all identified sensitive receptors. The modeling of a variety of operational and meteorological conditions will allow for calculation of tenth and fiftieth percentile sound levels (L_{10} and L_{50}), as emitted from the Project. These can then be added to the fiftieth and ninetieth percentile background sound levels (L_{50} and L_{90}), to determine the required noise levels. Modeling results will be compared to sound level limits that are applicable to the Project, including standards provided in the local laws, the DEC's Noise Guidance as well as guidelines from organizations such as the World Health Organization (WHO). Mitigation methods that can be applied to wind turbines and ancillary equipment will be described in the Article 10 Application.

Please note that no impact is expected from Project-related infrasound or low frequency noise. Infrasound is sound pressure fluctuations at frequencies below about 20 Hz, and is generally not audible. Low frequency sound is in the audible range of human hearing (i.e., above 20 Hz, but below 100 to 200 Hz, depending on the definition). Numerous studies show that the low frequency content in the sound spectrum of a typical modern wind turbine, like those proposed for this Facility, is no higher than that of the natural background sound level in rural areas (e.g., Sondergaard & Hoffmeyer, 2007; Hessler et al., 2008). There is no evidence that the audible or sub-audible sounds produced by operating wind turbines have any direct adverse physiological effects and the ground-borne vibrations from wind turbines are too weak to be detected by, or to affect, humans (Colby et al., 2009).

Low frequency sound is a component of the broad spectrum sound generated by wind turbines. As with infrasound, high levels of low frequency sound can induce rattling in light-weight partitions in buildings. The American National Standards Institute standard, ANSI S12.2, "Criteria for Evaluating Room Noise", recommends that sound levels inside buildings be kept below 65 dB at 16 and 31.5 Hz, and below 70 dB at 70 Hz to prevent moderately perceptible vibration and rattles. Low frequency sound is primarily generated by the generator and mechanical components. Much of the mechanical noise has been reduced in modern wind turbines through improved sound insulation at the hub. Low frequency sound can also be generated by the blades at higher wind speeds when the inflow air is very turbulent. However, at such wind speeds, low frequency sound from the wind turbine blades is often masked by wind noise at the downwind receivers (RSG, 2013).

Low frequency and infrasound emissions from the Project will be addressed in the Article 10 Application. Manufacturer low frequency and infrasound data will be used if it is available. Modeling of infrasound will not be conducted, as engineering models for infrasound do not exist. However, data from the literature will be used from measurements of similar turbines. These levels will be compared with published audibility thresholds and dose-response curves.

(f) Predicted Sound Levels Table

The Article 10 Application will provide the A-weighted/dBA sound levels, in tabular form, for the Project Area. Article 10 requires the applicant to produce estimates of percentile sound levels from the project. Since ISO 9613-2 is used to model equivalent average sound levels, not percentiles, an alternative methodology must be used. RSG is proposing to model 8,760 hours of wind turbine sound levels at each receiver by combining the Concawe meteorological adjustments found in Cadna/A with the estimates of hourly turbine power and one year of met tower data (Kaliski, Duncan 2010) Using this method, RSG will estimate percentile levels from the wind turbines at each receiver.

1) The daytime ambient noise level will be calculated from summer and winter background sound level monitoring data. This will be equal to the lower tenth percentile (L90) of sound levels measured during the daytime at each of the monitoring locations.
2) The summer nighttime ambient noise level will be calculated from summer background sound level monitoring data. This will be equal to the lower tenth percentile (L90) of sound levels measured at night, during the summer at each of the monitoring locations.
3) The winter nighttime ambient noise level will be calculated from background sound level monitoring data. This will be equal to the lower tenth percentile (L90) of sound levels measured at night, during the summer at each of the monitoring locations.
4) The worst case future noise level during the daytime period will be determined by logarithmically adding the daytime ambient sound level (L90), calculated from background sound level monitoring, to the modeled upper tenth percentile sound level (L10) of project.
5) The worst case future noise level during the summer nighttime period will be determined by logarithmically adding the summer nighttime ambient sound level (L90), calculated from background sound level monitoring, to the modeled upper tenth percentile sound level (L10) of project.
6) The worst case future noise level during the winter nighttime period will be determined by logarithmically adding the winter nighttime ambient sound level (L90), calculated from background sound level monitoring to the modeled upper tenth percentile sound level (L10) of project.

7) The daytime ambient average noise level will be calculated by logarithmically averaging sound pressure levels (Leq) from the background sound level measurements over the daytime period at each monitoring location.
8) Typical facility noise levels will be calculated as the median sound pressure level emitted by the project. The median sound pressure level will be calculated by determining the frequency of site specific meteorological conditions and sound emissions of the project due to those conditions.
9) Typical facility daytime noise levels will be calculated as the daytime equivalent average sound level (Leq) that was measured at each monitoring location, logarithmically added to the median project sound pressure level (L50).

(g) Applicable Noise Standards

A description of the noise standards applicable to the Project, including any local regulations, noise design goals at potentially impacted receptors (e.g. homes, public facilities, hospitals, etc.), and at property boundary will be provided with the Article 10 Application.

(h) Noise Standards Comparison Table

A table outlining noise standards applicable to the Project, including any local regulations, noise design goals at potentially impacted receptors (e.g. homes, public facilities, hospitals, etc.), and at property boundary will be provided with the Article 10 Application, including the degree of compliance indicated by the above-referenced noise modeling.

(i) Noise Abatement Measures for Construction Activities

A noise complaint resolution plan during the construction period shall be provided as part of the Article 10 Application. The protocol shall include noise abatement measures for Project activities along with procedures for handling complaints.

(j) Noise Abatement Measures for Facility Design and Operation

The Article 10 Application will include a discussion of different mitigation options that are available for wind turbines and ancillary equipment to the extent necessary.

(k) Community Noise Impacts

The potential for the Project to result in hearing damage will be addressed using OSHA standards. Indoor and outdoor speech interference will be addressed using the EPA Guideline Level, which is protective of activity interference. Community complaint potential will be addressed using WHO Guidelines for Community Noise serious and moderate annoyance criteria, ANSI S12.9 Part 5, and/or scientific studies specific to wind turbine annoyance and DEC's Noise Guideline. Information found in these sources, compared with sound propagation modeling of the project will help determine the potential for complaints. The Applicant is not aware of a wind project that resulted in structural damage due to noise, and this Project is not anticipated to result in any structural damage. Interference with technical, industrial, or medical activities will only be evaluated if such activities are within one mile of the Project, since criteria would be specific to the type of activity taking place.

(l) Post-construction Noise Evaluation Studies

A post-construction noise evaluation protocol will be developed as part of the Application.

(m) Operational Controls and Mitigation Measures to Address Reasonable Complaints

A noise complaint resolution plan will be developed. Separately, potential post-construction mitigation measures and their feasibility will be developed specific to noise problems that could arise after the Project is constructed.

(n) Input Parameters, Assumptions, and Data Used for Modeling

Specific modeling parameters will be included as an appendix to the technical report prepared by RSG, which will be included with the Article 10 Application.

2.20 CULTURAL RESOURCES

Consistent with 16 NYCRR § 1001.20 and the New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work (the SHPO Wind Guidelines; NYSOPRHP, 2006), the Applicant has initiated consultation with the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) to develop the scope and methodology for cultural resources studies for the facility. To date, formal consultation with NYSOPRHP has included initiating project review and consultation through NYSOPRHP's Cultural Resources

Information System (CRIS) website[2] and submission of two technical scoping reports: a Phase 1A Archaeological Resources Survey and Phase 1B Fieldwork Plan and a Phase 1A Historic Architectural Resources Survey and Work Plan (these reports are attached as Appendix G). These submissions are described in greater detail below.

On June 1, 2015, the Applicant submitted an initial project review request to NYSOPRHP via their on-line CRIS portal. The initial consultation submission included the following attachments:

- A copy of the Public Involvement Program Plan (PIP) prepared as part of the Article 10 process, and released in January 2015 to provide NYSOPRHP with information regarding the Project.
- A copy of a letter submitted to NYSOPRHP May 6, 2015 regarding assessment of potential visual impacts to New York State Parks. In April 2015, the Applicant had consulted with the host municipality representatives regarding potential visual impacts and cultural resources of importance to the local communities and to request their assistance in identification of additional visually sensitive resources within the study area. A copy of this local municipal outreach letter accompanied the State Parks consultation letter. The letter submitted to NYSOPRHP also reviewed the results of preliminary viewshed analysis of the Project relative to New York State Parks located within 10 miles of the Project. The results of this conservative viewshed analysis indicate the following with respect to State Parks:

  - From Midway Park, the Project will be fully screened from view by intervening topography.
  - From Long Point State Park, the Project will be fully screened from view by intervening topography.
  - From Lake Erie State Park, the proposed turbines may be visible from some locations. However, due to the slender profile of the turbines and the effects of distance (the nearest proposed turbine in the conceptual layout is 10.4 miles from the park boundary), it is not anticipated that the Project would have a significant visual effect. Because the park is located so far away from the Project, Lake Erie State Park may ultimately fall outside of the visual study area as it is refined.

On May 8, 2015, NYSOPRHP confirmed that it had reviewed the viewshed analysis and that while Parks was interested in reviewing the information presented in Exhibit 24, it was satisfied and concurred with the analysis and agreed that the information will demonstrate that State Parks resources will not be adversely impacted by the visual effects of the project's wind turbines. Accordingly, NYSOPRHP indicated that it would have no further concerns regarding Parks resources.

[2] NYSORPHP's Cultural Resources Information System is accessible at: http://www.nysparks.com/shpo/online-tools/.

On June 24, 2015, NYSOPRHP provided a response to the Applicant's June 1, 2015 consultation submission to CRIS. NYSOPRHP's response requested the following additional information.

> *Please submit a Historic Resources Study to address potential visual impacts to properties 50 years or older within a five-mile radius of the APE.*
>
> *The SHPO will be pleased to offer archaeological recommendations once we receive a map of the direct Area of Potential Effects. An attachment token has been provided to facilitate this request.*

See (a) and (b) below for discussion of the Archaeological and Historic Resources, respectively.

(a) Archaeological Resources

The Article 10 Application will contain a full analysis of the impacts of the construction and operation of the facility, interconnections, and related facilities on archaeological resources.

However, the scope and methodology of those studies that will support the impact analysis are provided below.

(1) Summary of Impacts and Avoidance Measures

This section will provide an overview of the nature of any potential impacts to archeological resources identified during the site-specific studies, and a summary of measures to be implemented to avoid or minimize such impacts.

(2) Phase 1A Cultural Resources Study

NYSOPRHP correspondence dated June 24, 2015 requested that a map showing the Area of Potential Effect (or APE) relative to archaeological resources be provided. The APE for archaeological resources includes all areas within the limits of disturbance for proposed construction activities. As noted previously, the layout for the Project is in the process of being determined, and therefore the precise APE for archaeological resources cannot be definitively determined at this time. However, in response to NYSOPRHP's June 24, 2015 request relative to archaeological resources, EDR prepared a *Phase 1A Archaeological Resources Survey & Phase 1B Fieldwork Plan* (see Appendix G), which was submitted through the CRIS website on August 3, 2015 and is summarized below. The purpose of the Phase 1A archaeological resources survey and work plan is to: 1. define the Project's area of potential effect (APE) relative to archaeological resources; 2. determine whether previously identified archaeological resources are located in the APE; and, 3. propose a methodology to identify archaeological

resources within the APE, evaluate their eligibility for the National Register of Historic Places (NRHP), and assess the potential effect of the Project on those resources. Following submission and review of this work plan by NYSOPRHP, EDR anticipates that a Phase 1B archaeological survey will be conducted, per the methodology described in the work plan. The Phase 1A report was prepared by professionals who satisfy the qualifications criteria per the Secretary of the Interior's Standards for archaeology (36 CFR 61) and in accordance with the *New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work* (the *SHPO Wind Guidelines*; NYSOPRHP, 2006) and applicable portions of NYSOPRHP's *Phase 1 Archaeological Report Format Requirements* (NYSOPRHP, 2005).

Relative to the potential for archaeological sites to be located in the Project site, the results of the Phase 1A archaeological resources survey for the proposed Cassadaga Wind Project can be summarized as follows:

- There are two previously reported Native American archaeological sites located within the wind generating facility Project site, and more generally there are three additional previously reported Native American archaeological sites located within 1 mile of the Project site. Native American archaeological sites that have been identified in the area typically consist of lithic and ceramic scatters, and villages. In general terms, areas that are not located close to freshwater sources (and associated ecological habitats) are less likely to include pre-contact Native American archaeological sites. Therefore, those portions of the Project site generally located proximate to drainages and/or wetlands should be considered as having a relatively higher potential for the presence of prehistoric Native American archaeological resources.
- One previously reported historic archaeological site is located within the Project site and five previously reported archaeological sites occur within 1 mile of the Project site. Historic maps (see Figures 7-10 of the appended Phase 1A report) identify the locations of farmsteads and other potential historic-period archaeological sites within the Project site; archaeological resources associated with these sites could include foundations, structural remains, artifact scatters, and/or other features. The sensitivity for historic period archaeological remains is considered to be high within close proximity to these MDS and low for the rest of the Project site.

In addition, the Phase 1A report acknowledges that proposed construction of the Project will include ground disturbing activities that have the potential to impact archaeological resources. The APE for archaeological resources includes proposed turbine pad and assembly areas, access roads, buried and overhead collection lines, overhead transmission lines, laydown and staging areas, operations and maintenance facilities, and

substations. Any archaeological sites located within the Project site but that are not within the limits of disturbance for proposed Project facilities will not be affected by the Project.

The completed *Phase 1A Archaeological Resources Survey & Phase 1B Fieldwork Plan* was submitted to NYSOPRHP for review on August 3, 2015 and is included as Appendix G to this PSS.

(3) Phase 1B Cultural Resources Study

A Phase 1B Archaeological Survey will be conducted to determine whether archeological sites are located in the areas of proposed ground disturbance for the Project. The Phase 1B survey will be conducted under the supervision of a RPA in a manner consistent with the *SHPO Wind Guidelines*. The Phase 1B report will be prepared in accordance with NYSOPRHP's *Phase 1 Archeological Report Format Requirements* (NYSOPRHP, 2005).

A scope and methodology for the Phase 1B Archaeological Survey is proposed in the *Phase 1A Archaeological Resources Survey & Phase 1B Fieldwork Plan*, which was submitted to NYSOPRHP on August 3, 2015. The *SHPO Wind Guidelines* suggest following the approach detailed in *Archeological Investigations in the Upper Susquehanna Valley, New York State* (Funk, 1993a, 1993b) in the design of archaeological surveys for wind projects. The approach involves identification of broad environmental zones with local habitat (or landscape class) subdivisions. The archaeological survey subsequently includes intensive sampling of selected areas within each of the identified landscape classes, rather than undertaking an even distribution of sampling throughout the APE. Following this approach, EDR used Geographic Information System (GIS) software to identify landscape classes within the Cassadaga Wind Project site and proposed an archaeological sampling strategy. The *Phase 1A Archaeological Resources Survey & Phase 1B Fieldwork Plan* summarizes the methodology used for the GIS analysis and presents the landscape classification analysis in tabular and graphical formats.

The primary methods to be used during the archeological survey include pedestrian surface surveys (in active agricultural settings where ground-surface visibility was greater than 80%); the excavation of shovel tests (in hayfields, forest, and shrubland areas); and pedestrian reconnaissance (in steeply sloped areas). The locations of areas selected for intensive archeological sampling within the archeological APE will be determined in the field using professional judgment under the direction of a RPA. Areas where proposed Project components are located in proximity to structures that are depicted on historic maps of the area will be prioritized during the selection of areas for shovel testing.

Based on the current Project design, the Project's archaeological APE is 435 acres in size. Please note that the Project layout will be reviewed prior to conducting the Phase 1B survey. It is worth noting that prior to conducting the Phase 1B survey, the Project APE and survey effort will be adjusted in accordance with Project layout modifications consistent with the assumptions and methodology for determining the APE as presented herein.

Based on the current Project design, it is anticipated that the Phase 1B archaeological survey for the Cassadaga Wind Project will include:

- The excavation of approximately 3,716 shovel tests and the pedestrian surface survey of approximately 69 acres archaeological APE located within agricultural fields.
- Preparation of a Phase 1B archaeological survey report, to be submitted to NYSOPRHP via the CRIS website. The report will be prepared in accordance with NYSOPRHP's *Phase 1 Archaeological Report Format Requirements* (NYSOPRHP, 2005) and will also include inventory forms for any archaeological sites recorded during the survey.
- Submission of site information for any identified archaeological sites via the CRIS website.

EDR provided the *Phase 1A Archaeological Resources Survey & Phase 1B Fieldwork Plan* to NYSOPRHP on August 3, 2015 to confirm the landscape classification model, proposed sampling strategy, and anticipated field methodology for the Project and to ensure that the proposed scope of the survey is consistent with NYSOPRHP's expectations. The completed Phase 1B Archaeological Survey Report will be submitted as part of the Article 10 Application.

(4) Phase 2 Study

If recommended mitigation measures (e.g., such as removing or re-locating Project components away from identified archaeological sites) are insufficient to avoid impacts, a Phase 2 study may be conducted to assess the boundaries, integrity and significance of cultural resources identified during the Phase 1B archaeological survey . If warranted based on Phase 1B study results, as determined in consultation with NYSOPRHP, any necessary Phase 2 studies would be designed to obtain detailed information on the integrity, limits, structure, function, and cultural/historic context of an archaeological site, as feasible, sufficient to evaluate its potential eligibility for listing on the State or National Register of Historic Places. The need for and scope of work for such investigations will be determined in consultation with NYSOPRHP and DPS upon completion of the Phase 1B

survey. The Article 10 Application will describe the consultation process and include the results of any required Phase 2 studies.

(5) Archaeological Material Recovered During Cultural Resources Studies

In the event that any artifacts are recovered during the cultural resources studies for the Project, archaeologists will record standard provenance information in the field and collect each artifact in sealed plastic bags per standard archeological field practices. All recovered materials will be washed, dried, and cataloged per standard archeological laboratory procedures. Recovered artifacts will be described to a level of detail sufficient to prepare an artifact inventory for inclusion in Phase 1B and/or Phase 2 archaeological reports, which will include descriptions of each artifact's material, temporal or cultural/chronological associations, style and function. In addition, it is anticipated that a selection of representative artifacts will be photographed for inclusion in the reports, but complete photo documentation of all recovered materials is not anticipated. The Applicant understands that all artifacts recovered during this contract will be the property of the land owner from which the artifacts were recovered. The Applicant also anticipates that the Project's cultural resources consultant will identify appropriate local repositories (such as local historical societies or archeological museums) for disposition of recovered artifacts so that artifact assemblages remain available and accessible to local and regional researchers and interested members of the public. It is anticipated that all artifacts will be processed in a manner consistent with professional standards, such as the New York Archaeological Council's (NYAC) *Standards for Cultural Resource Investigations and Curation of Archaeological Collections in New York State* (NYAC, 1994; the NYAC *Standards*), and suitable for accessioning to the New York State Museum (Albany), in the event that appropriate local repositories cannot be identified.

A complete listing of all recovered artifacts will be included in the Phase 1B Archaeological Survey Report, to be submitted with the Article 10 Application.

(6) Unanticipated Discovery Plan

The Article 10 Application will include an Unanticipated Discovery Plan that will identify the actions to be taken in the unexpected event that resources of cultural, historical, or archaeological importance are encountered during Project construction. The plan will include a provision for work stoppage upon the discovery of possible archaeological or human remains. Evaluation of such discoveries, if warranted, will be conducted by a professional archaeologist, qualified according to the NYAC *Standards*. The Unanticipated Discovery Plan will specify the degree to which the methodology used to assess any discoveries follows the NYAC *Standards*.

(b) Historic Resources

NYSOPRHP correspondence dated June 24, 2015 requested that a historic architectural resources survey be conducted for the Project. In response, a *Phase 1A Historic Architectural Resources Survey & Work Plan* (see Appendix G) was prepared and submitted through the CRIS website on July 10, 2015 and is summarized below. The purpose of the Phase 1A Historic Architectural Resources Survey Report and Work Plan is to define the Project's APE relative to historic architectural resources; determine whether previously identified historic architectural resources are located in the APE; and propose a methodology to identify historic architectural resources within the APE, evaluate their eligibility for the National Register of Historic Places (NRHP), and assess the potential effect of the Project on those resources. In a letter dated August 10, 2015, the NYSOPRHP concurred with the recommendations set forth in the work plan, stating "Based upon this review, OPRHP concurs with EDR's delineation of the Area of Potential Effect (APE) and Study Area, and with the methodology outlined in the historic resources survey work plan…Please continue your consultation with this office as the project advances." (See Appendix G for a copy of the OPRHP Letter).

Area of Potential Effect Relative to Historic Architectural Resources

The facility will have no physical impacts to historic architectural resources (i.e., no historic structures will be damaged or removed). The Project's potential effect on a given historic property would be a change in the property's visual setting, resulting from the introduction of wind turbines. Therefore, the APE for visual effects on historic resources must include those areas where Project components (including wind turbines) will be visible and where there is a potential for a significant visual effect. Per the requirements set forth in 16 NYCRR § 1000.2(ar), the study area to be used for analysis of major electric generating facilities is defined as:

> *(ar) Study Area: an area generally related to the nature of the technology and the setting of the proposed site. For large facilities or wind power facilities with components spread across a rural landscape, the study area shall generally include the area within a radius of at least five miles from all generating facility components, interconnections and related facilities and alternative location sites. For facilities in areas of significant resource concerns, the size of a study area shall be configured to address specific features or resource issues.*

Per the *SHPO Wind Guidelines*, the APE for visual impacts on historic properties for wind projects is defined as those areas within 5 miles of proposed turbines which are within the potential viewshed (based on topography) of a given project (NYSOPRHP, 2006). The five-mile-radius study area for the Project includes parts of the Towns of Pomfret, Arkwright, Villenova, Stockton, Charlotte, Cherry Creek, Ellery, Gerry, and Ellington in Chautauqua County, and South Dayton, Leon, and Conewango in Cattaraugus County.

A preliminary topographic viewshed analysis for the Project using U.S. Geological Survey (USGS) digital elevation model (DEM) data, the location and height of proposed turbines based on a preliminary project layout[3], an assumed viewer height of 5.5 feet, and ESRI ArcGIS® software with the Spatial Analyst extension. Preliminary viewshed results, based solely on topography, indicate that one or more wind turbines may be visible from approximately 85% of the 5-mile study area. Screening provided by buildings and street/yard trees, as well as characteristics of the proposed turbines that influence visibility (color, narrow profile, distance from viewer, etc.), are not taken consideration in the analysis and, consequently, being within the preliminary viewshed does not necessarily equate to actual Project visibility. The Project's APE relative to historic-architectural resources includes the areas of potential Project visibility based on the topographic viewshed located within 5 miles of the Project. This area represents a conservative, "worst case" assessment of potential Project visibility.

Previously Identified Historic Architectural Resources Located in the Area of Potential Effect

EDR reviewed the Cultural Resources Information System (CRIS) website maintained by NYSOPRHP and a historic architectural resources survey previously conducted in the area to identify significant historic buildings and/or districts located within five miles of the Project. The Historic Architectural Resources Investigation 5-Mile Ring Study (Tetra Tech, 2009) was conducted in 2008 and 2009 for the proposed Arkwright Summit Wind Farm in Chautauqua County, New York (NYSOPRHP Project Review #08PR0564). The five-mile radius study area included portions of the Towns of Arkwright, Charlotte, Dunkirk, Hanover, Pomfret, Sheridan, and Villenova, as well as the City of Dunkirk and City of Cassadaga. A significant portion of the five-mile-radius study area for the proposed Cassadaga Wind Project was surveyed as part of permitting studies for the Arkwright Summit Wind Farm project.

The five-mile-radius study area for the Project contains two properties listed on the National Register of Historic Places (NRHP), 67 properties determined eligible for listing on the NRHP, and 15 properties whose NRHP eligibility is currently undetermined. Of the NRHP-eligible properties within the Project study area, 37 were surveyed as part of the 2009 Arkwright Summit 5-Mile Ring Study (Tetra Tech, 2009), and 30 were identified using the CRIS database. All of the properties within the Project study area whose NRHP eligibility is currently undetermined were identified using the CRIS database.

The two NRHP-listed properties are located in the hamlet of Leon at the eastern edge of the five-mile study area. The Leon United Methodist Church (00NR01685) was constructed in 1836 at the "four corners" intersection of the hamlet, and enlarged in 1858 with the addition of a sanctuary and bell tower. The building exterior remains largely

[3] The preliminary viewshed analysis was based on the Nordex N131 wind turbine, which is the tallest wind turbine model currently under consideration for the Project and therefore represents the "worst case" assessment of potential visibility. The total turbine height for a Nordex N131 (i.e., height at the highest blade tip position) is approximately 540 feet.

unaltered with many early wood details still extant. The church was listed in the NRHP in 2000 (LHS, 2015). The Leon Grange #795 (13NR06483) was constructed in 1903 just north of the hamlet center, and operated as a grange building until 1977, when the building was purchased by the Leon Historical Society. It was listed in NRHP in 2013 under Criterion A for its role in the agricultural history of the hamlet of Leon, and Criterion C for its architectural form that follows the form of other rural grange buildings (Bartos, 2013). The Leon Grange remains well-preserved with minimal loss of historic character or integrity.

The NRHP-Eligible properties within the study area include residences, churches, cemeteries, fraternal and agricultural society buildings, and commercial structures. Numerous nineteenth- and early-twentieth-century structures (primarily residences and farmsteads) are located within the study area that have not been previously evaluated by NYSOPRHP to determine if they are NRHP-eligible. These types of resources are typically determined NRHP-eligible under NRHP Criterion C (i.e., they "embody the distinctive characteristics of a type, period, or method of construction" [CFR, 2004]), and often derive their significance from being representative examples of vernacular nineteenth-century architectural styles that retain their overall integrity of design and materials. Within the study area, many nineteenth-century farmhouses were originally Greek Revival or Greek Revival-inspired vernacular houses with modest details, with some pockets of Gothic Revival-inspired houses. The architectural integrity of historic resources throughout the five-mile radius study area is highly variable, with many showing noticeable alteration, or deterioration due to the elements.

Methodology to Identify Historic Architectural Resources and Assess Potential Effects of the Project

Historically significant properties are defined herein to include buildings, districts, objects, structures and/or sites that have been listed on the NRHP, as well as those properties that NYSOPRHP has formally determined are eligible for listing on the NRHP. Criteria set forth by the National Park Service for evaluating historic properties (36 CFR 60.4) state that a historic building, district, object, structure or site is significant (i.e., eligible for listing on the NRHP) if the property conveys (per CFR, 2004; NPS, 1990):

> *The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:*
>
> *(A) that are associated with events that have made a significant contribution to the broad patterns of our history; or*
> *(B) that are associated with the lives of persons significant in our past; or*
> *(C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
> *(D) that have yielded, or may be likely to yield, information important in prehistory or history.*

As described above, significant portions of the study area for the Project are located within the area previously surveyed for the Arkwright Summit Wind Farm project. The NYSOPRHP concurred that no additional documentation of resources of the area previously surveyed for the Arkwright Summit Wind Farm will be necessary.[4] The five-mile study area for the Project includes approximately 297 square miles.[5] The previous five-mile survey for Arkwright Summit Wind Farm included approximately 108 square miles (36 percent) of the Project study area, leaving approximately 189 square miles (64 percent) to be surveyed. EDR proposes to survey the area not previously surveyed within the Project study boundary using the methodology described below.

EDR will conduct a historic resources survey the Project's APE (with the exception of the area noted above). The historic resources survey will be conducted by a qualified architectural historian who meets the Secretary of Interior's Standards for Historic Preservation Projects (36 CFR Part 61). The historic resources survey will identify and document those buildings within the study area that appear to satisfy National Register of Historic Places (NRHP) eligibility criteria. Historic resources survey fieldwork will include systematically driving all public roads within the study area to evaluate the NRHP-eligibility of structures and properties within the study area. When sites that appeared to satisfy NRHP-eligibility criteria are identified, the existing conditions of the property will be documented by EDR's architectural historian. This includes photographs of the building(s) and property, and field notes describing the style, physical characteristics, and materials (e.g., number of stories, plan, external siding, roof, foundation, and sash), condition, physical integrity, and other noteworthy characteristics for each resource.

EDR's evaluation of historic resources within the study area will focus on the physical condition and integrity (with respect to design, materials, feeling, and association) to assess the potential architectural significance of each resource. If deemed appropriate, individual buildings located within villages and hamlets will not be documented as individual properties, but instead will be described collectively as clusters or districts.

All properties included in the historic resources survey will be photographed and assessed from public rights of way. The condition and integrity of all resources will be evaluated based solely on the visible exterior of the structures. No inspections or evaluations requiring access to the interior of buildings, or any portion of private property, will be conducted as part of this assessment. In accordance with the *SHPO Wind Guidelines*, and based on previous consultation with NYSOPRHP for previous wind projects,[6] buildings that are not sufficiently old (i.e., are less than 50

[4] The August 10, 2015 NYSOPRHP letter states, "We further concur that no additional architectural survey efforts in the APE for the Arkwright Summit Wind Farm are required at this time. Please continue your consultation with this office as the project advances."
[5] Based on the current Project boundary, which is likely to change as the Project layout is refined. The final survey area will reflect a five-mile buffer around the final Project layout, which will be specified in the Historic Resources Survey Report.
[6] See Historic Resources Survey for Copenhagen Wind Farm (12PR02853) (EDR, 2014).

years in age), that lack architectural integrity, or otherwise were evaluated by EDR's architectural historian as lacking historical or architectural significance will not be included in or documented during the survey.

The methods and results of the survey will be summarized in an illustrated report, along with an annotated properties table that will include an entry for each identified property. The annotated properties table will include one or more photographs of each property, a brief description of the property (name, address, estimated age, architectural style, materials, etc.), an assessment of its condition, and an evaluation of significance. The report will also include an analysis of the potential visual effect of the Project on identified properties, including consideration of distance and the effect of vegetation and other landscape features that may screen or minimize views of the Project from historic resources. The historic resources survey report will identify those historic resources where visual setting is an important factor in their significance and where viewshed analysis indicates potential visibility of the Project. The report will recommend those historic resources where preparation of a visual simulation would be appropriate to assess the Project's potential effect. The report will also include recommendations for mitigation efforts, if appropriate.

The completed Historic Architectural Survey Report will be submitted as part of the Article 10 Application.

2.21 GEOLOGY, SEISMOLOGY, AND SOILS

This exhibit will include a study of the geology, seismology, and soils impacts of the facility consisting of the identification and mapping of existing conditions, an impact analysis, and proposed impact avoidance and mitigation measures.

(a) Existing Slopes Map

A map delineating existing slopes (0-3%, 3-8%, 8-15%, 15-25%, 25-35%, 35% and over) on and within the drainage area potentially influenced by the facility site and interconnections will be prepared using the USGS National Elevation Dataset. Digital Elevation Model (DEM) data will be processed using ESRI ArcGIS® Software to delineate a drainage area and develop slope mapping.

(b) Proposed Site Plan

Unlike a conventional energy generating facility in which a large tract of contiguous acreage must be graded in order to properly site the facility, the footprint of a wind power project is relatively small, is more spread out, and is

designed to fit within the existing land form. Publicly available data from Chautauqua County will be used to identify existing contours (data available at 5-foot intervals). Providing 2-foot intervals at the time the Application is filed is not practicable because the cost associated with obtaining such data through site specific survey is not expended until a given project is approved. In addition, prior to the enactment of the Article 10 regulations, a number of comments were submitted to the Siting Board regarding the level of detail required for the application. Specifically with respect to Exhibit 21, in its July 17, 2012 Memorandum and Resolution Adopting the Article 10 Regulations, the Siting Board indicated "The required preliminary design is not to be engineered to the level of a construction drawing". In order to provide the level of detail required by Exhibit 21 (i.e., existing and proposed contours at 2-foot intervals), the Applicant would, in essence, need to expend the effort associated with preparing construction level drawings. Therefore, the Applicant believes this requirement is inconsistent with the Siting Board's statements regarding the level of detail required in the Application and the Applicant will seek a waiver of this provision prior to or along with the submission of the Application. However, publicly available 5-foot contours will be used to generate proposed contours, also at 5-foot intervals.

(c) Cut and Fill

The Application will include preliminary cut and fill calculations based on the publicly available 5-foot contours, and proposed (preliminary) 5-foot contours. The Article 10 Application will also generally describe the typical scenarios that would result in cut and fill necessary to construct the facility, such as constructing an access road on a side slope. However, separate calculations for topsoil, sub-soil and rock will not be included in the Application. Similar to the above with respect to the preparation of a site plan, such calculations required by this section of the regulations will require additional details beyond what would be considered "preliminary" and would rise to the level of construction drawings. Therefore, the Applicant suggests that it is more appropriate at this stage to provide preliminary cut and fill calculations and identify the potential for impacts associated with cut and fill but to provide detailed calculations and breakdown of cut and fill types as a condition to the Certificate.

With respect to the introduction and/or transport of invasive species by the transport of fill material to or from the site, the Applicant will require the BOP contractor to assure that all imported fill is free of invasive species. In addition, there will be no fill transported off the site as all temporarily stockpiled materials will be spread out during restoration (see Section 2.21(e) below for additional information). Therefore, adverse impacts associated with invasive species and cut and fill during are not anticipated.

(d) Fill, Gravel, Asphalt, and Surface Treatment Material

The preliminary calculation of the amount of fill, gravel, etc. will be based on typical details (e.g., access road cross section) to be included with the Article 10 Application.

(e) Type and Amount of Materials to be Removed from the Facility and Interconnection Sites

No materials will be removed. Stockpiled soils along the construction corridors will be used in site restoration, and all such materials will be re-graded to approximate pre-construction contours.

(f) Excavation Techniques to be Employed

The activities associated with constructing wind power projects in New York State are well understood, and although a given site can have unique characteristics in comparison to other sites, construction methodologies can be reasonably anticipated based on the Applicant's experience (in New York and other states) and available site conditions data. The majority of excavation activities will be associated with turbine foundation and substation construction, while additional excavations will likely be associated with other aspects of Project construction in specific locations as needed. For example, it is anticipated that the majority of the Project's buried electrical interconnect will be installed through use of a cable plow or blade; however, in select locations a backhoe may excavate a trench for cable installation due to the subsurface characteristics.

The Applicant does not expect Project-related excavation will result in adverse impacts to geology or soils. However, the Article 10 Application will provide a more detailed description of construction methodologies and activities associated with the Project, including the anticipated excavation techniques to be employed. This information and analysis will be based on the site-specific Preliminary Geotechnical Investigation, which is described in Section 2.21(h) below.

(g) Temporary Cut and Fill Storage Areas

All temporary cut or fill storage areas will be adjacent to excavation locations, and the process of determining excavation locations will be described, and preliminary cut and fill locations will be identified, in the Article 10 Application. Final cut and fill storage areas will be available following Certification, and included in the construction drawings.

(h) Suitability for Construction

The Article 10 Application will include the results of a Preliminary Geotechnical Investigation, which will include the following:

- Test borings at a sub-set of turbine locations and the substation locations
- Literature review and obtaining publicly available data regarding surface and subsurface soil, bedrock, and groundwater conditions
- Data analysis
- A report that describes the following:
    - Surface Soils
    - Subsurface Soils
    - Bedrock Conditions
    - Hydrogeologic Conditions
    - Chemical and Engineering Properties
    - Laboratory Testing
    - Seismic Considerations
    - Construction Suitability Analysis and Recommendations

The Preliminary Geotechnical Investigation will be summarized in Exhibit 21 of (and included as an appendix to) the Article 10 Application. This stand-alone report will be based on a Project-specific site visit conducted by a geotechnical expert, review of publicly available data (anticipated to include the Surficial Geologic Map of New York, Geologic (Bedrock) Map of New York, Soil Survey of Chautauqua County, Deep Wells in New York State, Geology of Chautauqua County, Tectonic Units and Preliminary Brittle Structures of New York, Aquifers of New York State, Geology of New York – A Simplified Account, New York State Building Code), and test borings to be completed at a subset of turbine/substation locations.

In addition, before construction commences, a site survey will be performed to stake out the exact location of proposed Project components. Once the surveys are complete, a detailed geotechnical investigation will be performed to verify subsurface conditions and allow development of final wind turbine foundation and electrical design, and other facility components as necessary. The geotechnical investigation involves a drill rig obtaining borings to identify the subsurface soil and rock types, strength and chemical properties (such as establishing sulfate content etc.), and will also document the presence and depth of any groundwater encountered. Testing is also done to measure the soil's electrical properties to ensure proper grounding system design. Geotechnical borings will be conducted as determined necessary by a professional engineer to allow foundation design to be finalized for turbine and substation locations. General descriptions of the corrosivity of soils found in the Project Area, and their effects on building materials, are provided below.

(i) Preliminary Blasting Plan

Based upon review of publicly available data, a general constructability review conducted by the Applicant's construction manager on-site at the Project, and the Applicant's experience with wind project construction, it is anticipated that no blasting will be required. However, the Preliminary Geotechnical Investigation will provide the information necessary to confirm that no blasting is required, which will be discussed in further detail in the Article 10 Application.

(j) Potential Blasting Impacts

Blasting is not anticipated, and as indicated above, the Article 10 Application will provide additional detail, including the results of a Project-specific Preliminary Geotechnical Investigation. With respect to water wells, please see Section 2.23 of this PSS for additional information. With respect to natural gas production, according to the NYSDEC (2015), the Project Area contains approximately 275 natural gas wells (producing wells, non-commercial wells, and plugged and abandoned wells). The majority of the wells produce natural gas from the Medina Formation sandstone, and are part of the extensive Lakeshore gas field. The wells are typically drilled to a depth of approximately 3,000 feet. All turbines will be sited a minimum of 500 feet from gas wells, which will are expected to eliminate potential impacts associated turbine foundation construction.

(k) Mitigation Measures for Blasting Impacts

Blasting is not anticipated. However, should any blasting be required, it will be conducted in accordance with the Project-specific blasting plan, and any necessary blasting will receive oversight by an Environmental Monitor. In addition, pre- and post-blasting surveys will be conducted as a groundwater well mitigation measure if blasting is needed. The Project Sponsor will conduct structural, water quality, and water quantity inspections of any wells located within 500 feet of blasting activities before (to establish baseline quality and quantity) and after construction. Although not anticipated, any impacts identified through these inspections will be addressed on a case-by-case basis and appropriately mitigated.

With respect to natural gas wells, the Applicant will also conduct an investigation to identify the locations of buried gas lines and wells prior to the start of construction. The Applicant will coordinate with the associated private companies to minimize the impacts on these facilities, and the locations of turbines, roads, and underground collection lines will be adjusted as necessary to minimize risk.

(l) Regional Geology, Tectonic Setting, and Seismology

The Project Area is located within the Allegheny Plateau physiographic province of New York State. Elevations in the area range from between 1,200 feet in eastern Chautauqua County to 1,900 feet (amsl) in the western portion of the county. The Allegheny Plateau in Chautauqua County is characterized by many broad, flat-bottomed valleys, occupied by meandering streams. The topography is strongly influenced by the underlying bedrock, which is nearly level bedded (Puglia 1994). Bedrock in this region is typified by stratified beds of shale, sandstone, limestone, and dolostone which gently tilt towards the southwest. The bedrock underlying the vicinity of the Project Area consists of members of the Conewango, Canadaway, and Conneaut (a.k.a Chadakoin) Groups, all of the upper Devonian (Richard and Fisher, 1970). The formations that comprise the Conewango Group are the Oswayo and Venango, which are composed of shale, siltstone, and sandstone. The Conewango Group is about 400 feet thick. The formations that comprise the Canadaway Group are the Gowanda, South Wales, and Dunkirk Shales. The Canadaway Group averages about 1,050 feet in thickness. The formations that comprise the Conneaut Group are the Ellicott and Dexterville Formations, which are composed of shale and siltstone. The Conneaut Group is approximately 420 feet thick.

The surficial geology underlying the Project Area and vicinity is dominated by glacial till, which exhibits a wide range of particle and rock fragment size. The layer of glacial till itself is often of varying thickness and can range from a few feet on some ridge tops to more than 10 feet below higher ridges (Puglia 1994). The surficial geology of the lower portions of the Project Area such as the Cassadaga Creek river valley is characterized by lacustrine silt and clay of varying thickness as well as proglacial fluvial outwash.

Based on the 2014 New York State Hazard Map (USGS 2014), the Project Area is located in an area of relatively low seismic hazard, with a 2 % or less chance that peak ground acceleration in a 50 year window is between 4% and 8% of standard gravity. An earthquake occurred in Attica, New York (about 75 miles northeast of the Project Area) in 1966 with a Richter scale magnitude of 4.7 (USGS 2015). There are several faults mapped in Chautauqua County (Jacobi 2002). The Mayville fault, Charlotte Center fault and an unnamed fault are located within the vicinity of the Project Area. However, these faults are not associated with any historic earthquakes (USGS 2015). Furthermore, the USGS Earthquake Hazards Program does not list any young faults, or faults that have had displacement in the Holocene epoch within the vicinity of the Project Area.

(m) Facility Impacts on Regional Geology

Project components will be sited to avoid or minimize either temporary or permanent impacts to physiography, geology, and soils, to the extent practical. The Project is not anticipated to result in any significant impacts to geology. However, depth to bedrock in the Project Area is expected to be variable and it is possible that some turbine foundations may be set into bedrock (additional detail will be provided in the Article 10 Application based on the Preliminary Geotechnical Investigation discussed above). If bedrock is encountered, it is anticipated to be rippable, and would thus be excavated using backhoes, rock rippers, or chipping hammers. In the event that the bedrock is not rippable, pneumatic jacking or hydraulic fracturing may be utilized. Based on the Applicant's experience constructing other wind power projects (including in New York State), only temporary, minor impacts to physiography and geology are expected as a result of construction activities. For example, where turbine and access road sites are not located on completely level terrain, some cut and fill or addition of fill will be required; however, the impact to overall topography will be minor.

As previously indicated in Section 2.21(h) above the Applicant will conduct test borings at a subset of turbine/substation locations, and an analysis of that information will be provided in the Article 10 Application. In addition, prior to commencing construction the Applicant will carry out additional subsurface investigation activities that will consist of soil borings and rock coring as determined necessary by a professional engineer to allow foundation design to be finalized for the proposed wind turbine locations, along with test pits, seismic testing, and additional laboratory testing that will be performed to further evaluate the subsurface soil, bedrock, and groundwater conditions. The results of the site specific subsurface investigation will inform the final Project design and determine the need for additional analysis. For example, design of concrete and steel structures will be based on analysis of the soils including electrical resistivity, pH, chloride, and sulfate testing. At proposed construction sites identified during the subsurface investigation as being located adjacent to steep slopes, a slope stability analysis will be performed for any structures (i.e., turbine foundations, substations, and buildings). At proposed construction sites with soils identified during the subsurface investigation as having the potential for significant volume changes, the final designs may require soils to be over-excavated and replaced with structural fill beneath structures. Alternatively, the Applicant may employ specialized foundation designs that utilize micro piles or other techniques to assure the foundation's buoyancy and stability.

Additional detail regarding impacts on regional geology will be provided in the Article 10 application based on the Project-specific Preliminary Geotechnical Investigation.

(n) Impacts of Seismic Activity on Facility Operation

As previously indicated, faults within the vicinity of the Project are not associated with any historic earthquakes. In addition, the USGS Earthquakes Hazards Program does not identify any young faults within the vicinity of the Project.

Despite the relatively low risk of seismic activity adversely impacting the Project, the design of the facility should account for a potentially significant seismic event. One method of avoidance is requiring the distance between proposed tower locations and non-project structures, such as residences, to adhere to setbacks that will ensure no damage occurs in the event of structural failure resulting from a large seismic event. In addition, wind turbines are now equipped with technology that allows for operational control and emergency shut off in case of an emergency such as a significant seismic event.

(o) Soil Types Map

A map delineating soil types on the facility and interconnections sites will be prepared using data from the USDA NRCS Web Soil Survey. It is anticipated that soil data from this source will be categorized by mapping unit and hydric characteristics, at a minimum.

(p) Characteristics of Each Soil Type and Suitability for Construction

The Soil Survey of Chautauqua County, New York (Puglia, 1994) indicates that the Project Area predominantly consists of four General Soil Associations. These are the Busti-Chautauqua-Chadakoin, Valois-Chenango-Pompton, Volusia-Mardin, and the Chenango-Wayland-Swormville associations. From these associations, there are 4 soil series within the Project Area, of which there are 91 individual soil map units. The Busti, Chadakoin, Chautauqua, and Freemont soil series comprise approximately 74% of the soils by area within the Project Area. General descriptions of these four series are provided below.

Table 4. Soil series and their characteristics within the Project Area.

Soil Series	Main Characteristics
Busti Silt Loam	• Somewhat poorly drained, medium textured • Depth to bedrock greater than 200 cm • Found along lower side of slopes, drainage ways, and flat areas (0% to 8% slopes) • Rate of water movement is slow to moderate in both the surface layer and substratum
Chadakoin Silt Loam	• Well drained, medium textured • Depth to bedrock greater than 200 cm • Found on convex hilltops, hillsides, and valley sides that are strongly dissected by intermittent streams (3% - 50% slopes) • Rate of water movement is moderate through both the surface layer and the substratum
Chautauqua Silt Loam	• Moderately well drained, medium textured • Depth to bedrock greater than 200 cm • Found on convex hilltops and side slopes that receive little runoff from adjacent soils (3% to 25% slopes) • Rate of water movement is moderate to moderately slow in the surface layer and substratum
Freemont Series	• Somewhat poorly drained, medium to moderately fine textured • Depth to bedrock greater than 200 cm • Found on broad upland flats, in saddles, and on side slopes (0% to 25% slopes) • Rate of water movement is moderately slow in the surface layers and very slow in the substratum

Source: USDA NRCS Web Soil Survey, 2013

(q) Bedrock Analyses and Maps

Maps, figures, and analyses will be prepared using information obtained from the USGS Online Spatial Geology Data, the USDA NRCS Web Soil Survey, and the Preliminary Geotechnical Analysis conducted for the project. These data will identify depth to bedrock and underlying bedrock types, including vertical profiles showing soils, bedrock, water table, and seasonal high groundwater, in relation to typical foundation depths on the facility site, and any area to be disturbed for roadways to be constructed, and all off-site interconnections required to serve the facility.

(r) Foundation Evaluation

Foundation construction occurs in several stages, which typically includes excavation, pouring of concrete mud mat, rebar and bolt cage assembly, outer form setting, casting and finishing of the concrete, removal of the forms,

backfilling and compacting, and site restoration. Excavation and foundation construction will be conducted in a manner that will minimize the size and duration of excavated areas required to install foundations.

(1) Preliminary Engineering Assessment

As previously indicated a Preliminary Geotechnical Evaluation is planned including a literature review of publicly available data, a site visit to observe surficial features and assess general constructability of the proposed Project, and a preliminary subsurface investigation conducted at a subset of test borings. This information will be used to specifically address the suitability of the on-site surface/subsurface conditions to support turbine foundations, and provide specific recommendations based on the site-specific conditions. The suitability analysis will be included in the Preliminary Geotechnical Evaluation, which will be summarized in Exhibit 21 of (and appended to) the Article 10 Application.

Following Project certification, additional geotechnical borings will be performed as determined necessary by a professional engineer to allow foundation design to be finalized for turbine locations. This information will be used to support the final structural design of the Project.

(2) Pile Driving Assessment

It is not anticipated that pile driving will be needed for this project.

(3) Mitigation Measures for Pile Driving Impacts

It is not anticipated that pile driving will be needed for this project.

(s) Vulnerability to Earthquake and Tsunami Events

As previously indicated, the Project appears to have minimal vulnerability associated with seismic events based on review of publicly available data. In addition, because the Project is located approximately 8 miles from the nearest large water body (Lake Erie), there is no vulnerability associated with tsunami events.

2.22 TERRESTRIAL ECOLOGICAL WETLANDS

(a) Plant Communities

For the purposes of this PSS, plant communities have been broadly identified based on desktop review and reconnaissance-level field review, as summarized below.

Desktop Review

Land Cover in the Project Area was determined using National Land Cover Data (NLCD) information, which is compiled by the United States Geological Survey (USGS). The Project Area encompasses approximately 35,360 acres and is primarily deciduous forest (53%) and agricultural land (28%) as shown in Table 5. According to the NLCD, the Project Area also includes 5% or less of herbaceous grassland, shrub/shrub, mixed forest, evergreen forest, woody wetlands, and developed open space. Furthermore, emergent herbaceous wetlands, open water, barren land, and low through high intensity development all comprise less than 1 % of the Project Area, respectively.

Table 5. Land Cover Classes Found within the Project Area

Land Cover Class	Acres	Percent Cover (%)
Deciduous Forest	18,867.93	53
Cultivated Crops	5,256.28	15
Pasture/Hay	4,726.76	13
Evergreen Forest	2,003.59	6
Shrub/Scrub	1,579.66	4
Woody Wetlands	765.16	2
Developed, Open Space	746.48	2
Grassland Herbaceous	677.35	2
Mixed Forest	463.94	1
Emergent Herbaceous Wetlands	136.96	< 1
Developed, Low Intensity	63.13	< 1
Open water	32.23	< 1
Barren Land (Rock Clay Silt)	27.12	< 1
Developed, Medium Intensity	9.78	< 1
Developed High Intensity	3.33	< 1
Total	35,359.68	

Source: NLCD 2011

Field Review

Plant communities found within the Project Area were identified and characterized during reconnaissance level field surveys conducted by EDR during the spring of 2015. All of the major plant communities found within the Project Area are common to New York State. Forestland is the dominant community type in the Project Site, while successional old field and developed/disturbed communities occur to a lesser extent. Brief descriptions are provided below for each of these ecological communities.

Mixed Deciduous/Coniferous Forestland

Forestland constitutes the largest ecological community type within the Project Area, and resemble the beech-maple mesic forest and the hemlock-northern hardwood forest communities described in the *Ecological Communities of New York State* (Edinger *et. al.,* 2014). These forests occur throughout the Project Area, on ridgetops, steep hillsides, and interspersed between agricultural areas. Tree species vary based on the orientation of the slope, but dominant or co-dominant species in most locations include sugar maple, red maple, American beech, eastern hemlock, red spruce, black cherry, white oak, northern red oak, chestnut oak, and yellow birch.

Successional Old Field

As defined by the *Ecological Communities of New York State* (Edinger *et. al.,* 2014), a successional old field is a meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed (for farming or development), and then abandoned. Within the Project Area, this community is located primarily along roadsides, or adjacent to active agricultural fields. Species found in these areas include orchard grass, timothy, goldenrods, clovers, milkweed, asters, Queen Anne's lace, and burdock. Shrubs such as honeysuckle and arrowwood are also components of this community, but represent less than 50% of total vegetative cover.

Disturbed/Developed

Disturbed/developed land consists of a combination of several "cultural communities" as defined in the *Ecological Communities of New York State* (Edinger *et. al.,* 2014). Disturbed/developed lands occur throughout the Project Area, and are characterized by the presence of buildings, parking lots, paved and unpaved roads, lawns, gravel mines, and gas/oil infrastructure. Vegetation in these areas is generally either lacking or highly managed (i.e., mowed lawns or plants seeded along roadsides for erosion control). Volunteer vegetation in these areas is generally sparse, and comprised of old-field, often non-native, herbaceous species such as pokeweed, bull thistle, ragweed, curly dock, and various upland grasses.

The Article 10 Application will build on the information presented above, and will contain the following specific information:

- Plant community mapping, which will be created using GIS software and will be based on Project-specific field investigations, along with roadside observations and aerial photo interpretation for adjacent properties.
- Detailed description of all ecological communities identified within the Project Area
- Plant species list based on Project-specific field investigations.

(b) Impact to Plant Communities

Impacts to plant communities presented in the Article 10 Application will be calculated using GIS software. Specifically, Project-related impacts to all plant communities depicted in the mapping described above in support of 1001.22(a) will be calculated in ArcGIS based on the following assumptions:

Table 6. Impact Assumptions.

Project Components	Typical Area of Vegetation Clearing	Area of Total Soil Disturbance (temporary and permanent)	Area of Permanent Soil Disturbance
Wind Turbines and Workspaces	Up to 200' radius per turbine	Up to 200' radius per turbine	0.20 acre per turbine (pedestal plus crane pad)
Access Roads	75' wide per linear foot of road	60' wide per linear foot of road	20' wide per linear foot of road
Buried Electrical Gathering Lines	40' wide per linear foot of line per collection line circuit	40' wide per linear foot of line per collection line circuit	None
Overhead Generator Lead Line or Overhead Collection Line	100' wide per linear foot of line	100' wide per linear foot of line	0.10 acre per structure
Permanent Meteorological Towers	1 acre per tower	1 acre per tower	0.10 acre per tower
O&M Building and associated site (4,000 – 6, 000 sf)	2.5 acres	2.5 acres	2 acres

Project Components	Typical Area of Vegetation Clearing	Area of Total Soil Disturbance (temporary and permanent)	Area of Permanent Soil Disturbance
Staging Area	5 acres per staging area	5 acres per staging area	None
Collection Station	3 acres	3 acres	2 acres
Substation	5 acres	5 acres	3 acres

A list of all invasive plant species observed during Project-specific field investigations (within the anticipated limits of disturbance only) will be generated, and areas of concentrated invasive species will be mapped using GPS technology. The Article 10 Application will also include an Invasive Species Control Plan (ISCP), which will identify the following measures to control the spread of invasive species: 1) construction materials inspection; 2) target species treatment and removal; 3) construction equipment sanitation; and 4) restoration. It is proposed that success of the ISCP will be determined during 2 years of post-construction monitoring through visual inspection of Project-related disturbed areas during the growing season, and the results will be summarized in an annual monitoring report.

(c) Measures to Avoid or Plant Community Impacts

The Article 10 Application will include a detailed description of those measures that will be implemented to avoid or minimize impacts to plant communities within the Project Area. It is anticipated such measures will include siting considerations, demonstrated avoidance of sensitive vegetative communities, locating Project components within existing disturbances (e.g., logging roads), and restrictive measures to be implemented during construction and operation.

(d) Vegetation, Wildlife, and Wildlife Habitats

Vegetation

See Plant Communities discussion above in association with 1001.22(a). Vegetation will be included in the plant communities information presented in the Article 10 application.

Wildlife

Mammals

Publicly available information regarding the locations of mammalian species in Western New York is generally not available. Therefore, the occurrence of mammalian species will be documented through observations during on-site field surveys for other studies such as wetland and stream delineations, including signs of occurrence such as tracks or scat, and evaluation of available habitat. In addition, an inquiry will be submitted to the NYSDEC Regional Office. Species expected to be found in the Project Area include raccoon, porcupine, gray squirrel, eastern chipmunk, whitetail deer, opossum, beaver, skunk, muskrat, woodchuck, mink, weasels, foxes, and a variety of small mammals (mice and shrews). Species-specific surveys are not proposed at this time (see Section 2.22(e) below for additional information).

To characterize and document bat activity within the Project Area, Stantec has conducted on-site acoustic bat surveys. The protocols for these surveys were developed in consultation with the NYSDEC and USFWS. A Specifically, a draft *Work Plan for Preconstruction Bird and Bat Studies* was submitted to the USFWS and NYSDEC in June 2013 that included studies consistent with NYSDEC Guidelines. This draft work plan was then discussed and approved in a meeting with USFWS and conference calls with NYSDEC in late June 2013. The work plan was then finalized and provided to the USFWS and NYSDEC in July 2013 (see Appendix H of this PSS). The draft bat survey report was written by Stantec following completion of all avian and bat surveys listed below. Copies of all avian and bat reports were provided to USFWS and NYSDEC personnel in April 2015, and upon receipt of comments, if any, the reports will be finalized and included in the Article 10 Application.

Birds

To determine the type and number of bird species present within the Project Area, existing data sources will be consulted and on-site field surveys have been conducted. The Article 10 Application will include a detailed summary of relevant information, and sources of information will include the following:

- USGS Breeding Bird Survey (BBS)
- NYS Breeding Bird Atlas (BBA)
- Audubon Christmas Bird Count (CBC)
- Bird Migration Surveys Conducted by Stantec during the Fall of 2013
- Habitat Assessment Conducted by Stantec during the Fall of 2013
- Raptor Migration Surveys Conducted by Stantec during the Spring of 2014
- Breeding Bird Surveys Conducted by Stantec during the Spring of 2014

- Eagle Point Count Surveys Conducted by Stantec during 2013 and 2014

As previously mentioned, the protocols for the on-site avian studies conducted by Stantec were developed in consultation with the NYSDEC and USFWS and were included in the final work plan mentioned above. The draft avian survey report was written by Stantec following completion of all avian and bat surveys listed above. Copies of all avian and bat reports were provided to USFWS and NYSDEC personnel in April 2015, and upon receipt of comments, if any, the reports will be finalized and included in the Article 10 Application.

Additional desktop information on avian resources, based on review of select databases, is presented below.

Breeding Bird Survey

The North American Breeding Bird Survey (BBS), overseen by the Patuxent Wildlife Research Center of the USGS, is a long-term, large-scale, international avian monitoring program that tracks the status and trends of North American bird populations. Each survey route is 24.5 miles long, with 3-minute point counts conducted at 0.5-mile intervals. During the point counts, every bird seen or heard within a 0.25-mile radius is recorded. The Sheridan survey route runs north to south through the Project Area, and is approximately 1.1 miles west of the nearest turbine. Most of the 114 species recorded on this route since 1968 have been common birds of forest, forest edge, woodland, old field, grassland, and wetland habitats. The most commonly observed species include red-winged blackbird, European starling, American robin, barn swallow, song sparrow, gray catbird, common yellowthroat, American goldfinch, bobolink, common grackle, savannah sparrow, red-eyed vireo, mourning dove, and American crow. Three state-listed threatened species (Henslow's sparrow, northern harrier, and upland sandpiper) and seven state-listed species of special concern (red-headed woodpecker, yellow-breasted chat, horned lark, vesper sparrow, red-shouldered hawk, sharp-shinned hawk, and grasshopper sparrow) were observed during these surveys. These state-listed species have generally been detected in very low numbers. No federally-listed endangered or threatened bird species are listed for within the Project Area.

New York State Breeding Bird Atlas

Data from the New York State Breeding Bird Atlas was reviewed for the Project Area. Survey Blocks 1469A, 1469C, 1369D, 1468A, 1468B, 1568A, 1469D, 1569C, 1569D, 1569B, 1569A, 1464B, which occur within and near the Project Area, were queried for potential breeding bird species. A total of 106 species were observed within the survey blocks, of which 36 were confirmed as breeding.

Amphibians and Reptiles

The New York State Amphibians & Reptile Atlas Project (Herp Atlas) was a survey conducted over ten years (1990-1999), that was designed to document the geographic distribution of New York State's herpetofauna. The USGS 7.5 minute topographic quadrangle is the unit of measurement for data collection for the Herp Atlas. Data from this survey was queried for the Cassadaga, Hamlet, and Cherry Creek USGS 7.5 minute quadrangles which encapsulate the Project Area. Based on a preliminary review of the atlas data, it is estimated that approximately 30 species could occur within the Project Area. More detailed information, based on assessments of suitable habitat in the vicinity of the Project Area, and reptile and amphibian distribution ranges, will be presented in the Article 10 Application.

Wildlife Habitat

Descriptions of Wildlife Habitat within the Article 10 Application will reference and/or build upon the Plant Community descriptions, which are summarized above in relation to 1001.22(a).

(e) Species List

A Plant Species Inventory and a Wildlife Species Inventory will be included in the Article 10 Application, both of which will be based on existing data, on-site surveys, and/or the availability of suitable habitat, and will identify species that could occur in the Project Area at some time during the year. Example species lists that were generated for EverPower's Allegany Wind Power Project, which was proposed in Cattaraugus County, New York, are included as Appendix I to this PSS. The species lists generated for the Cassadaga Wind Project will be similar, in terms of content and level of detail, to these examples.

(f) Impacts to Vegetation, Wildlife, Wildlife Habitats, and Wildlife Travel Corridors

With respect to impacts to vegetation, such impacts will be addressed in the Article 10 Application as described above in 1001.22(b).

With respect to wildlife and wildlife habitat impacts, the Article 10 Application will address construction-related impacts, including 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. Operational impacts will also be addressed, which may include minor loss of habitat, possible forest fragmentation, wildlife displacement due to the presence of the wind turbines, and avian and bat mortality as a result of collisions with the

wind turbines. To the extent any documented wildlife travel corridors are identified within or adjacent to the Project Area, impacts to such corridors will be addressed.

The Article 10 Application will also present information regarding the presence of threatened and endangered (T&E) species and Species of Greatest Conservation Need (SGCN), and the Project's potential to impact such species or their habitats. A preliminary evaluation of federal and/or state-listed wildlife species that potentially occur within the Project Area was conducted though review of the United State Fish and Wildlife Service database, information obtained from the New York Natural Heritage Program, results from avian and bat surveys conducted by Stantec in 2013 and 2014, review of the Breeding Bird Atlas and Breeding Bird Survey, and extrapolation of data from the New York Amphibians and Reptile Atlas.

From the above sources, it was determined that three federally-listed species were identified within or in the vicinity of the Project Area. Two mollusks, the clubshell (*Pleurobema clava*) and the rayed bean (*Villosa fabalis*), are both listed as federally endangered species. The northern long-eared bat (*Myotis septentrionalis*) is a listed threatened species. There are 21 New York special status species that potentially occur within or in the vicinity of the Project Area. One State endangered and five State threatened bird species were also identified in this assessment. The remaining species were State species of special concern, as shown in Table 7 below.

Table 7. New York State Special Status Species Occurring or Likely to Occur within the Project Area

Species	NYS Status	Ecology
Short-eared owl *Asio flammeus*	Endangered	Found in open country, such as prairie, meadows, marshes, and open woodland. More common as a winter residents in New York State. Habitat for these species occurs within the project site, but it has not been observed during Stantec's avian surveys or the BBS.
Bald eagle *Haliaeetus leucocephalus*	Threatened	Usually breeds in riparian, lacustrine, and habitat associated with other water bodies. Preferentially roosts in conifers. May transiently utilize habitat within the project area. This species was documented within the project area during Stantec's Raptor and Eagle Use Studies.
Henslow's sparrow *Ammodramus henslowii*	Threatened	Often found in patchy, weedy old fields. Suitable habitat occurs within the Project Area in the form of abandoned fields. This species was not detected during Stantec's Studies, but has been detected on the nearby BBS Route.
Northern harrier *Circus cyaneus*	Threatened	Found in meadows, grasslands, marshes, and cultivated fields. Nests on the ground, often in shrubby habitat. Suitable habitat for this species occurs within the Project Area. This species was detected in Stantec's Surveys and in the BBS.
Sedge wren *Cistothorus platensis*	Threatened	Usually found in moist, tall-grass meadows with scattered bushes. There may be suitable habitat within the Project Area for this species, but no breeding records exists for Chautauqua County, and it was not detected in either Stantec's Study or in the BBS.

Species	NYS Status	Ecology
Upland sandpiper *Bartramia longicauda*	Threatened	An obligate grassland species that utilizes agricultural areas and other grassland habitats. Last detected by the BBS in 1987 and 1989, and may exist within the vicinity of the Project Area.
Eastern sand darter *Ammocrypta pellucida*	Threatened	Occurs in streams with a sandy bottom, thought to spawn beginning in May and possibly in to the fall. Known to occur in Conewango Creek, and likely exists within the Project Area.
Eastern box turtle *Terrapene carolina*	Special Concern	Found in mixed upland habitats and deciduous woodlands. Frequents wet areas. Some occurrences of this species have been documented in southeastern Chautaqua County. Occurrence in the project area is unknown.
Wood turtle *Clemmys insculpta*	Special Concern	Often found in wooded wetlands, ponds, and swamps. Will also utilize stream banks for nesting. Records of this species exist for Chautauqua County, and some suitable habitat is likely found within the Project Area. Occurrence within the Project Area is unknown.
Blue-spotted salamander *Ambystoma laterale*	Special Concern	Associated with lowland swamps and marshes and surrounding uplands. Some suitable habitat for this species is located within the Project Area, although occurrence within the Project Area is unknown.
Jefferson salamander *Ambystoma jeffersonianum*	Special Concern	Found in temporary ponds and wetlands (such as vernal pools) in forested areas. There are no records for this species in Chautauqua County, although suitable habitat occurs within the Project Area.
Cooper's hawk *Accipiter cooperii*	Special Concern	Forest-dwelling raptor that breeds in deciduous, mixed, and coniferous forests. Suitable habitat for this species occurs within the Project Area. This species was not documented to occur in the Project Area by Stantec's Study or the BBS. Possibly Occurs within the vicinity of the Project Area.
Grasshopper sparrow *Ammodramum savannarum*	Special Concern	Preferentially breeds in grasslands of intermediate height. Occasionally found in cropland. Suitable habitat exists within the Project Area. This species was not detected by Stantec's study, but was detected by the BBS.
Red-shouldered hawk *Buteo lineatus*	Special Concern	Forest-dwelling buteo that prefers wet areas such as swamps and forested wetlands. Suitable habitat for this species occurs within the Project Area. This species was detected by Stantec's study, the BBS, and BBA.
Sharp-shinned hawk *Accipiter striatus*	Special Concern	Forest-dwelling raptor found in deciduous or mixed woodlands. Suitable habitat for this species is within the Project Area. This species was detected by Stantec's Study, the BBS and the BBA.
Vesper sparrow *Pooecetes gramineus*	Special Concern	Found in field, prairie, pastures, and shrublands. Nest on ground. Suitable habitat exists within the Project Area for this species. This species was not detected by Stantec's Study, but it was detected in the BBS and BBA.
Horned lark *Eremophila alpestris*	Special Concern	Occupies areas with short grasses and barren ground. Commonly nests in row crops, hayfields, and short grass prairie. Last identified on the nearby BBS route in 1980. Possibly occurs in the vicinity of the Project Area.

Species	NYS Status	Ecology
Red-Headed woodpecker *Melanerpes erythrocephalus*	Special Concern	Prefers river bottoms, wooded swamps, and open grasslands with trees. Breeding habitat is characterized by the presence of dead trees for nest sites, snags for roosting, and open ground for foraging. This species was not detected by Stantec's Study, but has been detected by the BBS. Likely occurs within the Project Area.
Eastern small-footed myotis *Myotis leibii*	Special Concern	Found in hilly or mountainous areas. Often in deciduous or evergreen forest and open farmland. Warm-season roosts include hollow trees, gaps between tree bark and tree trunks, cliff crevices and some structures. Suitable habitat for this species is found within the Project Area. Stantec's bat study detected the presence of bats belonging to the Myotis genus, but was unable to confirm the presence of this individual species.
Black redhorse *Moxostoma duquesnei*	Special Concern	Occurs in clean, swift flowing rivers with bottoms of gravel, rock, or sand. This species is a bottom feeder that spawns in the spring. Known to occur in Cassadaga and Conewango Creek, and likely exists within the Project Area.
Redfin shiner *Lythrurus umbratillis*	Special Concern	Lives in small to medium-sized streams that range from slow-flowing to high gradient upland reaches. Spawns in spring and summer. Known to occur in Cassadaga Creek, and likely exists within the Project Area.

According to an information request response received on May 21, 2015 from the New York State Natural Heritage Program (NHP), there are no state and federally listed special status species that are known to occur within the Project Area. However, the West Virginia White butterfly (*Pieris virginiensis*), which is defined by the NHP as vulnerable in New York State and globally uncommon, was detected within the Project Area in 2003.

Stantec did not identify habitat within the Project area with potential to support federally listed avian species, the State-listed species bald eagle, The Special Concern species common loon, or the Protected great blue heron. There are no large water bodies in the Project area with potential to support bald eagle or common loon, which nest on lakes greater than 25 acres in size (NYSDEC 2013a). There are no wooded freshwater swamps or water bodies with islands where great blue heron typically establish rookeries (NYSDEC 2013b).

(g) Measures to Avoid or Mitigate Impacts to Vegetation, Wildlife and Wildlife Habitat

With respect to measures to avoid or mitigate impacts to plant communities (including vegetation), please see 1001.22(c) above.

With respect to wildlife and wildlife habitat, the Article 10 Application will include a detailed description of those measures to be implemented to avoid or mitigate impacts to wildlife and wildlife habitat within the Project Area. It is

anticipated such measures will include 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.

(h) For Proposed Wind-Powered Facilities:

(1) Avian and Bat Impacts

As previously mentioned numerous pre-construction avian and bat studies have been conducted, which were based on the July 2013 *Work Plan for Pre-Construction Avian and Bat Surveys.* Copies of all reports prepared in accordance with this work plan were provided to NYSDEC personnel in April 2015, and these reports will be updated based on NYSDEC comment and included with the Article 10 Application. Based on the results of these studies, and standard industry practice, the Article 10 Application will also include an estimate of Project-related impacts to avian and bat species.

(2) Avian and Bat Post-Construction Monitoring

The Article 10 Application will provide details associated with a proposed post-construction monitoring program to be implemented to assess direct and indirect impacts of the wind facility on avian and bat species. The monitoring program will be developed in consultation with the NYSDEC and USFWS, and will include 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.

(3) Avian and Bat Impact Avoidance and Mitigation Plan

The Article 10 Application will discuss the need for development of a plan to avoid, minimize and mitigate impacts to avian and bat species, and the criteria necessary to demonstrate need for such a plan.

(i) Map Showing Delineated Wetland Boundaries

The Article 10 Application will include a map(s) depicting the boundaries of all delineated wetlands within 500 feet of proposed Project components. Specifically, on-site field delineations will take place within a 200-foot wide corridor centered on linear Project components (e.g., access roads, buried electrical interconnect, overhead generator lead line), and within a 200-foot radius of turbines and other components such as permanent meteorological towers,

operations and maintenance (O&M) building, and substations. The determination of wetland boundaries will be made by EDR personnel according to the three-parameter methodology described in the U.S. Army Corps of Engineers (Corps) *Wetland Delineation Manual* (Environmental Laboratory, 1987), and further described by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: North central and Northeastern Region* (USACE, 2012). Wetland boundaries will be defined in the field by sequentially numbered pink surveyor's flagging marked "wetland delineation", which will be located using Global Positioning System (GPS) technology with report sub-meter accuracy.

As set forth at 1001.22(i), the Article 10 regulations require identification of wetland boundaries "…*within 500 feet of areas to be disturbed by construction…"* Field delineations and associated wetland boundary flagging and GPS surveying will take place within those areas specified above. To define boundaries out to 500 feet from Project components, GIS software will be used in consultation with aerial photo interpretation, existing databases, and the results of on-site studies, to extend delineated wetland boundaries. However, such boundaries will be referred to as Approximate Wetland Boundaries. Therefore, the wetland delineation mapping included with the Article 10 Application will depict continuous wetland boundaries out to a distance of 500 feet from Project components, portions of which will be identified as "Field Delineated Wetland Boundary" and other portions identified as "Approximately Wetland Boundary".

On-site wetland delineations, and desktop approximations, will be supported by existing databases of state- and federally-mapped wetlands. Review of NYSDEC mapping indicates that a number of freshwater wetlands occur within the Project Area. These wetlands are interspersed throughout the Project Area and many of them are associated with mapped streams. The majority of these wetlands lie within the valleys of Cassadaga Creek, Conewango Creek, and Cherry Creek. Table 8 provides a summary of State-regulated wetlands in the Project Area. Please also see Figure 4 for a depiction of all state-mapped wetlands within the Project Area.

Table 8. NYSDEC-Mapped Wetlands

Wetland	Class[1]	Total Size	Size Within Project Area (Acres)
HA-6	2	13.3	13.3
CS-10	1	1237.3	23.9
HA-3	3	18.7	18.7
HA-4	2	10.8	10.8
HA-1	2	15.2	15.2
HA-7	2	14.5	14.6
CS-8	2	404.7	404.7
HA-9	2	0.69	0.69
HA-9	2	21.9	21.9
HA-9	2	7.9	7.9

Wetland	Class[1]	Total Size	Size Within Project Area (Acres)
CS-8	2	40.5	40.5
CK-8	2	24.6	23.5
CS-8	2	2.6	2.6
CS-9	2	17.8	17.8
CS-4	2	44.5	12.68
CS-8	2	1192.5	39.1
HA-8	2	23.9	23.9
HA-8	2	0.63	0.63
HA-4	2	148.1	148.1
CS-8	2	1192.5	9.6

[1]NYS classification system. Four separate classes that rank wetlands according to their ability to provide functions and values (Class I having the highest rank, descending through Class IV.

National Wetland Inventory (NWI) mapping includes 151 wetland communities within the Project Area, which cumulatively total 813.3 acres. The NWI data indicates that freshwater forested/shrub wetlands comprise the majority of wetland communities on-site, totaling approximately 680 acres. Other NWI-mapped wetland communities on-site include freshwater emergent wetlands (73 acres), and freshwater ponds (60 acres).

(j) Description of Wetlands

The characteristics of all field delineated wetlands will be described in the Article 10 Application, which will also include a summary of the field data collected regarding vegetation, soils, and hydrology. In addition, it is anticipated that copies of the Corps *Wetland Determination Data Form* completed for each field delineated wetland will be included as an attachment to the Article 10 Application.

(k) Wetland Functional Assessment

The Applicant proposes to use a methodology similar to the Ohio Rapid Assessment Method (ORAM) to access the functions and values of wetlands that will be field delineated within the Project Area. The ORAM evaluates the ecological conditions of a wetland using collected data along with visual observation of various environmental factors. These observations include six metrics; wetland size, surrounding land use and upland buffers, hydrology, habitat alteration and development, plant communities, and special wetland communities. Scores range from 0 to 100, with low scores indicating poor ecological condition, and high scores assigned to wetlands in excellent condition. Qualitative assessment scores for each delineated wetland will be presented with the Application.

(l) Offsite Wetlands Analysis

The hydrologic connectivity of all delineated wetlands will be described in the Article 10 Application, including a summary of those wetlands anticipated to fall under NYSDEC jurisdiction (under Article 24 of the Environmental Conservation Law) and/or Corps jurisdiction (under Section 404 of the Clean Water Act). However, final jurisdictional will be determined in consultation with these agencies.

(m) Wetland Impacts

During construction, potential 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 above-ground or buried electrical interconnects, installation of the generator lead line, 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 with the development of access roads and workspaces around turbines. The construction of access roads, and possibly the upgrade of local public roads, is anticipated to result in both permanent (loss of wetland/surface water acreage) and temporary impacts to wetlands. The development and use of temporary workspaces will result in only temporary impacts to wetlands/streams. The installation of above-ground or buried electrical lines (transmission and interconnects) will temporarily disturb streams and wetlands during construction as a result of clearing (brushhogging, or similar clearing method requiring no removal of rooted woody plants), and soil disturbance from burial of the electrical collection lines or from pole installation along the overhead generator lead line. Indirect impacts to wetlands and surface waters may result from sedimentation and erosion caused by adjacent construction activities (e.g., removal of vegetation and soil disturbance). This indirect impact may occur at wetlands adjacent to work areas where no direct wetland impacts are anticipated, including areas adjacent to proposed access road upgrade/construction, electrical collection and transmission routes, turbine sites, staging area(s), wind measurement towers, or the substations.

The Article 10 Application will quantify both temporary and permanent impacts to wetlands, based on the level of detail available at the time of submittal (i.e., Preliminary Design Drawings, see Section 2.11 of this PSS for more information).

(n) Measures to Avoid/Mitigate Wetland Impacts

The Article 10 Application will discuss measures to be implemented to avoidance and mitigate wetland impacts. It is anticipated that direct impacts to wetlands/streams will be minimized by utilizing existing or narrow crossing locations

whenever possible. Additional measures may include special crossing techniques, equipment restrictions, herbicide use restrictions, and erosion and sedimentation control measures.

(o) State and Federal Endangered or Threatened Species

State and federal T&E species documented within or adjacent to the Project Area, along with potential impacts to such species, will be identified in the Article 10 Application. Please see the T&E discussion above in association with 1001.22(f) for more information.

(p) Invasive Species Prevention and Management Plan

The invasive species prevention and management plan discussion within the Article 10 Application will reference and/or build upon the Impact to Plant Communities section, which also addresses invasive species as summarized above in relation to 1001.22(b).

(q) Agricultural Impacts

The presence of agricultural land will be documented based on site-specific field investigations and review of aerial imagery. The type of agricultural use (e.g., row crops, hayfields, pasture) will also be documented in the Article 10 Application. All impacts to agricultural land will be based on GIS calculations, as described above in association with 1001.22(b), and mitigation is anticipated to follow the guidelines established by the New York State Department of Agriculture and Markets (NYSDAM).

2.23 WATER RESOURCES AND AQUATIC ECOLOGY

This exhibit will include a study of the groundwater, surface water, and aquatic ecology impacts of the facility consisting of the identification and mapping of existing conditions, an impact analysis, and proposed impact avoidance and mitigation measures.

(a) Groundwater

(1) Hydrologic Information

The average depth to bedrock in the Project Area is greater than 200 centimeters (cm), while the average depth to the water table in the Project Area is approximately 110 cm. Maps will be prepared showing depth to bedrock and depth to water table throughout the facility site, based in the Soil Survey of Chautauqua County New York.

(2) Groundwater Aquifers and Recharge Areas

According to preliminary review and data obtained from the NYSDEC, the Project Area overlays six groundwater aquifers (both confined and unconfined), as depicted in Figure 5. Aquifers are located in the river valleys of Cassadaga Creek, Mill Creek, Clear Creek, and Cherry Creek, and around the periphery of the Project Area to the west, south, and east. A map will be prepared identifying groundwater aquifers, groundwater recharge areas, and groundwater wells using data from the New York State Department of Environmental Conservation (NYSDEC) Division of Water Resources, Bureau of Water Management.

To identify existing water wells in Project Area, a Freedom of Information Request letter was sent to the NYSDEC and the NYS Department of Health (NYSDOH) on April 17, 2015. These letters requested any information pertaining to groundwater wells (including location, construction logs, depths, and descriptions of encountered bedrock) within the Project Area. An email response was received from the NYSDEC on May 5, 2015, which provided copies of 119 well reports found within the Project Area. A response letter from the NYSDOH was received on May 21, 2015, which indicated that "no records responsive to your request have been located". The NYSDOH response suggested contacting the Chautauqua County Department of Health (CCDOH), and this consultation ultimately resulted in data provided by the Chautauqua County Department of Law in a letter dated July 6, 2015 (see Appendix J of this PSS for all related correspondence). All publicly available water well information will be included in the Article 10 Application. Information about the depth and yield for each well will be provided in tabular format.

In addition, private wells will also be identified by sending a well survey to all residences/businesses located within a 1-mile radius of the proposed facility. A list of all those provided a well survey will be included in the Article 10 Application, along with a corresponding GIS-based parcel map. However, the Applicant cannot guarantee that a response to all (or even a majority of the) surveys will be received.

(3) Groundwater Impacts

The proposed turbines will be located in higher elevation uplands, above and outside of the aquifer footprints located in the valleys. Excavations for foundations, roadways, and underground collection lines are expected to be relatively shallow, and are not anticipated to intercept groundwater within the surrounding aquifers. The Project will add only small areas of impervious surface, which will be dispersed throughout the Project Area, and will have a negligible effect on groundwater recharge. The Project is not anticipated to result in any significant impacts to groundwater quality or quantity, drinking water supplies, or aquifer protection zones. Additional detail regarding groundwater impacts will be provided in the Article 10 Application.

(b) Surface Waters

(1) Surface Waters Map

A map will be prepared identifying all surface waters within the Project Area, including intermittent streams (to the extent such streams are identified in publically available data). Sources of information will include publicly available data from Chautauqua County, the NYSDEC, and ESRI, along with stream data collected during the on-site wetland delineation effort. This map will be included with the Article 10 Application.

(2) Description of Surface Waters

Approximately 90% of the Project Area lies within the Conewango drainage basin (USGS Hydrologic Unit 05010002), which includes 888 square miles in New York and Pennsylvania. The remaining northern-most portion of the Project Area is located within the Chautauqua-Conneaut drainage basin, (USGS Hydrologic Unit 04120101), which includes 874 square miles in New York, Ohio, and Pennsylvania. According to the NYSDEC (1998), the Conewango watershed harbors endangered species, but was determined to have fish and wildlife population levels below desired goals and some modifications to water flow. The Chautauqua-Conneaut watershed similarly harbors endangered species, and has some modifications to water flow, but also contains streams and lakes affected by acid deposition. However, both watersheds were assigned as Class II, which indicates that they meet clean water and natural resources goals.

Under Article 15 of the Environmental Conservation Law (Protection of Waters), the New York State Department of Environmental Conservation (NYSDEC) has regulatory jurisdiction over any activity that disturbs the bed or banks of protected streams. Any stream, or particular portion of a stream, that has been assigned by the

NYSDEC any of the following classifications or standards is considered a protected stream: AA, AA(t), A, A(t), B, B(t) or C(t) (6 NYCRR Part 701). A classification of AA or A indicates that the best use of the stream is as a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The best usages of Class B waters are primary and secondary contact recreation and fishing. The best usage of Class C waters is fishing and non-contact activities, and Class D waters represent the lowest classification standard. Streams designated (t) indicate that they support trout, and also include those more specifically designated (ts) which support trout spawning. The Article 10 Application will identify the classification for all NYSDEC mapped streams within the Project Area (see Figure 6). Characteristics of the streams in the Project Area will be described in the Article 10 Application, based on publically available data and when available, supplemented by field data collected during the on-site wetland and stream delineations.

With respect to fish species, an email request was submitted to the NYSDEC on March 5, 2015 for data on fish communities in streams associated with the Project Area. A response from the NYSDEC was received on March 23, 2015, which contained a spreadsheet of results from a statewide database query (see Appendix K for a copy of all related correspondence). These data provide information on fish species that have been caught or identified in the streams of interest. The data was compared to the state and federal databases of threatened and endangered species, which indicated that these streams contain no documented federally-listed threatened or endangered species. Occurrences of three species that are listed by the State of New York were documented, summarized as follows:

State Listed Species	Status	Waterbody Name
Black Redhorse	Endangered	Cassadaga Creek, Conewango Creek
Eastern Sand Darter	Threatened	Conewango Creek
Redfin Shiner	Special Concern	Cassadaga Creek

Additional detail regarding the physical characteristics (water quality, flow, etc.) and biological aquatic resource characteristics (fish species, aquatic invasive species) of surface waters in the Project Area will be provided in the Article 10 Application. Specific to invasive species, please note that common aquatic invasive species as identified by the NYSDEC (http://www.dec.ny.gov/animals/50272.html), which are observed while conducting delineations and field investigations, will be documented and included in the Article 10 Application. However, a comprehensive inventory of aquatic species or aquatic invasive species is not anticipated.

(3) Drinking Water Supply Intakes

The Article 10 Application will identify the nearest downstream surface water drinking water supply intake.

(4) Impacts to Surface Waters

Project components will be sited to avoid or minimize both temporary and permanent impacts to surface waters to the extent practicable. Large built components of the Project, including wind turbine foundations, O&M facility, and substations, are anticipated to avoid surface waters to the maximum extent practicable. In addition, large temporary construction facilities (e.g., staging areas) will avoid surface water impacts to the maximum extent practicable. Number and overall impacts due to access road and collection line crossings will be minimized by utilizing existing crossings and narrow crossing locations to the extent practicable.

During construction, potential direct or indirect impacts to surface waters may occur as a result of the installation of access roads and wind turbine foundations, the upgrade of local public roads, the installation of above ground or buried electrical interconnects, the development and use of temporary workspaces around the turbine sites, the installation of the overhead generator lead line, and temporary workspaces around substations. Direct impacts include 1) an increase in water temperature and conversion of cover type due to clearing of vegetation, 2) siltation and sedimentation due to earthwork, such as excavating and grading activities, 3) disturbance of stream banks and/or substrates resulting from buried cable installation, and 4) the direct placement of fill in surface waters to accommodate road crossings. Indirect impacts to surface waters may result from sedimentation and erosion caused by construction activities (e.g., removal of vegetation and soil disturbance).

As previously stated, an on-site wetland and stream delineation will be conducted and a detailed Wetland and Stream Delineation Report will be prepared and included with the Article 10 Application. Based on the Project layout (i.e., proposed footprint of all Project components) and the delineated stream and wetland boundaries, calculations will be performed to determine the approximate acreage of surface waters to be temporarily and permanently impacted. The Article 10 Application will also address potential Project-related impacts to drinking water supplies.

(5) Measures to Avoid or Mitigate Surface Water Impacts

Direct impacts to surface waters 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 farm equipment or other vehicles out of surface waters. 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 will be kept to an absolute minimum.

Where crossings of surface waters are required, Best Management Practices will be utilized, as recommended by the NYSDEC and the USACE. Specific mitigation measures for protecting surface water resources may include the following:

- *No Equipment Access Areas:* Except where crossed by permitted access roads or through non-jurisdictional use of temporary matting, streams will be designated "No Equipment Access," thus prohibiting the use of motorized equipment in these areas.
- *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;
    - No storage of any petroleum or chemical material; and
    - No disposal of excess concrete or concrete wash water.
- *Sediment and Siltation Control*: A soil erosion and sedimentation control plan will be developed and implemented as part of the SPDES General Permit for the Project. Silt fences, hay bales, and temporary siltation basins will be installed and maintained throughout Project construction. Exposed soil will be seeded and/or mulched to assure that erosion and siltation is kept to a minimum along wetland boundaries. Specific control measures will be identified in the Project SWPPP, and the location of these features will be indicated on construction drawings and reviewed by the contractor and other appropriate parties prior to construction. These features will be inspected on a regular basis to assure that they function properly throughout the period of construction, and until completion of all restoration work.

In the event that shallow groundwater is encountered during construction activities such as foundation excavation, dewatering will likely occur. The Article 10 application will contain additional information about dewatering, including typical photographs and details associated with dewatering.

(c) Stormwater

(1) Stormwater Pollution Prevention Plan

The Article 10 Application will contain a Generic Stormwater Pollution Prevention Plan (SWPPP), which will describe in general terms the erosion and sediment control practices that will likely be implemented during construction activities, and the stormwater management practices that will be used to reduce pollutants in stormwater discharges after Project construction has been completed. The Generic SWPPP will provide typical information on temporary and permanent erosion and sediment control measures (vegetative and structural), construction phasing and disturbance limits, waste management and spill prevention, and site inspection and maintenance.

(2) Post-Construction Erosion and Sediment Control Practices

As described above, the Generic SWPPP and associated erosion and sedimentation control plan will address the anticipated stormwater management practices that will be used to reduce the rate and volume of stormwater runoff after Project construction has been completed.

Following Certification of the Project, it is anticipated that hydrologic models (e.g., Hydraflow Hydrographs Extension for AutoCAD Civil 3D software) based upon measurable watershed characteristics will be utilized by professional engineers to calculate stormwater discharges. Stormwater runoff rates discharged from the site under existing conditions (pre-construction) will provide the basis for evaluation and comparison to proposed conditions (post-construction). Design points of interest will be established where stormwater runoff exits the site (e.g., where proposed Project access roads intersect with existing pubic roads/roadside ditches). These design points will provide fixed locations at which existing and proposed stormwater quantities can be compared. The areas draining to these design points will be delineated using land survey information and proposed grading plans, and a hydrologic analysis of each of the drainage areas will be conducted to model their discharges (typically for the 1, 2, 10, 25, 50 and 100-year storm events). As stated above, because final engineering will not be completed until the Project has been certified, a final SWPPP will not be included in the Application.

Following Certification of the Project, the Applicant will conduct the detailed engineering necessary to prepare a final SWPPP, in accordance with the State Pollution Discharge Elimination System (SPDES) General Permit.

(d) Chemical and Petroleum Bulk Storage

(1) Spill Prevention and Control Measures

The Article 10 Application will contain a Preliminary Spill Prevention, Containment and Counter Measures (SPCC) Plan that will be implemented during Project construction and operation to minimize the potential for unintended releases of petroleum and other hazardous chemicals. This plan will not allow refueling of construction equipment within 100 feet of any stream or wetland, and all contractors will be required to keep materials on hand to control and contain a petroleum spill. These materials will include a shovel, tank patch kit, and oil-absorbent materials. Any spills will be reported in accordance with state and/or federal regulations, and the BOP contractor will, at a minimum, be required to adhere to the SPCC.

(2) Compliance with New York State Chemical and Petroleum Bulk Storage Regulations

It is not anticipated that the Project will require the on-site storage or disposal of large volumes of any substances subject to regulation under the State of New York's chemical and petroleum bulk storage programs (e.g., fuel oil, petroleum, etc.). Should the O&M facility require petroleum or other hazardous chemical be stored on-site, the Article 10 Application will identify such substances and demonstrate compliance with the State laws.

(3) Compliance with Local Laws for Storage of Chemicals or Petroleum

It is not anticipated that the Project will require the on-site storage or disposal of large volumes of any substances subject to regulation under local laws. Should the O&M facility require such regulated chemicals be stored on-site, the Article 10 Application will identify such substances and demonstrate compliance with the local laws.

(e) Aquatic Species and Invasive Species

(1) Impact to Biological Aquatic Resources

The Article 10 application will contain the results of the on-site wetland and stream delineation field effort, which will be used to micro-site various Project components (as needed) so as to further minimize impacts to surface waters, as practicable. Based on the Project layout and the delineated stream and wetland boundaries, calculations will be performed to determine the anticipated acreage of surface waters to be temporarily and permanently impacted. The identification of the locations of surface waters to be impacted will allow for an analysis of potential impacts on biological aquatic resources, including invasive species and any listed endangered, threatened, or special concern species that may occupy potentially affected waters.

As indicated above, common aquatic invasive species identified by the NYSDEC (http://www.dec.ny.gov/animals/50272.html), which are observed while conducting delineations and field investigations, will be documented and included in the Article 10 Application. However, a comprehensive inventory of aquatic species or aquatic invasive species is not anticipated.

(2) Measures to Avoid or Mitigate Impacts to Aquatic Species

The Article 10 Application will evaluate reasonable avoidance measures (e.g., different crossing techniques, restricted access areas) to minimize impacts to surface waters and biological aquatic resources. The Article 10 Application will also include an Invasive Species Control Plan (ISCP), which will identify the following measures to control the spread of invasive species: 1) construction materials inspection; 2) target species treatment and removal; 3) construction equipment sanitation; and 4) restoration. Where impacts to aquatic species are unavoidable, the Article 10 application will identify appropriate mitigation measures. It is not anticipated that the Project will result in adverse impacts to listed endangered, threatened, or special concern species.

(f) Cooling Water

The proposed Project does not involve the use of cooling water, and as such, the requirements of this section are not applicable to this Project. Therefore, information related to cooling water systems, intake, and discharge will not be included in the Article 10 Application.

2.24 VISUAL IMPACTS

(a) Visual Impact Assessment

A Visual Impact Assessment (VIA) will be conducted to determine the extent and assess the significance of facility visibility. The VIA procedures used for this study will be consistent with methodologies developed by various state and federal agencies, including the U.S. Department of the Interior, Bureau of Land Management (1980), U.S. Department of Agriculture, National Forest Service (1974), the State of Vermont (2012), and the New York State Department of Environmental Conservation (not dated). The components of the VIA shall include identification of visually sensitive resources, viewshed mapping, confirmatory visual assessment fieldwork, visual simulations (photographic overlays), cumulative visual impact analysis, and proposed visual impact mitigation. The VIA, which will be included in the Article 10 Application, shall address the following issues:

(1) Character and Visual Quality of the Existing Landscape

Per the definition set forth at 1000.2(ar), the visual study area to be used for analysis of major electric generating facilities is defined as "an area generally related to the nature of the technology and the setting of the proposed site. For large facilities or wind power facilities with components spread across a rural landscape, the study area shall generally include the area within a radius of at least five miles from all generating facility components, interconnections and related facilities and alternative location sites. For facilities in areas of significant resource concerns, the size of a study area shall be configured to address specific features or resource issues."

A preliminary visibility assessment and identification of visually sensitive resources will include the area within 10 miles of the proposed Project boundary. The purpose of including areas between 5 and 10 miles from the Project will be to identify any regionally significant areas or resources of concern and to assist in determining whether a 5-mile radius study area is appropriate for this Project. The 5-mile and 10-mile visual study area boundaries for the Project include approximately 295 square miles and 690 square miles, respectively.

The definition of landscape types found in a given study area provides a useful framework for the analysis of available visual resources and viewer circumstances. These landscape types, referred to as Landscape Similarity Zones, will be defined based on the similarity of features such as landform, vegetation, water, and land use patterns.

(2) Visibility of the Facility

The VIA will include an analysis of potential visibility and will assist in identification of locations within the visual study area where it may be possible to view the proposed installation and operation of up to 62 wind turbines, together with the associated overhead collection lines, permanent meteorological towers, operation and maintenance (O&M) building, collection substation, 115 kV electrical generator lead line and point-of-interconnection substation. This analysis includes identifying potentially visible areas on viewshed maps and verifying line of sight conditions in the field. The purpose of the field visit will be to verify the existence of direct lines of sight to the Project as indicated by viewshed analysis, and to obtain photographs for subsequent use in the development of visual simulations.

During the field verification, EDR staff members will drive public roads and visit previously identified scenic resources and other public vantage points within the 10-mile radius study area to document locations from which the proposed project structures would likely be visible, partially screened, or fully screened. This determination will be made based on the location of existing structures (e.g., meteorological towers, silos) and/or helium filled balloons that provide a locational and scale reference for the proposed Project. Photos will be taken from representative viewpoints throughout the study area. All photos will be obtained using a digital SLR camera with a focal length between 28 and 35 mm (equivalent to between 45 and 55 mm on a standard 35 mm film camera). This focal length is the standard used in visual impact assessment because it most closely approximates normal human perception of spatial relationships and scale in the landscape. Viewpoint locations will be documented, using hand-held global positioning system (GPS) units and high-resolution aerial photographs (digital ortho quarter quadrangles). The time and location of each photo will be documented on all electronic equipment (camera, GPS unit, etc.) and noted on field maps and data sheets. Viewpoints photographed during field review will generally represent the most open, unobstructed available views toward the Project.

(3) Visibility of Above-ground Interconnections and Roadways

The viewshed analysis described above will assist in identification of locations within the visual study area where it may be possible to view the above ground transmission structures from ground-level vantage points. This analysis includes identifying potentially visible areas on viewshed maps and verifying line of sight conditions in the field. Access roads will be included in any visual simulation in which they would be visible.

(4) Appearance of the Facility Upon Completion

To show what the facility will look like, high-resolution computer-enhanced image processing will be used to create realistic photographic simulations of the completed project from the selected viewpoints. The photographic simulations will be developed by constructing a three-dimensional computer model of the proposed turbine and turbine layout based on specifications and coordinates provided by the Applicant. Along with the turbines, proposed clearing limits and the location and appearance of proposed meteorological towers or other visible components of the Project will also be incorporated into the photographic simulations.

(5) Lighting

Viewshed analysis based on the anticipated FAA lighting plan will show where the Project lights will potentially be visible at night. Several viewpoints will also be selected for the development of nighttime simulations as well. The selected nighttime views will need to be in dark settings with minimal ambient lighting to allow successful nighttime photography. These viewpoints will also be selected to show variety in sky conditions (degree of darkness), number of lighted turbines, and other lights in the landscape. In addition, lighting specifications for FAA lights on turbines, and typical lights to be used at the substation and O&M facility, will be included in the Article 10 Application. The usage of such lights in the context of safety, lumens, etc. will also be addressed.

(6) Photographic Overlays

Photographic simulations will be developed by using Autodesk 3ds Max Design 2015® to create a simulated perspective (camera view) to match the location, bearing, and focal length of each existing conditions photograph. Existing elements in the view (e.g., buildings, existing transmission structures, roads) will be modeled based on aerial photographs and DEM data in AutoCAD Civil 3D 2014®. A three dimensional ("3-D") topographic mesh of the landform (based on DEM data) will then be brought into the 3-D model space. At this point minor adjustments are made to camera and target location, focal length, and camera roll to align all modeled elements with the corresponding elements in the photograph. This assures that any elements introduced to the model space (i.e., the proposed wind turbines) will be shown in proportion, perspective, and proper relation to the existing landscape elements in the view. Consequently, the alignment, elevations, dimensions and locations of the proposed Project structures will be accurate and true in their relationship to other landscape elements in the photograph.

Using the camera view as guidance, the visible portions of the modeled Project components will be imported to the landscape model space described above, and set at the proper coordinates. Once the proposed Project is accurately aligned within the camera view, a lighting system will be created based on the actual time, date, and location of the photograph. Using the Mental Ray Rendering System® with Final Gather and Mental Ray Daylight System® within the Autodesk 3ds Max Design 2015® software, light reflection, highlights, color casting, and shadows will be accurately rendered on the modeled Project based on actual environmental conditions represented in the photograph.

The rendered Project will then be superimposed over the photograph in Adobe Photoshop CS5® and portions of the Project that fall behind vegetation, structures or topography are masked out. Photoshop is also used to take out any existing structures or vegetation proposed to be removed as part of the Project. Once the new Project components are added to the photo, any shadows cast on the ground by the proposed structures are also included by rendering a separate "shadow pass" over the DEM model in Autodesk 3ds Max Design 2015® and then overlaying the shadows on the simulated view with the proper fall-off and transparency using Adobe Photoshop CS5®.

(7) Nature and Degree of Visual Change from Construction

Short term visual impacts associated with the clearing of trees, construction of access roads, erection of turbines and transmission structures, and general construction activity will occur for the duration of construction. These impacts will be described in the VIA and illustrated with photos of typical construction activities.

(8) Nature and Degree of Visual Change from Operation

Impacts to visual resources resulting from Project operation will be evaluated by a panel of registered landscape architects (two in-house and one independent) using a standardized rating form. The methodology utilized in this evaluation will be a simplified version of the U.S. Department of the Interior, Bureau of Land Management (BLM) contrast rating methodology (USDOI BLM, 1980). A one page rating form was developed by EDR, and has been used for visual impact evaluation on numerous electric transmission and generation projects in New York.

(9) Operational Effects of the Facility

As part of the visual impact analysis, a study of potential shadow flicker occurrence on nearby residences will be conducted, including number of potential receptors and predicted annual hours of shadow flicker at each

receptor. A maximum distance of potential effect 10 rotor diameters will be used for this analysis to ensure that all potentially impacted structures were assessed.

The shadow flicker analysis for the proposed Project will use *WindPRO* software and the associated Shadow module, which is a widely accepted modeling software package developed specifically for the design and evaluation of wind power projects. Input variables and assumptions used for shadow flicker modeling calculations for the proposed Project will include:

- Latitude and longitude coordinates of proposed wind turbine sites
- Latitude and longitude coordinates for residential structures located within a 10 rotor diameter radius of all proposed turbine locations.
- USGS 1:24,000 topographic mapping and USGS digital elevation model (DEM) data (10-meter resolution).
- The rotor diameter and hub height of the proposed turbine model.
- Annual wind rose data.
- The average monthly percent of available sunshine for the nearest National Oceanic and Atmospheric Administration weather station in Buffalo, NY.

Shadow flicker occurrence at receptors are expressed in terms of predicted frequency (hours per year). Shadow isolines (i.e., contours indicating total number of hours of shadowing per average year) are calculated based on the data and assumptions outlined above. These isolines define the theoretical number of hours per year that shadow flicker would occur at any given location within 10 rotor diameters of all proposed turbines. Shadow intensity diminishes as the distance between turbines and receptors increases, and at distances beyond 10 rotor diameters shadow flicker effects are essentially undetectable (BERR, 2009).

The model calculations will include the cumulative sum of shadow hours for all Project turbines. This omni-directional approach reports total shadow flicker results at a receptor regardless of the presence or orientation of windows at that particular residence (i.e., it assumes shadows from all directions can be perceived at a residence, which may or may not be true). A receptor in the model will be defined as a one square meter area located one meter above ground; consistent with industry standards, actual house dimensions are not taken into consideration. See Section 2.15(e)(5) for additional information on shadow flicker.

(10) Measures to Mitigate for Visual Impacts

Mitigation options for the operating Project are limited, given the nature of the Project and its siting criteria (tall structures on high elevation sites). However, the Article 10 Application will provide an assessment of various mitigation strategies including screening (landscaping), architectural design, visual offsets, relocation or rearranging facility components, reduction of facility component profiles, alternative technologies, facility color and design, and lighting options. Mitigation will also be assessed in relation to NYSDEC Program Policy (NYSDEC, 2000).

(11) Description of Visual Resources to be Affected

Visually sensitive resources of statewide significance will be identified within the project study area. As defined in the DEC Visual Policy, these will include the following types of resources:

- Properties listed on or determined eligible for listing on the National Register of Historic Places.
- State Parks.
- Urban Cultural Parks (or New York State designated Heritage Areas).
- The State Forest Preserve (i.e., the Adirondack or Catskill Parks).
- National Wildlife Refuges, State Game Refuges, and State Wildlife Management Areas.
- National Natural Landmarks.
- The National Park System, Recreation Areas, Seashores, or Forests.
- Rivers designated as National or State Wild, Scenic or Recreational Rivers.
- A site, areas, lake, reservoir, or highway designated or eligible for designation as scenic.
- Scenic Areas of Statewide Significance.
- A State or federally designated trail, or one proposed for designation.
- Adirondack Park Scenic Vistas.
- State Nature and Historic Preserve Areas.
- Palisade Park.
- Bond Act Properties purchased under Exceptional Scenic Beauty or Open Space category.

In addition, resources of local significance within the 5-mile study area will also be identified. These scenic areas include places of concentrated activity such as village centers and heavily used roadways, or landscapes of high

aesthetic merit that may be considered important by local residents. See (b)(3) below for additional detail on visually sensitive resources.

(b) Viewshed Analysis

The Visual Impact Assessment will include identification of locations within the visual study area where it may be possible to view the proposed wind turbines and other proposed above ground facilities from ground-level vantage points. This analysis includes identifying potentially visible areas on viewshed maps. The proposed methodology to be employed is described below.

(1) Viewshed Maps

Viewshed maps define the maximum area from which any turbine within the completed Project could potentially be seen within the study area. Maps showing the results of viewshed analysis prepared based on the screening effect of topography alone, and the combined screening effect of mapped forest vegetation and topography will be prepared. Viewshed analysis will be based on maximum blade tip height, FAA warning light height, and the height and location of proposed overhead transmission structures. These maps will be presented on the most recent edition 1:24,000 scale topographic base map, and in addition to the results of the viewshed analysis, the maps will also depict visually sensitive sites, viewpoint locations, and Landscape Similarity Zones.

With respect to line of sight profiles, please note that the computer model program defines the viewshed (when evaluating topography only for instance) by reading every cell of the digital elevation model (DEM) data and assigning a value based upon the existence of a direct, unobstructed line of sight to turbine location/elevation coordinates from observation points throughout the entire visual study area. Therefore, for the purposes of this PSS and the subsequent Article 10 Application, the viewshed analyses will serve to document the line of sight profiles for resources of statewide concern.

(2) Viewshed Methodology

Ten-mile radius viewshed maps will be prepared to determine the extent of potential turbine visibility based on existing topography and vegetation, and the location and height of the proposed wind turbines. Topographic viewshed maps will be prepared using 10m USGS DEM data (7.5-minute series), coordinates/dimensions of all proposed turbines, an assumed viewer height of 5.5 feet (1.7 meters), and ESRI ArcGIS® software with the Spatial Analyst extension. The viewshed analyses will be based upon a 540 foot (165 meter) blade tip height

(the largest turbine models contemplated for this Project so as to present a worst-case scenario), a 325 foot (99 meter) FAA warning light height, and the location of all proposed turbines. The analyses run at blade tip height illustrates maximum potential day time visibility, while the analyses run at the height of the FAA aviation warning light defines maximum potential nighttime visibility (based on the anticipated FAA lighting plan). The resulting topographic viewshed maps define the maximum area from which any turbine within the completed Project could potentially be seen within the study area (ignoring the screening effects of existing vegetation and structures). Because the screening provided by vegetation and structures is not considered in this analysis, the topographic viewsheds represent a "worst case" assessment of potential Project visibility and identifies those areas where the turbines will definitely be screened from view.

A vegetation viewshed will also prepared to illustrate the potential screening provided by forest vegetation. The vegetation viewshed will be prepared in the same manner as the topographic viewshed, except that a base vegetation layer was created using the 2011 USGS National Land Cover Dataset (NLCD) to identify the mapped location of forest land (including the Deciduous Forest, Evergreen Forest, and Mixed Forest NLCD classifications) within the visual study area. Based on standard visual assessment practice, the mapped locations of the forest land will be assigned an assumed height of 40 feet and added to the DEM. The viewshed analysis is then re-run, as described above. Once the initial vegetation viewshed analysis is completed, a Spatial Analyst conditional statement is used to assign zero visibility to all areas of mapped forest, resulting in the final vegetation viewshed. Because it accounts for the screening provided by mapped forest stands, the vegetation viewshed is a much more accurate representation of turbine Project visibility. However, it is important to note that because screening provided by buildings and street/yard trees, as well as characteristics of the proposed turbines that influence visibility (color, narrow profile, distance from viewer, etc.), are not taken consideration in the viewshed analyses, being within the viewshed does not necessarily equate to actual Project visibility.

Specific to this Project, a preliminary topographic viewshed analysis was prepared using USGS digital elevation model (DEM) data, the location and height of preliminary turbine locations, an assumed viewer height of 5.5 feet, and ESRI ArcGIS® software with the Spatial Analyst extension. The results of this analysis indicate that views of wind turbines will be completely screened from view by intervening topography from approximately 37% of the 10-mile study area. The remaining 63% of the 10-mile study area represents the maximum area from which any portion of any turbine could potentially be seen within the study area based on the existence of a direct line of sight, and ignoring the screening effects of existing vegetation and structures.

To supplement the preliminary topographic viewshed analysis, a vegetation viewshed was also prepared to illustrate the potential screening provided by forest vegetation (as mapped in the USGS 2011 National Land Cover Dataset [NLCD]). Based on standard visual assessment practice, the mapped locations of forest land were assigned a conservative assumed height of 40 feet (even though most forest vegetation within the study area exceeds this height), and added to the DEM. The viewshed analysis was then re-run and the areas covered by the forest vegetation layer were designated as "not visible" on the resulting data layer. During the growing season the forest canopy will block views of the proposed turbines from these areas, and such views will typically be almost completely obscured, or at least significantly screened, even under "leaf-off" conditions. The results of the preliminary vegetation viewshed analysis indicate that at least some portion of the proposed wind turbines may be available from approximately 21% of the 10-mile visual study area.

Because the combined topography/vegetation viewshed accounts for the screening provided by mapped forest stands, it is a much more accurate representation of potential Project visibility. However, it is important to note that screening provided by buildings and street/yard trees, as well as characteristics of the proposed turbines that influence visibility (color, narrow profile, distance from viewer, etc.), are not taken consideration in the viewshed analyses. These factors can limit or eliminate Project visibility. Consequently, being within the vegetation viewshed does not necessarily equate to actual Project visibility.

Appendix E to this PSS includes multiple graphics that depict the Project Area (at the time the preliminary viewshed analysis was conducted), the 5- and 10-mile Study Areas, and the results of the preliminary topographic and vegetation viewshed analyses. However, please note that the viewshed analysis included in Appendix E is based on a preliminary Project layout. Therefore, the analysis that will ultimately be presented in Exhibit 24 of the Article 10 Application will be updated to reflect the Project to be presented and analyzed in the Application.

(3) Sensitive Viewing Areas

To identify visually sensitive resources within the visual study area, a variety of data sources including digital geospatial data (shapefiles) obtained primarily through the NYS GIS Clearinghouse or the Environmental Systems Research Institute (ESRI) will be used to identify visually sensitive resources of local and statewide significance. This data consists of numerous national, state, county and local agency/program websites as well as websites specific to identified resources; the DeLorme Atlas and Gazetteer for New York State; USGS 7.5-minute topographical maps; and web mapping services such as Google Maps. Identified aesthetic resources of

statewide or local significance, areas of intensive land use within five miles of the proposed Project, and location of visually sensitive resources within the visual study will be included with the Article 10 application.

The process of identifying visually sensitive resources was initiated in the spring of 2015. Specifically, EDR conducted a desktop inventory of visually sensitive resources of potential statewide significance within 10 miles of the proposed Project and a more detailed inventory (including potential locally significant resources) within a 5-mile visual study area. Aesthetic resources of statewide significance located within 10 miles of the proposed Project include 11 sites and four districts listed on the National Register of Historic Places; the Seaway Trail National Scenic Byway, three state parks (Lake Erie State Park, Long Point State Park and Midway State Park), the Concord Grape Belt New York State Heritage Area, the Canadaway Creek Nature Sanctuary, six wildlife management areas, and Conewango Creek (included in the National Rivers Inventory for "Outstandingly Remarkable Value" due to the large adjacent ecologically/botanically significant swamp). While water bodies are not typically considered resources of statewide significance, Chautauqua Lake is included in this inventory due to its regional significance with respect to recreation and tourism.

Resources located within the 5-mile visual study area that may be regionally or locally significant/sensitive, include the Villages of South Dayton, Cassadaga, Cherry Creek, and Sinclairville; 11 hamlets; four local parks; three trails; four state forests and one state fishing access point; three public schools; four state highways and one US highway; and several recreational water resources. The 5-mile visual study area also includes 44 sites that have previously been determined to be eligible for listing on the NRHP. Appendix E of this PSS includes a table of the identified visually sensitive resources, which provides information about each site, including name, distance to the nearest proposed turbine, and the potential visibility of the Project based on a preliminary viewshed analysis. Please also see Figure 7, which depicts all visually sensitive resources identified to date.

(4) Viewpoint Selection

It is anticipated that views from numerous visually sensitive resources, area of high public use, and areas that provide views of the proposed Project from representative landscape settings will be documented (photographed) during the field review for the Visual Impact Assessment. A subset of these photographs will be selected for the development of visual simulations. These representative viewpoints will be selected based upon the feedback provided by municipal planning representatives, DPS, DEC and OPRHP; while also balanced by the criteria below to ensure that a variety of views are represented. Specifically, the selected viewpoints should:

- Provide open views toward the Project site from different directions throughout the visual study area (as determined through field verification).
- Illustrate the most open views available from potentially significant public resources within the visual study area.
- Illustrate open, representative views from the various "Landscape Similarity Zones" within the visual study area, which are defined based on the similarity of features such as landform, vegetation, water, and land use patterns.
- Illustrate open views of the proposed Project that may be available to representative viewer/user groups within the visual study area.
- Illustrate views of different numbers of turbines and other project infrastructure, from a variety of viewer distances, and under different lighting/sky conditions, to illustrate the range of visual change that could occur with the Project in place.

As indicated above, representative viewpoints will be selected based upon feedback provided by municipal planning representatives, DPS, DEC and OPRHP. The consultation process with municipal planning representatives took place in the spring of 2015. Specifically, EDR prepared a Visual Outreach Letter, which introduced the Project and provided information on the Article 10 process, and also identified the Project's visual study area, the results of the preliminary viewshed analyses and the desktop inventory of visually sensitive resources, and a summary of the process by which viewpoints are selected for preparation of visual simulations. Finally, the Visual Outreach Letter requested feedback to assist in the identification of important or representative viewpoints. A complete copy of the Visual Outreach Letter, including all associated tables and graphics, is included in Appendix E of this PSS. This letter was provided to 38 municipal representatives and stakeholder groups (e.g., town supervisors, village mayors, town and village historians, county planning, regional planning and development), and a copy of the distribution list is also included in Appendix E.

It should also be noted that the Applicant has consulted with OPRHP Parks, specifically in response to an inquiry regarding the Project's potential impact on State Parks. A letter was provided to the Director of Planning of the OPRHP's Resource and Facility Planning Bureau on May 6, 2015, and in an email response on May 8, 2015, preliminary concurrence with the determination that State Parks will not be adversely impacted by the Project was provided, with the condition that additional information will be provided in the Article 10 Application. Please also note that the Applicant continues to consult with the State Historic Preservation Office (SHPO) as further described in Section 2.20 of this PSS (see also the correspondence included with the Phase 1A Historic Architectural Resources Survey & Work Plan in Appendix G of this PSS).

(5) Photographic Simulations

The Article 10 Application will show anticipated visual changes associated with the proposed Project, and to accomplish this, high-resolution computer-enhanced image processing will be used to create photo-realistic simulations of the completed turbines and other visible project infrastructure from each of the selected viewpoints. As indicated in (b)(4) above, viewpoints will be selected, in part, for their open views and as such there will be no significant screening of the proposed Project due to vegetation in the photographic simulations. Therefore, it is not anticipated that both leaf-on and leaf-off simulations will be prepared. As previously mentioned representative viewpoints will be selected based upon the feedback provided by municipal planning representatives, DPS, DEC and OPRHP; while also considering the other factors stated above.

(6) Additional Simulations Illustrating Mitigation

Due do the typical height of individual turbines and the geographic extent of a given wind power project, mitigation measures such as screening of individual turbines with earthen berms, fences, or planted vegetation will generally not be effective in reducing visibility. Therefore, additional simulations specific to mitigation are not anticipated. However, to the extent that site-specific mitigation measures involving screening are proposed (e.g., from a specific visually sensitive site or at the substation), then simulations will be prepared to show the effect of mitigation.

(7) Simulation Rating and Assessment of Visual Impact

As previously mentioned, potential Project-related impacts will be evaluated by a rating panel. A meeting will be held with the rating panel to describe the proposed Project and visual study area, and to review the impact evaluation process and each viewpoint being evaluated. Background information will be reviewed with the panel including general land use and visual character of the study area, results of scenic resources research and field review conducted for the Project, a map of visually sensitive scenic resources, and a viewpoint location map. The viewer type(s) and scenic resources represented by each viewpoint will be reviewed with the panel, along with the rating forms to be used for the visual impact assessment. A copy of the rating form anticipated for use on this project is included in Appendix L. The visual simulations for the viewpoints will be provided as digital files and 11 x 17 inch color prints. Digital files containing additional context photos taken at each viewpoint will also be made available to the panel.

Rating form instructions will be provided to the panel to ensure consistency among the panel members in their use of terms and understanding of what information is being requested in the rating forms. The instructions will provide: background concerning the landscape setting, viewer types, and scenic resources in the study area; guidance regarding how best to describe landscape components depicted in each viewpoint (e.g., in terms of landscape composition, form, line, color, texture, focal point, order, atmospheric conditions, lighting direction, and visual clutter); guidance regarding evaluation of viewpoint sensitivity (in terms of both scenic quality and viewer exposure); and guidance regarding terms and concepts used in contrast rating. The instructions will also include the following guidance to improve consistency and reliability in the panel's understanding of each of the factors under consideration:

Landform: Please consider the effect of the project relative to the appearance of the landform or topography, including the strength and range of color, the density of relief, the space as defined by the landform, and the extent of its scale.

Water: Please consider the effect of the project relative to the appearance of water features in terms of the form of the water body(ies), its (their) shorelines, color, and texture (which refers here to movement), reflection, degree of enclosure, and the scale (or extent) of the presence of water in the view. Waterbodies typically attract viewer attention, provide a focal point in the view, and are generally associated with higher scenic quality.

Vegetation: Please consider the effect of the project relative to the appearance of the form(s) and variety of vegetation, including the extent of clearing, the range of color, the density of texture, space as defined by the vegetation, and its hierarchy/diversity of scale.

Land Use: Please consider the effect of the project relative to the appearance of identifiable land use(s) in the view, and evaluate the degree to which the project is compatible/consistent with the appearance of existing land use(s) in the view.

Sky: Please consider the effect of the project relative to the appearance of the sky in terms of form (including the appearance of clouds), the edges of its lines (perhaps in terms of the horizon), clarity of color, texture (which here could refer to cloudiness or other atmospheric conditions), the degree of openness or enclosure, and the scale (or extent) of the sky in the view.

Viewer Activity: Please consider the effect of the project on the viewer's perception of the scenic quality and potential enjoyment of the view, taking into account the viewpoint location and context, viewer type, and duration of the view.

Comments from the panel members will be solicited to obtain input on the following considerations:

1. The expectations of the typical viewer;
2. The Project's effect on viewer enjoyment of the scenic resource;
3. The extent of Project visibility from the scenic resource;
4. The scale of the proposed facility relative to surrounding topography and existing structures;
5. The duration and direction of the typical view of the elements of the proposed facility; and
6. The effect of intervening screening between the scenic resource and the proposed Project.

The rating panel members will then evaluate the before and after views from each viewpoint, and assign each view quantitative contrast ratings on a scale of 0 (insignificant) to 4 (strong). The ratings are based on consideration of five landscape components (Iandform, water, vegetation, land use, and sky), along with viewer activity. Following the panel's evaluation, each panel member's contrast ratings are compiled as an individual average for each viewpoint. The individual ratings will then be averaged to generate a composite contrast rating for each viewpoint. Comments provided by the raters are reviewed to identify consistent observations and the range of varying perception regarding baseline scenic quality and the effect of the Project at each viewpoint. These are then used to generate narrative descriptions of the existing view and the overall visual effect of the Project on the scenic resources and viewers represented by each of the selected viewpoints.

(8) Visible Effects Created by the Facility

As previously mentioned, part of the visual impact analysis will include a study of potential shadow flicker impacts on nearby residences. This will include the number of potential receptors and predicted annual hours of shadow flicker at each receptor.

2.25 EFFECT ON TRANSPORTATION

(a) Conceptual Site Plan

The Article 10 Application will provide a conceptual site plan that will identify access road locations and widths, and the number of turbines to be accessed per road. In addition, a Route Evaluation Study will be prepared for the

Project and included in the Article 10 Application, which will identify public road constraints (e.g., inadequate turning radii/intersections and road widths) and potential haul routes. Ultimately this study will inform the conceptual site plan through haul route identification and associated access to various turbines.

(b) Description of the Pre-construction Characteristics of Roads in the Area

(1) Existing Traffic

Data will be obtained from the New York State Department of Transportation (NYSDOT) Traffic Data Online Viewer to review existing traffic volumes along proposed approach and departure routes for the Project. Accident information along those routes contained in the Accident Location Information System (ALIS) will be obtained from the local police agencies. For the purposes of evaluating existing traffic conditions, the potential delivery routes to the study area, which ultimately will be defined by the turbine manufacturer, are anticipated to include 40 miles of state highways. The study area is anticipated to include 10 miles of state highways, 50 miles of County roads, and 80 miles of local (town and village) streets.

The Article 10 Application will include a table of traffic volumes for all roads in the study area. The Applicant will contact the local police agencies to obtain accident information and summarize the information to identify accident prone segments. In addition the NYSDOT will be consulted with to determine if documented high accident locations exist.

(2) Transit Facilities and Routes

The Article 10 Application will include a review of school district routes within the transportation study area. This will be accomplished by obtaining school bus routes, number of buses, and times from the school districts. In addition, delivery routes for Project components from route I-90/I-86 will be analyzed. The transportation study area does not contain transit facilities, and therefore is not applicable to this PSS or the pending Article 10 Application.

(3) Potential Approach and Departure Routes for Emergency Vehicles

This section of the Article 10 Application will provide a review of locations of emergency service provider stations (police, fire, ambulance, and hospitals) that serve the Project Site, including approximate distances to turbine locations. To date, the Applicant has consulted with the following emergency service providers:

- Sinclairville Fire Department on June 22nd and July 13th, 2015
- Stockton Fire Department on July 7th, 2015
- Cassadaga Fire Department on July 20th, 2015
- Cherry Creek Fire Department on July 21st, 2015

These consultations have resulted in educating fire departments about the Project, the Article 10 process, and how EverPower typically interacts with fire and emergency service providers during construction and operation. The Applicant alerted all Fire Departments that there will be a fire and emergency training and communication plan developed as part of the Article 10 Application. The Stockton, Cassadaga, and Cherry Creek fire departments had no major questions and did not raise any issues, but asked to be kept informed as the Article 10 process and Project progressed. The Sinclairville fire department had a couple of questions regarding liability and responsibility if there is an emergency situation in a portion of the tower that cannot be easily accessed by fire and emergency personnel. The Applicant will be working with the fire department to address the questions and concerns.

Further consultation with each service provider will determine specific routes used within the vicinity of the Project. The Article 10 Application will provide a map of locations and routes. In addition, during Project operation a map of all emergency service provider locations and routes will be posted in the Project's O&M building (and provided to the emergency service providers), and all turbines will have a unique 911 ID/address.

(4) Available Load Bearing and Structural Rating Information

The Applicant's expert consultant will drive all potentially impacted roads to identify Load Restricted Bridges, Culverts, and/or roadways along the proposed approach and departure routes for the Project. For non-posted bridges along those routes, information from the NYSDOT's Biennial Inspection Reports in WinBolts will be reviewed to determine potential load capacity restrictions. In addition, the Applicant has met with local highway supervisors (see the Meeting Log in Appendix B), and will continue such consultations throughout the Article 10 process and prior to construction. This information will be summarized in inspection reports along with the posting of signs.

(5) Traffic Volume Counts

The Project is not within a congested urbanized area, therefore twenty-four hour traffic counts are not applicable and will not be included in the Article 10 Application.

(c) Facility Trip Generation Characteristics

(1) Number, Frequency, and Timing of Vehicle Trip

An estimate of the number, frequency and timing of vehicle trips will be based on the above-referenced site plan and location of turbines as presented in the Article 10 Application, along with the number of phases, estimated quantities of earthwork and materials to construct facilities. Exact scheduling of construction work and required vehicles will be determined by the contractor. Therefore, the study to be conducted and included in the Article 10 Application will only provide an estimate based on typical volume of materials and number of vehicles per turbine installation. The Application will tabulate anticipated construction vehicle volumes for each site, including delivery flat beds, cranes, concrete trucks, stone trucks, earth disposal trucks, and contractor workers vehicles.

(2) Approach and Departure Routes for Trucks Carrying Water, Fuels, or Chemicals

During Project construction, all trucks carrying water, fuels, or chemicals will utilize the same delivery routes used by other construction vehicles/component delivery haulers. Additional detail will be provided in the Article 10 Application.

(3) Cut and Fill Activity

The Article 10 Application will provide, based on site plan and location of towers, anticipated quantities of earthwork and materials to construct facilities. An estimate based on typical volume of materials and number of vehicles per turbine installation will be provided. In addition an estimate of construction vehicle volumes for each turbine site will be mapped and included. However, no major cut activity is anticipated (i.e., no spoils will be removed from the Project Site) and essentially all fill is anticipated to be associated with access road construction (e.g., gravel).

(4) Approach and Departure Routes for Workers and Employees

Any workers and employees in regular vehicles (pick-up truck size and smaller) will access the construction site and worker parking areas through use of whichever public road route is most logical and efficient for the respective individual/vehicle. Employees and workers accessing the site with heavy haul/construction

equipment (i.e., dump trucks or larger), or anything that exceeds the posted weight limits on public roads, will follow the final haul routes.

Please note that the final haul routes cannot be determined until the turbine manufacture has been selected and has reviewed and approved, or amended, the haul routes. Therefore, the final haul routes will be provided to the Siting Board prior to Project construction. However, conceptual haul routes will be identified by an experienced transportation engineer, and will be included in the Article 10 Application.

(d) Traffic and Transportation Impacts

(1) Future Traffic Conditions With and Without the Proposed Facility

Based on the experience of the Applicant and analysis of traffic volumes from other wind projects, typical operations of the Project will have a negligible increase over existing traffic volumes during operation of the Project. Synchro and HCS software will be utilized to determine levels of service for linear segments of highways used by construction and delivery vehicles. As indicated above, the Project is not in a congested urbanized area requiring detailed intersection analysis.

(2) Adequacy of the Road System

Some temporary impacts to transportation in-route (mobilizing to the Project Site), as well as in and around the Project Site will result from the movement of vehicles involved in Project construction. These vehicles and their role in the Project are described below. 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:

Wind Turbine Equipment

- Blade Sections – Blades are transported on trailers with one blade per vehicle. Blades typically control the length of the design vehicle, and the radius of the curves along the travel route to the site. Specialized transport vehicles are designed with articulating (manual or self-steering) rear axles to allow maneuverability through curves.
- Tower Sections – Typically transported in three to four sections depending on the supplier. Towers generally control the height and width of the design vehicle dimensions.

- Nacelle – The turbine and related elements are typically the heaviest component transported.
- Hub and Nose Cone – Typically transported with one or more of the same element on a vehicle. These elements are not critical elements related to design vehicle dimensions.
- Escort Vehicles

Construction Equipment and Materials

- Construction of Site Roads – Conventional trucks carrying stone, gravel, and miscellaneous construction equipment.
- Crane – For assembly of the wind towers, cranes are transported in sections over numerous trips to the site. Assembled cranes may be crawled between tower sites.
- Concrete trucks for tower foundations.
- Variety of conventional semi-trailers for delivery of substation and O&M facility components and materials.
- Construction staff and other incidental truck trips.

As indicated above, the Article 10 Application will identify the anticipated delivery routes to be utilized, and the adequacy of these routes to accommodate construction and operation of the Project. This information will be presented in a stand-alone Route Evaluation Study or similar.

It is anticipated that a combination of widening on the inside and the outside of the curve of certain intersections, and some widening of local town roads along the delivery routes will be necessary. The following construction activities will likely be required at the locations of road width and turning radii improvements:

- Clearing and grubbing of existing vegetation.
- Grading of the terrain to accommodate the improvement.
- Extension of existing drainage pipes and/or culverts.
- Re-establishment of ditch line (if necessary).
- Construction of a suitable roadway surface to carry the construction traffic (based on the existing geotechnical conditions).

Once the Project is commissioned and construction activities are officially concluded, traffic will be negligible and likely concentrated around the O&M building resulting from Project employees traveling to and from the O&M building. Some of these personnel will need to visit each turbine location and return to the O&M building. Each turbine typically requires routine maintenance visits once every 3 months, but certain turbines or other Project improvements may require periods of more frequent service visits should a maintenance issue arise. Such service visits typically involve 1 to 2 pick-up trucks. However, because all turbines and associated access road are located on (and accessed from) private land, public road use due to routine maintenance activities will be very limited. If major maintenance is needed, such as maintenance involving a crane, the public roads to be used will be videotape surveyed before and after the major maintenance work. If the videotape survey demonstrates that the roads used were damaged, the roads will be repaired to their pre-maintenance activity condition. If the major maintenance activity is an emergency situation, the Applicant will be allowed to use the roads without videotaping. In any major maintenance scenario, the O&M site manager will contact the Highway Superintendent of the roads to be used prior to vehicles using the roads for major maintenance.

(3) Over-sized Deliveries

For the purposes of this PSS and the pending Article 10 Application, it is anticipated that the delivery haul route will begin at I-90 Dunkirk exit or I-86 Jamestown exit and utilize NYS Route 60 to study area, then local roads to individual access roads and turbine sites. A turning template of anticipated delivery vehicles will be included in the Article 10 Application, and a review of aerial photography and online street view maps in conjunction with driving all potentially impacted roads will be conducted to identify physical restrictions (widths, turning radius, overhead clearance). In addition, the Applicant's consultant will utilize the CADD® turning template (or similar program) for delivery vehicles to check turning radii and impacts. Required temporary improvements will be identified and a location map will be developed and included in the Article 10 Application. Potential impacts at each location are summarized above.

(4) Measures to Mitigate for Impacts to Traffic and Transportation

No new traffic control devices are anticipated to be necessary, and no damage to roads due to normal operation of the built Project are expected to occur. Any damage to local, State or County roads caused by the construction and operation of the Project will be repaired at the Company's expense and will likely be the subject of a Road Use Agreement, as discussed below, with the local municipalities and County. Prior to construction, those 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 not accommodate the construction related traffic. These improvements will be made at the Applicants' expense prior to the arrival of oversized/overweight vehicles. Final transportation routing will be designed in consultation with each Town's Highway Superintendent to avoid/minimize, to the extent practical, safety issues associated with the use of the approved haul routes, which will confine the heavy truck travel to a few select roads. The Applicant will repair damage done to roads affected by construction within the approved haul route, at no expense to the Town, County, or State, thereby restoring the affected roads to be equal to or better than pre-construction conditions.

Prior to construction, the Applicant will video-document the existing roadways and prepare an associated report to verify the pre-construction roadway conditions, including road crossing culverts pipes and the reinforcement measures to be employed along the haul routes, which will be provided prior to the start of construction. Upon completion of the construction activities, the Applicant will, at a minimum, return all roadways to their pre-construction conditions (and document).

Additional detail regarding measures to mitigate traffic and transportation impacts will be included in the Article 10 Application in the Route Evaluation Study (or similar).

(5) Road Use and Restoration Agreements

This section of the Article 10 Application will identify and tabulate all anticipated County and Town road use agreements that will be required for construction and post-construction use of public roads, including highway work permits and special use permits from the NYSDOT. The Applicant will provide a draft Road Use Agreement for these roads as an Appendix to the Article 10 Application.

The Applicant has had initial meetings with the following local road departments

- Town of Charlotte Highway Department
- Town of Cherry Creek Highway Department
- Town of Arkwright Highway Department
- Town of Stockton Highway Department
- Chautauqua County Division of Transportation and Public Facilities

During these meetings the Applicant discussed the proposed Project, Article 10 process, road use agreements and general construction and transportation process when constructing a wind farm. No major road projects or future plans were identified by any of the above entities. All entities requested continued coordination and Cherry Creek requested that they be given the earliest possible notice for commencement of construction in order to adjust their ongoing maintenance program to take into account wind farm transportation and construction activities.

(e) Impact of the Facility on Mass Transit Systems

No rail or bus mass transit systems are expected to be impacted by this Project. Chautauqua County - Jamestown and Dunkirk airports, along with additional smaller airports and heliports, are known to be within 15-20 miles of the Project. The Article 10 Application will provide in-depth description of airspace usage (including military operations) in the vicinity of the Project using available aeronautical charts, airport approach plates, airport 5010 forms, and other available sources. The Applicant will confirm that turbine tower locations and heights will have no obstruction impacts on the local airports.

(f) Federal Aviation Administration Review

The FAA is the organization in the United States government responsible for air traffic control and for evaluating and issuing determinations on petitions for objects that penetrate the nation's airspace. The Applicant will submit the proposed facility layout to the FAA so that aeronautical studies of location of each proposed turbine, and permanent meteorological towers, if needed, can be conducted under the provisions of Title 49 of the U.S. Code, Section 44718. The FAA can issue two types of determinations, one that identifies a hazard and another that identifies no hazard. As a part of this process, an interim letter is issued called a Notice of Presumed Hazard (NPH) if the proposed structure is over 499 feet or if a potential hazard to air navigation is identified based on the structure's location and/or height. Structures over 499 feet automatically receive an NPH and must be publicly circulated prior to a final FAA determination. Otherwise, this notification identifies a potential issue that must be further studied or mitigated in some manner. Mitigation could include changes by the Applicant, such as relocating a turbine or reducing turbine height, upgrading a radar system, or by the government, such as changing flight procedures, cancelling underutilized approaches, or a number of other methods. The aeronautical studies for the proposed Facility will be included in the Article 10 Application, along with a discussion of potential impacts to air traffic control and air navigation.

(1) Department of Defense Review

The Department of Defense (DoD), through its Siting Clearinghouse, can either respond informally or formally to a project. Informal consultations may be initiated by a project proponent. Formal consultations may be initiated either by the FAA or project proponent. Specific to this Project, the Applicant has initiated coordination with the FAA, and therefore the DoD will provide a formal response through that the FAA review process. The DoD prefers not to issue an informal consultation response when a formal consultation is underway. Therefore, because a formal consultation process in underway, the Applicant will not be receiving an informal consultation response. In addition, the DoD will formally respond to the FAA directly since the FAA will initiate the consultation process rather than the Applicant.

(2) Consultation with Nearby Airports/Heliports

The Applicant met with the manager of the Jamestown and Dunkirk airports on May 14, 2015. The Applicant discussed the Project, Article 10, and FAA process during this meeting. The manager appreciated the early consultation and will coordinate with the FAA as needed during the aeronautical study process. Neither airport manager raised any issues or had any questions during this consultation.

(3) Detailed Description of Responses Received

The Applicant has initiated coordination with the FAA. All responses received from the DoD and FAA will be included in the Article 10 application

2.26 EFFECT ON COMMUNICATIONS

(a) Existing Broadcast Communication Sources

This section of the Article 10 Application will identify all existing broadcast communication sources in the area, including:

(1) AM Radio

Comsearch conducted a review of Federal Communications Commission (FCC) license data and compiled a list of AM and FM radio stations within approximately 30 kilometers (18.6 miles) of the Project. FM radio stations

are addressed below in (2). Eight database records for AM stations were identified, consisting of three stations: WDOE, located 9.6 miles to the northwest, and WJTN and WKSN, located 11.4 miles to the south. Each of these stations is licensed separately for daytime and nighttime operations. There are no AM stations located within 2 miles of the facility or point of interconnection (Comsearch, 2015a). The Article 10 Application will contain the full results of this study.

(2) FM Radio

Comsearch found 25 database records for FM radio stations within approximately 30 kilometers (18.6 miles) of the Project. Of these, twenty are stations currently licensed and operating, ten of which are low-power or translator stations with limited range. The Article 10 Application will provide an itemized list of these stations, identifying for each station the call sign, frequency, and distance to nearest turbine site. There are no FM stations within 2 miles of the facility or point of interconnection (Comsearch, 2015a).

(3) Television

Off-air television stations broadcast signals from terrestrially-based facilities directly to television receivers. Comsearch (2015b) examined the coverage of television stations and communities in the area that could potentially have degraded television reception as a result of Project operation. There are a total of 77 television stations within 150 km (93 miles) of the proposed facility, 62 in the U.S. and 15 in Canada. There are no television stations within 2 miles of the facility or point of interconnection (Comsearch, 2015b). The Article 10 Application will contain the full results of this study.

(4) Telephone

Wireless operators are granted area-wide licenses from the FCC to deploy their cellular networks. These market boundaries differ from service to service. Therefore, Comsearch (2015c) disaggregated the carriers' licensed areas down to the county level. The Article 10 Application will identify the type of service (e.g., cellular, advanced wireless service, personal communication service) for each mobile phone carrier in Chautauqua County.

(5) Microwave Transmission

Microwave bands that may be affected by the installation of wind turbine facilities operate over a wide frequency range (900 MHz – 23 GHz). These systems are the telecommunication backbone of the country, providing long-distance and local telephone service, backhaul for cellular and personal communication service, data interconnects for mainframe computers and the Internet, network controls for utilities and railroads, and various video services. Comsearch (2015d) prepared a study evaluating the potential impact of the facility wind turbines on licensed, proposed, and applied non-federal government microwave systems in the area. Seven microwave paths intersect the study area. For each of these paths, the Article 10 Application will identify the call signs, band, and licensee.

(6) Emergency Services

Comsearch (2015c) conducted an assessment of the emergency services communication sources in the vicinity of the Project Site to identify potential impacts from the planned turbines. Registered frequencies for the following types of first responder entities were evaluated: police, fire, emergency medical services, emergency management, hospitals, public works, transportation and other state, county, and municipal agencies. Land mobile and emergency services incumbent data was derived from the FCC's Universal Licensing System and the FCC's Public Safety & Homeland Security bureau. Comsearch identified 25 site-based licenses and 36 regional area-wide licenses designated for public safety use. For each of the site-based licenses, the Article 10 Application will identify the call sign, frequency band(s), licensee, antenna height, and distance to nearest turbine. There are eight site-based licenses within 2 miles of the facility. For each area-wide license, the Article 10 Application will identify the licensee, the area of operation (either County-wide or Statewide), and the frequency band(s).

(7) Municipal/School District Services

Municipal and school district communication sources were included in the assessment of emergency services communication sources described above in 1001.26(a)(6). Comsearch (2015c) identified one site-based and two area-wide licenses issued to school districts. The site-based communication source is a 30-meter (98-foot) antenna licensed to the Cassadaga Valley Central School District. Comsearch also identified numerous communication sources licensed to municipalities, including local Towns and Villages. As indicated above, the Article 10 Application will include a full listing of site-based and area-wide communication sources in the area, to be identified by licensee.

(8) Public Utility Services

The Article 10 Application will identify public utility communication sources within 2 miles of the proposed facility and interconnection.

(9) Doppler/Weather Radar

NEXRAD (next-generation radar) or Doppler weather radar are operated by the National Weather Service (an agency of the National Oceanic and Atmospheric Administration [NOAA]), the Federal Aviation Administration (FAA), and the U.S. Air Force. NEXRAD detects precipitation, winds, and temperature and humidity discontinuities. From this data, computer algorithms generate a suite of meteorological and hydrological products and alerts used for determining short-term forecasts, advisories, and warnings for significant weather events such as tornadoes, large hail, wind shear, downbursts, flash floods, and other weather phenomena. The data are also used by FAA air traffic controllers for the safe and efficient operation of the National Airspace System.

Wind turbine and weather spectra can span the same Doppler frequencies and share a similar dynamic range, causing conventional radar clutter filtering algorithms, which only filter energy returned from nearly stationary objects (buildings, terrain, etc.), to fail in isolating the weather signal. When wind farms are located in a NEXRAD radar beam/radar line of sight, the spinning blades can reflect unfilterable energy back to the radar system and appear as clutter in the base data. The unfiltered wind turbine clutter can adversely impact radar data quality and the performance of the radar's internal weather detection algorithms. Turbines sited within 18 kilometers (11.2 miles) of a NEXRAD begin to impact multiple elevation scanning angles and create multipath scattering returns that show up as spikes of enhanced reflectivity down range of the wind farm. KBUF, the NEXRAD closest to the proposed facility, is located more than 60 miles from the Project.

The Applicant sent a written notification of the proposed facility to the National Telecommunications and Information Administration (NTIA) of the U.S. Department of Commerce. Upon receipt of notification, the NTIA provides plans for the proposed Project to the federal agencies represented in the Interdepartment Radio Advisory Committee (IRAC), which include the NOAA, FAA, and U.S. Air Force. The NTIA will review the proposed Project and identify any concerns with Doppler weather radar interference or other federal

communication systems. The NTIA response letter will be included in the Article 10 Application, accompanied by a discussion of how to resolve any potential concerns identified by the IRAC.

(10) Air Traffic Control

The FAA is the organization in the United States government responsible for air traffic control and for evaluating and issuing determinations on petitions for objects that penetrate the nation's airspace. The Applicant will submit the proposed facility layout to the FAA so that aeronautical studies of location of each proposed turbine can be conducted under the provisions of Title 49 of the U.S. Code, Section 44718. The FAA can issue two types of determinations, one that identifies a hazard and another that identifies no hazard. As a part of this process, an interim letter is issued called a Notice of Presumed Hazard is issued if the proposed structure is over 499 feet or if a potential hazard to air navigation is identified based on the structure's location and/or height. Structures over 499 feet automatically receive an NPH and must be publicly circularized prior to a final determination being issued. Otherwise, this notification identifies a potential issue that must be further studied or mitigated in some manner. Mitigation could include changes by the Applicant, such as relocating a turbine or reducing turbine height, upgrading a radar system, or by the government, such as changing flight procedures, cancelling underutilized approaches, or a number of other methods. The aeronautical studies for the proposed Facility will be included in the Article 10 Application, along with a discussion of potential impacts to air traffic control and air navigation.

In addition, the FAA is one of the federal agencies represented in the IRAC, which is currently reviewing the proposed facility as part pf the NTIA review. The NTIA will review the proposed Project and identify any concerns with air traffic control or other federal communication systems. The response letter from NTIA will be included in the Article 10 Application, accompanied by a discussion of how to resolve any potential concerns identified by the IRAC.

(11) Armed Forces

As described above, the Applicant sent a written notification of the proposed facility to the NTIA on February 23, 2015. Upon receipt of notification, the NTIA provides plans for the proposed Project to the federal agencies represented in the IRAC, which include the Department of Homeland Security, U.S. Air Force, U.S. Army, U.S. Navy, U.S. Coast Guard, and Department of Veteran Affairs. The NTIA will review the proposed Project and identify any concerns with military or other federal communication systems. The NTIA response letter will be

included in the Article 10 Application, accompanied by a discussion of how to resolve any potential concerns identified by the IRAC.

(12) GPS

Global Positioning System (GPS) is a U.S.-owned utility that provides users with positioning, navigation, and timing services. This system consists of three segments: the space segment, the control segment, and the user segment. The U.S. Air Force develops, maintains, and operates the space and control segments. The GPS control segment consists of a global network of ground facilities that track the GPS satellites, monitor their transmissions, perform analyses, and send commands and data to the constellation. The GPS ground facility located closest to the proposed Project is the Air Force Satellite Control Network remote tracking station located in New Hampshire. The National Executive Committee coordinates GPS-related matters across multiple federal agencies to ensure the system addresses national priorities as well as military requirements. The National Executive Committee is chaired jointly by the Deputy Secretaries of Defense and Transportation, and membership includes top leaders from the Departments of State, the Interior, Agriculture, Commerce, and Homeland Security, the Joint Chiefs of Staff, and NASA (National Coordination Office for Space-Based Positioning, Navigation, and Timing, 2015).

Each of the agencies represented in the National Executive Committee are also represented in the IRAC. The NTIA will review the proposed Project and identify any concerns with GPS or other federal communication systems. The NTIA response letter will be included in the Article 10 Application, accompanied by a discussion of how to resolve any potential concerns identified by the IRAC.

(13) LORAN

LORAN was a long range navigation system developed during World War II that has since been deemed obsolete. Radio signals were sent through a series of towers across long distances as an aid to keep ships and aircraft on course. In accordance with the 2010 Department of Homeland Security Appropriations Act, the U.S. Coast Guard terminated the transmission of all U.S. LORAN signals in 2010. There are no LORAN stations within 2 miles of the proposed Project. The closest LORAN station had been located in Seneca Falls, New York.

(14) Amateur Radio Licenses

The FCC database include records of 48 amateur radio licenses in the zip codes within 2 miles of the proposed Project (ARRL, 2015). For each of these licenses, the Article 10 Application will identify the call sign, expiration date, and, operator class.

(b) Existing Underground Cable and Fiberoptic Lines within Two Miles

The Article 10 Application will identify existing underground cable and fiberoptic lines within 2 miles of the proposed facility and interconnection.

(c) Anticipated Effects on Communication Systems

The Article 10 Application will describe the anticipated effects of the proposed facility and the electric interconnection on the communication systems identified above in Sections (a) and (b).

(1) Potential Structure Interference with Broadcast Patterns

Twelve of the licensed full-power stations and one Class C station may have their reception disrupted in and around the facility, primarily in locations on the opposite side of the Project area relative to the station antennas (Comsearch, 2015b). For example, communities and homes to the south of the facility may have degraded reception of stations located north of the Project area. The Article 10 Application will identify where residents may experience diminished reception for each of the potentially impacted stations.

(2) Potential for Structures to Block Lines-of-sight

Microwave telecommunication systems are wireless point-to-point links that communicate between two sites (antennas) and require clear line-of-sight conditions between each antenna. To assure an uninterrupted line of communications, a microwave link should be clear, not only along the axis between the center point of each microwave dish, but also within a formulaically calculated distance around the center axis of the radio beam, known as the Fresnel Zone. Comsearch (2015d) calculated the Fresnel Zone for each of the microwave paths identified in the vicinity of the proposed facility, and using the Fresnel Zone shapefile provided by Comsearch, the Applicant will assure the turbines are sited to avoid interference with the microwave path. If future turbine

layout revisions are necessary, the new layout will be designed so as not to interfere with existing microwave paths. Consequently, there will be no impact to microwave communications.

(3) Physical Disturbance by Construction Activities

Physical disturbance to communication infrastructure (e.g., towers, buried cables, etc.) is not anticipated. The location of these features will be indicated on construction drawings and reviewed by the contractor prior to construction. The Applicant will also coordinate with Dig Safely New York prior to the commencement of any construction activities.

(4) Adverse Impacts to Co-located Lines due to Unintended Bonding

The Article 10 Application will include an evaluation of the potential for the proposed facility and electrical interconnection to adversely impact co-located lines due to unintended bonding. Specifically, the Application will describe the "One Call" process used for utility lines.

(5) Other Potential for Interference

FM stations are not subject to degradation when the stations are at distances greater than 4.0 kilometers (2.5 miles) from wind turbines. The closest FM station to the proposed facility, W263CN, is located approximately 8 miles from the nearest turbine, and falls well outside the area potentially impacted by the Project. The exclusion distance for AM broadcast stations varies as a function of the antenna type and broadcast frequency. Potential problems with AM broadcast coverage are only anticipated when AM broadcast stations are located within their respective exclusion distance limit from wind turbines; the maximum possible exclusion distance is 3 km (1.9 miles). The closest AM station to the facility, WDOE, is approximately 13 miles from the nearest turbine. Consequently, there will be no impact to AM or FM radio broadcast coverage (Comsearch, 2015a).

First responder, municipal/school district services, industrial/business land mobile sites, area-wide public safety, and mobile telephone communications are typically unaffected by the presence of wind turbines. Harmful effect to these services in the vicinity of the proposed facility are not anticipated. This is because each of these networks is designed to operate reliably in a non-line-of-sight environment. Many land mobile systems are designed with multiple base transmitter stations covering a large geographic area, with overlap between adjacent transmitter sites in order to provide handoff between cells. Therefore, any signal blockage caused by the wind turbines does not materially degrade the reception because the end user is likely receiving signals from

multiple transmitter locations. Additionally, the frequencies of operation for these services have characteristics that allow the signal to propagate through wind turbines. As a result very little, if any, change in their coverage should occur when the wind turbines are installed Comsearch (2015c).

(d) Evaluation of Design Configuration

The Article 10 Application will provide a map illustrating the Project components and relevant communication system constraints (e.g., Fresnel zones, radio station exclusion zones, etc.). This map and the associated discussion will demonstrate that the facility has been configured to avoid impacts to the communication systems identified above in Sections (a) and (b), to the extent practicable.

(e) Post-construction Activities to Identify and Mitigate Adverse Effects on Communication Systems

A complaint resolution procedure will be implemented to ensure that any complaints regarding degraded communication signals are adequately investigated and addressed. If facility operation results in impacts to existing off-air television coverage, the Applicant will address each individual problem by offering cable television hookups or direct broadcast satellite reception systems, as well as investigating methods of improving the television reception system. Cable service and direct broadcast satellite service will be unaffected by the presence of the wind turbine facility (Comsearch, 2015b).

(f) Potential Interference with Radar

As described above, the Applicant sent a written notification of the proposed facility to the NTIA on February 23, 2015. Upon receipt of notification, the NTIA provides plans for the proposed Project to the federal agencies represented in the IRAC, which include the Federal Aviation Administration, National Oceanic and Atmospheric Administration, Department of Defense, Department of Homeland Security, National Aeronautics and Space Administration, and National Science Foundation. The NTIA will review the proposed Project and identify any concerns with radar interference or other federal communication systems. The NTIA response letter will be included in the Article 10 Application, accompanied by a discussion of how to resolve any potential concerns identified by the IRAC.

2.27 SOCIOECONOMIC EFFECTS

The Project is located in rural Chautauqua County, and information regarding population, educational attainment and race within the Towns of Charlotte, Cherry Creek, Arkwright, and Stockton is summarized as follows:

Population	*Charlotte*	*Cherry Creek*	*Arkwright*	*Stockton*
2010 Total Population [1]	1,729	1,118	1,061	2,248
2013 ACS 5-Year Population Estimate	1,837	1,086	988	2,350
Median Age	38.1 yrs	40.4 yrs	49.3 yrs	39.8 yrs
Educational attainment				
% high school graduate or higher	85.4%	84.2%	87.6%	83.9%
Total housing units	798	503	534	1,093
Median household income	$45,372	$45,972	$64,167	$46,806
Foreign born population	2	11	20	23
Individuals below poverty level	11.8%	13.2%	12.0%	19.7%
Veterans	128	79	85	210
Race and Hispanic Origin				
White alone	1,816	1,045	960	2,347
Black or African American alone	0	11	2	0
American Indian and Alaska Native alone	7	0	0	0
Asian alone	2	2	9	0
Native Hawaiian & Other Pacific Islander	0	0	0	0
Some Other Race alone	6	2	3	0
Two or More Races	6	26	14	3
Hispanic or Latino (of any race)	20	14	17	8
White alone, Not Hispanic or Latino	1,804	1,033	946	2,339

[1] Demographic profile of 2010 US Census. All other data is from the 2009-2013 American Community Survey 5- Year Estimates

Quantifying the economic impacts of the Project is essential to understanding the potential benefits for the local economy. Wind power development, like other commercial development projects, can expand the local economy through both direct and indirect means. Income generated from direct employment during the construction and operation phases is subsequently used to purchase local goods and services, creating a ripple effect throughout the local economy. The Article 10 Application will analyze three levels of impact that the proposed Project may have on the economy:

- On-site labor impacts: These are the direct impacts experienced by the companies engaged in the construction and operation of the Facility. This value estimates the dollars spent on labor and professional services by project developers, consultants, and construction contractors, as well as and operation and maintenance (O&M) personnel. On-site labor impacts do not reflect material expenditures.

- Local revenue and supply chain impacts: These impacts measure the estimated increase in demand for goods and services in industry sectors that supply or otherwise support the companies engaged in construction and operation (also known as "backward-linked" industries). Indirect measures account for the demand for goods and services such as turbine components, project analysis, legal services, financing, insurance, etc.
- Induced impacts: Induced impacts measure the estimated effect of increased household income resulting from the project. Induced impacts reflect the reinvestment of earned wages, as measured throughout the first two levels of economic impact. This reinvestment can occur anywhere within the economy, on household goods, entertainment, food, clothing, transportation, etc.

Each of these three categories can be measured in terms of three indicators: jobs (as expressed through the increase in employment demand), the amount of money earned through those jobs, and the overall economic output associated with each level of economic impact. These indicators are described in further detail below:

- Jobs: Jobs refer to the increase in employment demand as a result of facility development. These positions are measured across each level of impact, so that they capture the estimated number of jobs on site, in supporting industries, and in the businesses that benefit from household spending. For the purposes of this analysis, this term refers to the total number of year-long full-time equivalent (FTE) positions created by the development. Persons employed for less than full time or less than a full year are included in this total, each representing a fraction of a FTE position (e.g. a half-time, year-round position is 0.5 FTE).
- Earnings: This measures the wages earned by the employees described above.
- Output: Output refers to the value of industry production in the state or local economy, across all appropriate sectors, associated with each level of impact. For the manufacturing sector, output is calculated by total sales plus or minus changes in inventory. For the retail sector, output is equal to gross profit margin. For the service sector, it is equal to sales volume.

To quantify the local economic impacts of constructing and operating the Project, the Job and Economic Development Impact (JEDI) model will be used, which was created by the National Renewable Energy Laboratory (NREL), a facility of the United States Department of Energy. The JEDI model requires project-specific data input (such as year of construction, size of project, turbine size and location), and then calculates the impacts described above through the use of state-specific multipliers. These multipliers account for the change in jobs, earnings, and output likely to occur throughout the local, regional, and statewide economy as a result of Project-related expenditures. The resulting data are paired with industry standard values (e.g., wage rates) and data reflecting personal spending patterns (e.g., percent of household income dedicated to housing expenditures) to calculate on-

site, supply chain, and induced impacts. This model allows impacts to be estimated for both the construction and operation phases of the proposed development.

(a) Construction Workforce

The Article 10 Application will identify the estimated construction workforce associated with the Project, as indicated above. The results of the JEDI model output will be evaluated and by the Applicant's construction management team to provide an estimate of the average work force, by discipline, for each quarter during construction.

(b) Construction Payroll

The Article 10 Application will identify the estimated annual construction payroll and non-payroll expenditures associated with the Project, as indicated above. The results of the JEDI model output will be evaluated by the Applicant's construction management team to provide an estimate of the annual construction payroll by trade.

(c) Secondary Employment and Economic Activity Generated by Facility Construction

The Article 10 Application will identify the estimated secondary employment and economic activity associated with Project construction, as indicated above. The results of the JEDI model output will be evaluated by the Applicant's construction management team, and the basis of any economic multiplier factor or other assumption(s) used will be described in the Application.

(d) Workforce, Payroll, and Expenditures During Facility Operation

The Article 10 Application will identify the estimated number of jobs associated with Project operation, as indicated above. The results of the JEDI model output will be evaluated by the Applicant's asset management team to estimate on-site payroll by discipline. The Article 10 Application will also provide an estimate of other expenditures likely to be made in the vicinity of the Project during operation.

In addition, Project operation will also result in payment to local landowners in association with the lease agreements executed to host Project components. The Article 10 Application will provide additional information regarding the economic benefit associated with these expenditures.

(e) Secondary Employment and Economic Activity Generated by Facility Operation

The Article 10 Application will identify the estimated secondary employment and economic activity associated with Project operation, as indicated above.

(f) Incremental School District Operating and Infrastructure Costs

The Project is not expected to result in any additional operating or infrastructure costs to the local school districts. The Article 10 Application will provide additional detail.

(g) Incremental Municipal, Public Authority, or Utility Operating and Infrastructure Costs

The Project is not expected to result in any additional operating or infrastructure costs to local municipalities, authorities, or utilities. The Article 10 Application will provide additional detail.

(h) Jurisdictions that Will Collect Taxes or Benefits

The Project is anticipated to result in economic benefits for the following jurisdictions:

- Chautauqua County
- Town of Cherry Creek
- Town of Charlotte
- Town of Arkwright
- Town of Stockton
- Cassadaga Valley Central School District
- Pine Valley Central School District

(i) Incremental Amount of Annual Taxes or Payments

The Applicant plans to enter into a 20-year term PILOT agreement with local tax jurisdictions but the specific terms of the PILOT agreement have not yet been negotiated. The PILOT payments will increase the revenues of the local taxing jurisdictions, and will represent a significant portion of their total tax levy.

The Article 10 Application will provide more detail regarding the anticipated PILOT agreement with local tax jurisdictions.

(j) Comparison of Incremental Costs and Incremental Benefits

As indicated above, the Project is not expected to result in any additional costs to local tax jurisdictions, but will result in significant benefit through implementation of a PILOT agreement.

(k) Equipment or Training Deficiencies in Local Emergency Response Capacity

The local emergency responders are not expected to have specialized equipment in order to respond to a fire, hazardous substance, or medical emergency beyond the typical first aid, medical emergency and fire vehicles and equipment that would be at a local fire and emergency department. For example, fire and emergency responders are not expected to have the necessary equipment to bring injured personnel down from the tower to ground level. The Applicant has had initial conversations with all local fire departments and no concerns about specialized equipment have been raised. The Applicant will continue consultation with local fire departments and first responders in order to confirm all necessary equipment will be available for fire and medical emergencies either by the Applicant or fire and emergency responders.

The Application will provide specific details on the emergency equipment that the Applicant will keep on site in order to respond to a fire or medical emergency. The Application will also contain a fire and emergency responder training and communication plan in order to address any training deficiencies. This plan will also include a list of the equipment, at minimum, that the Applicant will have on site for a fire or medical emergency.

(l) Consistency with State Smart Growth Public Infrastructure Criteria

The New York State Smart Growth Public Infrastructure Policy Act is meant to maximize the social, economic, and environmental benefits from public infrastructure development by minimizing the impacts associated with unnecessary sprawl. State infrastructure agencies, such as the NYSDOT, shall not approve, undertake, or finance a public infrastructure project, unless, to the extent practicable, the project is consistent with the smart growth criteria set forth in ECL § 6-0107.

Although the Project will not result in the construction or operation of public infrastructure and will not result in unnecessary sprawl, approvals from the NYSDOT may be required due to Project components crossing state highways (e.g., State Route 60). Therefore, the Article 10 Application will provide a detailed statement regarding the Project's consistency with smart growth criteria.

2.28 ENVIRONMENTAL JUSTICE

Exhibit 28 of the Article 10 Application requires the Applicant to provide sufficient information for the Department of Environmental Conservation and others to assess the potential impact of the Project on Environmental Justice communities. However, it should be noted that the intent of an Environmental Justice evaluation is to determine if air quality and associated health impacts are disproportionately affecting certain communities or populations. As previously indicated, the Project is a wind powered electric generation facility that will not result in emissions or air quality impacts (see Section 2.15). Therefore, for the purposes of the Environmental Justice evaluation, and based on the criteria set forth in 6 NYCRR 487.4, the Applicant has defined the "Impact Study Area" to consist of a 0.5 mile radius around each of the Project components.

Based on data obtained from the NYSDEC's *Geospatial Information System (GIS) Tools for Environmental Justice* website (www.dec.ny.gov/public/911.html), and as reported in the Project's Public Involvement Program (PIP) plan, the nearest Potential Environmental Justice Area to the Project is approximately 4 miles from the nearest proposed turbine locations (based on a preliminary turbine layout that was evaluated when the PIP was filed), and features two adjacent census block groups that include all or part of the Towns of Leon and Conewango (block group ID: 360099605003) and the Towns of New Albion and Napoli (block group ID: 360099605004). Both block groups are designated because significant portions of the population have household incomes below the federal poverty level. In Leon-Conewango 36.08% of the population have household incomes below the federal poverty level, while in New Albion-Napoli, 28.29% of the population have household incomes below the federal poverty level. Please see Appendix M of this PSS for Potential Environmental Justice Areas in Chautauqua County.

The Applicant provided this information in the PIP and, to date, no comments have been received regarding potential impacts to these Environmental Justice areas or the need to further revise the Impact Study Area. Because it is sited so far from the Potential Environmental Justice Area, the Project is not expected to have an impact on these or any other Environmental Justice areas and the full Environmental Justice Analysis required by 6 NYCRR 487.6 is not required.

2.29 SITE RESTORATION AND DECOMMISSIONING

(a) Performance Criteria

The Article 10 Application will provide a statement of the performance criteria proposed for the restoration or decommission of the Project. It is currently anticipated to include an acceptable form of security, in the form of a

funded escrow account, taking into account the independently estimated salvage value and/or resale value of the Project components for the decommissioning of the Project at the end of its useful life (approximately 25 years) including site restoration. Specifically, the Applicant shall provide a bona fide estimate from an independent engineer for the review and approval by the host municipalities that will describe and calculate the salvage and/or resale value and decommissioning costs. The amount of security is typically calculated as the independently estimated decommissioning cost net of the salvage and/or resale value of the Project components.

The Article 10 Application will provide a decommissioning plan that provides more specifics on site restoration and decommissioning. Unless otherwise agreed between the towns and the Applicant, the Decommissioning Plan is likely to include:

- Provision describing the triggering events for decommissioning of wind power facilities.
- Provisions for the removal of all above-ground structures and debris, but not the removal of anything below a 36-inch depth (e.g., tower foundations, buildings) in non-agricultural land.
- Provisions for the removal of all below-ground structures to 48 inches in active agricultural land.
- Provisions for the restoration of the soil and vegetation.
- A timetable approved by the towns for site restoration.
- The method of estimating decommissioning costs, including restoration, certified by an independent, Professional Engineer.
- The method of estimating the salvage and any resale value of Project components
- Provisions for updating the decommissioning costs and salvage/resale value
- Provisions that any Road Use Agreements will apply to the decommissioning of wind power facilities to ensure roads are adequately restored to their original condition or better prior to decommissioning activities.
- The types of financial assurance, as needed and secured by the Applicant, for the purpose of adequately performing decommissioning, in an amount equal to the Professional Engineer's certified estimate of decommissioning cost, less the expected salvage value and/or resale value of the wind farm components.
- Identification of procedures for the towns to access financial assurances.
- A provision that the terms of the Decommissioning Plan shall be binding upon the Applicant or any of their successors, assigns, or heirs.
- A Provision that the towns shall have access to the site, pursuant to reasonable notice, to inspect the results of complete decommissioning.
- Removal of machinery, equipment, tower, and all other materials related to the Project is to be completed within one year of decommissioning.

(b) Decommissioning and Restoration Plan

Megawatt-scale wind turbine generators typically have a life expectancy of 20 to 25 years. The current trend in the wind energy industry has been to replace or "re-power" older wind energy Projects by upgrading older equipment with more efficient turbines. However, if not upgraded or if the turbines are non-operational for an extended period of time (such that there is no expectation of their returning to operation), they will be decommissioned, in accordance with the Decommissioning Plan. 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 in non-agricultural land and 48 inches below grade in active agricultural land 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. A complete decommissioning plan will be provided in the Article 10 application.

An updated decommissioning plan that details the exact financial assurance, if needed, estimated cost, salvage/resale value, and site restoration will be provided to the host Towns prior to Project construction. All decommissioning and restoration activities will be in accordance with all applicable federal, state, and local permits and requirements and will include the following:

Turbine removal: Cranes and/or other machinery will be used for the disassembly and removal of the turbines. Electronic components and controls, and internal cables will be removed. The rotor and nacelle will be lowered to the ground for disassembly. The tower sections will be lowered to the ground where they will be further disassembled for transporting. The rotor, nacelle, and tower sections will either be transported whole for reconditioning and reuse or dissembled into salvageable, recyclable, or disposable components.

Turbine foundation removal: Turbine foundations will be removed down to a level 42 inches below grade, and the material will be transported to a pre-approved disposal location. The remaining excavation will be filled with clean sub-grade material, compacted to a density similar to surrounding sub-grade material, and finished with topsoil.

Collection cables: All overhead collection cables and associated poles will be removed. Except as described otherwise for active agricultural fields, all cables buried less than 36 inches will be removed. All cables buried deeper than 36 inches, will be kept in place.

Access roads and crane pads: At the discretion of the landowner, gravel will be removed from access roads and crane pads and transported to a pre-approved disposal location. Any drainage structures will be removed and backfilled with sub-grade material (if necessary), and the disturbed areas seeded to support re-vegetation. Written approval by the landowner will be obtained for any access roads to remain in place.

(c) Description of Decommissioning/Restoration Agreements Between Applicant and Landowners

All lease agreements between the Applicant and landowners who would have Project components on their property will have provisions for the removal of these components. More specifically, there are provisions for the depth of removal, the timing in which Project components must be removed, and financial protections for the landowner. If Project components are not removed in a timely manner in accordance with the lease, the landowner shall have the ability to either retain the Project components or cause their removal at cost to the Applicant less any net salvage value.

There will also be provisions for financial security to cover the costs of Project component removal and surface restoration. The financial security will be calculated based on the cost of the decommissioning and restoration net of salvage value, which is standard industry practice. There will be provisions for updating the decommissioning cost estimate and salvage value estimates.

The Article 10 Application will provide the provisions of decommissioning and restoration between the Applicant and landowners.

(d) Nuclear Power Facilities

This section is not applicable and therefore will not be addressed in the Article 10 Application.

2.30 NUCLEAR FACILITIES

The proposed Project is not a nuclear facility, and as such, the requirements of this exhibit are not applicable to this Project and will not be included in the Article 10 Application.

2.31 LOCAL LAWS AND ORDINANCES

During preparation of the Article 10 Application, the Applicant will continue its consultation with the municipalities whose requirements are the subject of the exhibit to determine whether all such requirements have been correctly identified, and to determine whether any potential request by the Applicant that the Board elect to not apply any such local requirement could be obviated by design changes to the proposed facility.

(a) List of Applicable Local Ordinances and Laws of a Procedural Nature

The Applicant has compiled the following preliminary listing of local ordinances, laws, resolutions, regulations, standards, and other requirements of a procedural nature required for the construction or operation of the proposed facility and interconnection:

Town of Arkwright

- *Applications for Wind Overlay District and Special Use Permit* – No Wind Energy Conversion System (WECS) shall be constructed, reconstructed, modified, or operated in the Town of Arkwright except in a Wind Overlay District, pursuant to an application for rezoning and special use permit approval under Article VI-A, §653(B) of the Town of Arkwright Zoning Law.
- *Wind Measurement Tower Special Use Permit* – No wind measurement tower shall be constructed, reconstructed, modified, or operated in the Town of Arkwright except pursuant to an application for special use permit approval under Article VI-A, §653(C) of the Town of Arkwright Zoning Law.

Town of Charlotte

- *Applications for Wind Overlay District and Special Use Permit* – No WECS shall be constructed, reconstructed, modified, or operated in the Town of Charlotte except in a Wind Overlay District, pursuant to an application for rezoning and special use permit approval under Article VI, §618(B)(2) of the Town of Charlotte Zoning Law.
- *Wind Measurement Tower Special Use Permit* – No wind measurement tower shall be constructed, reconstructed, modified, or operated in the Town of Charlotte except pursuant to an application for special use permit approval under Article VI, §618(B)(3) of the Town of Charlotte Zoning Law.

Town of Cherry Creek

- *Applications for Wind Overlay District and Special Use Permit* – No WECS shall be constructed, reconstructed, modified, or operated in the Town of Cherry Creek except in a Wind Overlay District, pursuant to an application for rezoning and special use permit approval under Article VI, Local Law 2 of 2011 §5(B) of the Town of Cherry Creek Zoning Law.
- *Wind Measurement Tower Special Use Permit* – No wind measurement tower shall be constructed, reconstructed, modified, or operated in the Town of Charlotte except pursuant to an application for special use permit approval under Article VI, Local Law 2 of 2011 §5(C) of the Town of Cherry Creek Zoning Law.

Town of Stockton

- The Project components that will be located in the Town of Stockton will be limited to a portion of the generator lead line and the point of interconnect substation, both of which will be located within the Agricultural (A) or Agricultural Residential (AR) Zoning Districts. According to Section 407 Land Use Matrix of the Town of Stockton Zoning Regulations, uses related to utilities are allowed by right in the A and AR districts and uses related to wind energy are allowed in the A and AR districts upon the issuance of a special use permit.

These local procedural requirements are supplanted by PSL Article 10 unless the Board expressly authorizes the exercise of the procedural requirement by the local municipality or agency.

(b) Local Procedural Requirements Requiring Board Authorization

There are no local procedural requirements that the Applicant requests the Board expressly authorize exercise thereof.

(c) Identification of Municipal Agency Qualified to Review and Approve Building Permits

It is anticipated that compliance with the Towns of Arkwright, Charlotte, Cherry Creek, and Stockton ordinances that require building permits will be confirmed by each town's code enforcement officer. The Application will outline in detail the exact permits in each town and the corresponding officer whose approval is necessary.

(d) List of Applicable Local Ordinances and Laws of a Substantive Nature

While all local jurisdictions have wind laws that would apply to Wind Energy Conversation Systems (WECS), Wind Overlay Districts have not been adopted and the associated WECS restrictions are therefore not

applicable. Therefore, the Applicant has compiled the following preliminary listing of local ordinances, laws, resolutions, regulations, standards, and other requirements of a substantive nature required for the construction or operation of the proposed facility and interconnection. Please also note that the towns also have zoning laws that, absent the WECS laws, may be applicable to the construction or operation of the Project. However, the focus of the information below is the WECS laws, and the Applicant will continue to consult with the local municipalities and the Siting Board to determine the appropriate analysis for applicable local laws in the Article 10 Application.

Town of Arkwright

- *Wind Overlay District Rules* – Pursuant to Article VI, §656(A) of the Town of Arkwright Zoning Law, wind Overlay Districts may only be created in the Agricultural-Residential (AR1) District and the T-Transitional Use Zone.
- *Turbine Height* – Pursuant to Article VI-A, §659(A)(14) of the Town of Arkwright Zoning Law, the maximum total height of any WECS shall be 420 feet.
- *Limits on Construction Activity Times* – Pursuant to Article VI-A, §659(A)(14) of the Town of Arkwright Zoning Law, construction of the WECS shall be limited to the hours of 8 am to 8 pm, except for certain activities that require cooler temperatures than are possible during the day (subject to Town approval).
- *Noise Limits* – Pursuant to Article VI-A, §662(A-B) of the Town of Arkwright Zoning Law, the statistical sound pressure level generated by a WECS shall not exceed L10 50 dBA at the closest exterior wall of any existing primary structure. If the ambient sound pressure exceeds 50 dBA, the standard shall be ambient dBA plus 5 dBA. If the audible noise due to WECS operations contains a steady pure tone, these standards shall be reduced by 5 dBA.
- *Shadow Flicker* – Pursuant to Article VI-A, §657(A)(17)(a) of the Town of Arkwright Zoning Law, potential shadow flicker will be modeled to identify where it may interfere with residences.
- *Visual Impact* – Pursuant to Article VI-A, §657(A)(17)(b) of the Town of Arkwright Zoning Law, color simulations will be created to demonstrate any visual impacts from at least two strategic vantage points showing as built conditions.
- *Setbacks* -- Pursuant to Article VI-A, §662(E) of the Town of Arkwright Zoning Law, each WECS shall be setback a minimum distance of:
    - 500 feet from the nearest non-participating property line,
    - 500 feet from the nearest public road,
    - 1,200 feet from the nearest existing off-Site residence,
    - 1.5 times the total height of the WECS from any non-WECS structure or above ground utilities,
    - 100 feet from the edge of State wetlands,
    - 500 feet from gas wells, and

- 1,200 feet or 200% of the total tower height, whichever is greater, from boundary of existing trails, trail facilities, and recreation areas. .

Town of Charlotte

- *Wind Overlay District Rules – P*ursuant to Article VI, §618(D)(1) of the Town of Charlotte Zoning Law, wind Overlay Districts may only be created in the Agricultural-Residential (AR1) District.
- *Turbine Height* – Pursuant to Article VI, §618(G)(1)(m) of the Town of Charlotte Zoning Law, the maximum total height of any WECS shall be 500 feet.
- *Limits on Construction Activity Times* – Pursuant to Article VI, §618(G)(1)(n) of the Town of Charlotte Zoning Law, construction of the WECS shall be limited to the hours of 7 am to 8 pm, except for certain activities that require cooler temperatures than are possible during the day (subject to Zoning Board of Appeals approval).
- *Noise Limits* – Pursuant to Article VI, §618(J)(1-2) of the Town of Charlotte Zoning Law, the statistical sound pressure level generated by a WECS shall not exceed L10 50 dBA at the closest exterior wall of any existing primary structure. If the ambient sound pressure exceeds 50 dBA, the standard shall be ambient dBA plus 5 dBA. If the audible noise due to WECS operations contains a steady pure tone, these standards shall be reduced by 5 dBA.
- *Shadow Flicker* – Pursuant to Article VI, §618(E)(1)(p)(1) of the Town of Charlotte Zoning Law, potential shadow flicker will be modeled to identify where it may interfere with residences.
- *Visual Impact* – Pursuant to Article VI, §618(E)(1)(p)(1) of the Town of Charlotte Zoning Law, color simulations will be created to demonstrate any visual impacts from at least two strategic vantage points showing as built conditions.
- *Setbacks* -- Pursuant to Article VI, §618(J)(5) of the Town of Charlotte Zoning Law, each WECS shall be setback a minimum distance of:
    - 500 feet from the nearest non-participating property line,
    - 500 feet from the nearest public road,
    - 1,000 feet from the nearest existing primary structure,
    - 100 feet from the edge of State wetlands,
    - 500 feet from gas wells, and
    - 1,000 feet from any other WECS.

Town of Cherry Creek

- *Wind Overlay District Rules – P*ursuant to Article VII, Local Law 2 of 2011 §7(A) of the Town of Cherry Creek Zoning Law, wind Overlay Districts may only be created in the Agricultural-Residential District III.

- *Turbine Height* – Pursuant to Article VII, Local Law 2 of 2011 §10(A)(13) of the Town of Cherry Creek Zoning Law, the maximum total height of any WECS shall be 420 feet.
- *Limits on Construction Activity Times* – Pursuant to Article VII, Local Law 2 of 2011 §10(A)(14) of the Town of Charlotte Zoning Law, construction of the WECS shall be limited to the hours of 7 am to 8 pm, except for certain activities that require cooler temperatures than are possible during the day (subject to Zoning Board of Appeals approval).
- *Noise Limits* – Pursuant to Article VII, Local Law 2 of 2011 §13(A-B) of the Town of Cherry Creek Zoning Law, the statistical sound pressure level generated by a WECS shall not exceed L10 50 dBA at the closest exterior wall of any existing primary structure. If the ambient sound pressure exceeds 50 dBA, the standard shall be ambient dBA plus 5 dBA. If the audible noise due to WECS operations contains a steady pure tone, these standards shall be reduced by 5 dBA.
- *Shadow Flicker* – Pursuant to Article VII, Local Law 2 of 2011 §7(A)(17)(a) of the Town of Cherry Creek Zoning Law, potential shadow flicker will be modeled to identify where it may interfere with residences.
- *Visual Impact* – Pursuant to Article VII, Local Law 2 of 2011 §7(A)(17)(b) of the Town of Cherry Creek Zoning Law, color simulations will be created to demonstrate any visual impacts from at least two strategic vantage points showing as built conditions.
- *Setbacks* -- Pursuant to Article VII, Local Law 2 of 2011 §13(1-5) of the Town of Cherry Creek Zoning Law, each WECS shall be setback a minimum distance of:
    - 500 feet from the nearest non-participating property line,
    - 500 feet from the nearest public road,
    - 1,000 feet from the nearest existing primary structure,
    - 100 feet from the edge of State wetlands,
    - 500 feet from gas wells, and
    - 1,000 feet from any other WECS.

<u>Town of Stockton</u>

- Upon review of the Town of Stockton's Zoning Regulations and consultation with town officials there does not appear to be any substantive requirements associated with the point of interconnect substation and generator lead line.

The location of the proposed facility will conform to all such local substantive requirements, except any that the Applicant requests that the Board elect to not apply. Copies of zoning, flood plain, and similar maps, tables and/or documents related to local substantive requirements will be included in the Article 10 Application.

(e) List of Substantive Local Ordinances/Laws that the Applicant Requests the Board Not Apply

The Applicant proposes that the Siting Board not apply any of the zoning laws that, absent the WECS laws, may be applicable to the construction or operation of the Project; however, the Applicant will continue to consult with the local municipalities and will provide more detail in the Article 10 Application. The Applicant anticipates requesting that the Siting Board apply the substantive requirements from the wind overlay zoning provisions in the WECS laws, as summarized in (d) above.

The Applicant proposes using commercial scale wind turbines at a maximum height of 550 feet. As proposed, the Project would not conform to height regulations in the Towns of Arkwright, Charlotte, and Cherry Creek wind overlay provisions. Advances in turbine technology is generally towards the development and installation of taller towers and longer blades in order to improve the efficiency in which the turbine captures wind, and increase the capture of wind at greater heights, at wind speeds are stronger and more consistent with a smaller footprint and fewer total number of turbines necessary to generate the same energy production. The Applicant intends to comply with substantially all other overlay zoning provisions in local laws. In addition, the Applicant is reviewing options for compliance with all other overlay zoning provisions and will provide a description of any provisions that are unreasonably burdensome in view of the existing technology, practicable implementation of the Project, or the needs of or costs to ratepayers whether located inside or outside of such municipality. The Applicant will provide additional information regarding this request in the Article 10 Application.

(f) List of Procedural Local Ordinances/Laws Related to Use of Water, Sewer, or Telecommunication Lines

The Project is not anticipated to require permits related to the use of water, sewer, or telecommunications. Therefore, it is assumed that no local laws or ordinances of a procedural nature relating to the use of essential services are relevant at this time.

(g) List of Substantive Local Ordinances/Laws Related to Use of Water, Sewer, or Telecommunication Lines

There are no local substantive ordinances/laws related to the use of water, sewer, or telecommunication lines that would apply to the proposed Project.

(h) Local Ordinances/Laws Related to Use of Water/Sewer that the Applicant Requests the Board Not Apply

There are no local substantive ordinances/laws that the Applicant requests the Board not apply.

(i) Summary Table of Substantive Local Requirements

The Article 10 Application will provide a summary table that has two columns, one consisting of applicable substantive requirements to the project and the second containing a description of how the Applicant plans to meet compliance. As of the filing, the Applicant is finalizing the footprint of the Project and is working with Town officials on meeting all setbacks and zoning regulations.

(j) Zoning Designation

Zoning regulations within the generation Project area are described within the Towns Zoning Laws. The Article 10 application will outline how the turbine locations within the generation Project area will be located and how they will comply with zoning districts to allow for the construction of wind energy generation facilities by special permit.

2.32 STATE LAWS AND REGULATIONS

During preparation of the Article 10 Application, the Applicant will consult with the state agencies and authorities whose requirements are the subject of the exhibit, to determine whether all such requirements have been correctly identified. To the extent that the requirements below are applicable, the Applicant intends to comply with such requirements unless the Applicant specifically requests relief from the Siting Board.

(a) List of State Approvals, Consents, Permits, Certificates, or Other Conditions of a Procedural Nature

The Applicant has compiled a preliminary listing of state approvals, consents, permits, or other conditions of a procedural nature required for the construction or operation of the proposed facility and interconnection, as summarized in the following table:

Table 9. List of All State Approvals for the Construction and Operation of the Facility

State Agency	Requirement	Discussion
State Board on Electric Generation Siting and the Environment	Certificate of Environmental Compatibility and Public Need, PSL Article 10	A certificate is required for the construction and operation of major electric generating facilities with a nameplate generating capacity of 25 MW or more.
	WQC, Section 401 of the Clean Water Act	Applicants for a federal license or permit (such as the construction of facilities that may result in discharge into waters of the U.S.) are required to apply for and obtain a Water Quality Certification indicating that the proposed activity will not violate water quality standards.
	Consultation Pursuant to §14.09 of the New York State Historic Preservation Act	The Applicant will consult with the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) to ensure compliance with the New York State Historic Preservation Act and §106 of the National Historic Preservation Act.
Department of Environmental Conservation	Water Withdrawal Permit Article 15, 6 NYCRR Part 601	This permit is required for any type of water withdrawal system with the capacity to withdraw 100,000 gallons per day of surface or groundwater. Where the volume withdrawn is less than an average of 100,000 gallons per day in any consecutive thirty-day consecutive period (3 million gallons during a 30 day period), temporary water withdrawals for the purposes of construction are exempt. It is not currently anticipated that the Project will require this permit; however, construction plans are not yet finalized so it has been included in this preliminary listing. If this permit is required, the procedural requirements are supplanted by Article 10.
	Permit for Protection of Waters Article 15, 6 NYCRR Part 608	This permit may be required for the crossing of protected streams by Project access roads and/or collection lines. Protected streams are particular portions of stream designated by the NYSDEC with one of the following classifications: AA, AA(t), A, A(t), B, B(t) or C(t). The permit is required for any change, modification, or disturbance of any protected streams, streambeds, or stream banks. If this permit is required, the procedural requirements are supplanted by Article 10.
	Permit for Freshwater Wetlands Article 24, 6 NYCRR Part 663	This permit may be required for the crossing of regulated freshwater wetlands or adjacent areas by Project access roads and/or collection lines. Regulated freshwater wetlands are designated and mapped by the NYSDEC, and are generally 12.4 acres or larger. Around every regulated freshwater wetland is an adjacent area of 100 feet that is also regulated to provide protection for the wetland. If this permit is required, the procedural requirements are supplanted by Article 10.

State Agency	Requirement	Discussion
	Endangered and Threatened Incidental Take Permit Article 11, 6 NYCRR Part 182	The NYSDEC may issue a license or permit to take, transport, sell, import and/or possess any species listed as endangered, threatened, or species of special concern for purposes it deems legitimate. This permit may be required if, in consultation with state agencies, it is determined that the project could result in incidental take of state-listed fish or wildlife species. If this permit is required, the procedural requirements are supplanted by Article 10.
	SPDES General Permit for Construction Activity	This permit is required for construction projects that disturb one or more acres of soil. The NYSDEC has federally delegated authority to issue permits under the federal Clean Water Act and therefore, this approval is not supplanted by Article 10.
	Easement on a portion of real property within the Boutwell Hill state forest	The Applicant proposes an electric collection or distribution line to pass through a portion of real property immediately adjacent to or within the right of ways of public roads running through the Boutwell Hill state forest. This location will require an easement from the NYSDEC. The easement would not be supplanted by Article 10 because it involves the grant of property rights for the permanent location of facilities.
Department of Transportation	Special Use Permit for Oversize/Overweight Vehicles	Special hauling permits from the New York State Department of Transportation (NYSDOT) 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 and permits will depend on the specific turbine supplier, crane equipment chosen, and degree of disassembly of the crane. These permits are typically obtained by the contractor immediately prior to construction. Although these ministerial permits are supplanted by Article 10, it is anticipated that the Applicant will request that the Siting Board authorize the DOT to issue these permits because of the timing of these submissions and the likelihood that the information will not be available from the contractor until post-Certification.
	Highway Work Permit	The use of New York State highway right-of-ways must be carried out in accordance with terms and conditions of a highway work permit issued by the NYSDOT. The proposed facility may need such a permit for the interconnect crossing of State Route 60. These approvals would not be supplanted by Article 10 because they involve the grant of property rights for the permanent location of facilities.

State Agency	Requirement	Discussion
Department of Agriculture	Notice of Intent pursuant to, NYS Agriculture & Markets Law, Section 305(4)	Proposed construction of non-agricultural structures within a designated agricultural district requires that a Notice of Intent be filed with NYS Department of Agriculture & Markets and the Chautauqua County Agricultural and Farmland Protection Board. The Applicant will coordinate with Agricultural & Markets to assist in the determination of project impacts and to identify remedial actions to consider. See Section 2.22(q) above for additional detail on potential agricultural impacts. If the Notice of Intent process is required, the procedural requirements are supplanted by Article 10. The Applicant will continue to consult with Dept. of Ag&Mkts regarding the Project and expects they will make recommendations to the Siting Board.

As indicated in the table above, some of these state procedural requirements are supplanted by PSL Article 10, except for permits to be issued by the New York State Department of Environmental Conservation (NYSDEC) pursuant to Federal recognition of State authority, or pursuant to federally delegated or approved authority, in accordance with the Clean Water Act, the Clean Air Act and the Resource Conservation and Recovery Act, and permits pursuant to Section 15-1503, Title 9 of Article 27, and Articles 17 and 19 of the ECL, unless the Board expressly authorizes the exercise of such authority by the state agency. In addition, certain grants of authority for property rights are not supplanted by Article 10.

(b) List of Procedural State Approvals/Permits/Etc. that the Applicant Requests the Board Not Apply

As indicated in the chart above, the Applicant anticipates requesting that the Siting Board authorize the DOT to issue the applicable over-sized vehicle permits. Generally, these approvals are issued immediately prior to construction and are submitted by the contractor. It is anticipated that the information required to be included in the submission will not be available until after a contractor is selected and post-certification. The Applicant will provide an additional explanation of why such an authorization would be desirable and/or appropriate in the Article 10 Application.

(c) List of State Approvals, Consents, Permits, Certificates, or Other Conditions of a Substantive Nature

The Applicant will construct and operate the Project in a manner that conforms to all State substantive requirements for those approvals, consents, permits, certificates, or other conditions. As part of this Exhibit for the Article 10 Application, substantive requirements associated with necessary state approvals, consents, permits, certificates, or other conditions will be provided in a summary table demonstrating the degree of compliance with the substantive

provision. The Article 10 Application will clarify which of the identified requirements apply to the proposed facility based on the final Project layout and consultation with the appropriate state agencies and authorities.

(d) Summary Table of Substantive State Requirements

The substantive state requirements preliminarily identified above in (c) will be summarized in more detail in the Article 10 Application.

(e) State Approvals/Permits/Etc. for Offsite Features Not Encompassed by Major Electric Generating Facility

The Project does not include any offsite interconnections or ancillary features that are not encompassed within the definition of Major Electric Generating Facility. Therefore, the requirements of this section do not apply and will not be addressed in the Article 10 Application.

2.33 OTHER APPLICATIONS AND FILINGS

(a) Other Applications or Filings Concerning the Subject Matter of the Proceeding

The Applicant does not have, and is not aware of, any other application or filing which concerns the subject matter of this proceeding (i.e., the Cassadaga Wind Project). To the extent available, additional detail will be provided in the Article 10 Application.

(b) Federal Permits, Consents, Approvals, or Licenses Required for Construction or Operation

The following table summarizes any anticipated federal permit, consent, approval, or license needed for the proposed Project. This information will be confirmed and/or updated in the Article 10 Application.

Table 10. Federal Permits and Approvals for the Cassadaga Wind Project

Agency	Anticipated Application Date[1]	Description of Permit or Approval Required
U.S. Army Corps of Engineers	TBD	Section 404 or Nationwide Permit for Placement of Fill in Federal Jurisdictional Wetlands/Waters of the U.S. NEPA Compliance Compliance with Section 106 of the NHPA Compliance with Section 7 of the Endangered Species Act
Federal Aviation Administration	TBD	Lighting Plan and Clearances for Potential Aviation Hazard. Includes formal consultation with Department of Defense
U.S. Fish and Wildlife Service	TBD	Consultation Pursuant to Section 7 of the Endangered Species Act, Associated with the Aforementioned Section 404 Permit

[1] The anticipated application submittal date will be identified in the Article 10 Application.

2.34 ELECTRIC INTERCONNECTION

(a) Design Voltage and Voltage of Initial Operation

A padmount transformer located near the base of the tower or internally within the tower will raise the voltage of electricity produced by the turbine generator from 650 volts up to the 34.5 kilovolts (kV) voltage level of the collection system. The electrical collection system will total approximately 36 miles in length, and will be installed adjacent to Project access roads to the extent practicable. Up to five incoming circuits will convene at the collection substation, which is the terminus of the 34.5 kV collection system. The collection substation, to be located on the west side of Cleland Road in the Town of Charlotte, will increase the voltage of the collection system from 34.5 kV to 115 kV.

The overhead 115 kV generator lead line runs approximately 5.5 miles west from the collection substation. The point of interconnection (POI) will be National Grid's existing 115 kV Moon Switching Station, which will be rebuilt to a six (6) breaker ring bus and will connect to both 115 kV lines #161 and #162. Moon Station is located on the north side of Moor Road in the Town of Stockton. The line to the Hartfield Substation will be connected in one bay and the Applicant's interconnection line connected in another.

(b) Type, Size, Number, and Materials of Conductors

The Article 10 Application will describe the type, size, number, and materials of conductors to be used on the generator lead line.

(c) Insulator Design

Typical utility-grade ceramic or composite insulators will be used. The Article 10 Application will provide more information on the specific insulator design to be used on the generator lead line.

(d) Length of the Transmission Line

The overhead generator lead line will runs approximately 5.5 miles between the collection substation and the POI.

(e) Typical Dimensions and Construction Materials of the Towers

Although generator lead line design is currently preliminary, it is anticipated that the line will be carried on treated wood pole structures that range in height from 65 to 80 feet above ground level, and will have an average span length of approximately 400 feet. The Article 10 Application will include more specific design details for the towers, including drawings of typical structures.

(f) Design Standards for Each Type of Tower and Tower Foundation

Generator lead line structures and conductors will be designed in accordance with the following standards:

- National Electric Safety Code (NESC) standards for heavy loading and high wind;
- American Society of Civil Engineers (ACSE) Manual 72, "Design of Steel Transmission Pole Structures," and Standard 48, "Design of Steel Transmission Pole Structures"; and
- Rural Utilities Service Bulletin 1724E-200 "Design Manual for High Voltage Transmission Lines."

Additional information about tower and tower foundation design standards will be included in the Article 10 Application.

(g) Type of Cable System and Design Standards for Underground Construction

From the transformer within each wind turbine, three power cables along with the fiber optic communication cables that comprise a single circuit will collect the electricity produced by wind turbine generators. Direct burial methods through use of a cable plow, rock saw, rock wheel trencher and/or similar equipment will be used during the installation of underground electrical collection system whenever possible. If a rock saw is used, water or other non-hazardous compound would be used as a lubricant. Direct burial will involve the installation of bundled cable

(electrical and fiber optic bundles) directly into a "rip" in the ground created by the plow, saw blade or rock wheel. The rip disturbs an area approximately 24 inches wide with bundled cable installed to a minimum depth of 36 inches in most areas, and 48 inches in active agriculture and pasture lands. Sidecast material will be replaced with a small excavator or small bulldozer. All areas will be returned to approximate pre-construction grades and restored.

The Article 10 Application will provide more detail on the type of cable system to be used and the design standards for that system.

(h) Profile of Underground Lines

The Article 10 Application will include drawings of the collection system that illustrate the depth of the underground cables, along with the location of any oil pumping stations and manholes.

(i) Equipment to be Installed in Substations or Switching Stations

The collection substation will include 34.5 and 115 kV busses, a transformer, circuit breakers, towers, a control building, metering units, and air break switches. The POI will include six breaker ring bus and other assorted equipment. The POI equipment is expected to include all of the above equipment in the collection substation except for the transformer. The POIN will be designed in accordance with National Grid standards. The Article 10 Application will include design drawings illustrating the equipment to be installed in both the collection and POI substations.

(j) Any Terminal Facility

The only terminal facilities expected are the POI and collection substation. The Application will describe these facilities in further detail as outlined above.

(k) Need for Cathodic Protection Measures

The Article 10 Application will describe any necessary cathodic protection measures and standards to be followed.

2.35 ELECTRIC AND MAGNETIC FIELDS

The Article 10 Application will include an electric and magnetic field (EMF) study, to be prepared to address the requirements of 16 NYCRR 1001.35. This study will describe the assumptions used in the calculations. An overview of the scope of the study is provided below.

(a) Every Right-of-way Segment Having Unique Electric and Magnetic Field Characteristics

The EMF study will identify every right-of-way (ROW) segment having unique EMF characteristics due to structure types and average heights, rights-of-way widths, and co-location of other transmission facilities in the ROW.

(b) For Each Right-of-way Segment, Base Case and Proposed Cross Sections Showing:

For each unique ROW segment, the EMF study to be included in the Article 10 Application will provide both base case and proposed cross sections that show, to scale, the following features:

- all overhead electric transmission, sub-transmission, and distribution facilities including the proposed Facility showing structural details and dimensions and identifying phase spacing, phasing, and any other characteristics affecting EMF emissions;
- all underground electric transmission, sub-transmission and distribution facilities;
- all underground gas transmission facilities;
- all ROW boundaries; and
- structural details and dimensions for all structures (dimensions, phase spacing, phasing, and similar categories) and include a station number identifying the location.

(c) Enhanced Aerial Photos/Drawings Showing Exact Locations of Each:

The EMF study to be included in the Article 10 Application will include a set of aerial photos/drawings showing the exact location of each:

- each unique ROW segment;
- each cross-section; and
- the nearest residence or occupied non-residential building in each ROW segment with a stated measurement of the distance between the nearest edge of the residence or building and the edge of the ROW.

(d) Electric and Magnetic Field Study

The EMF study to be included in the Article 10 Application will include calculation tables and field strength graphs for each unique ROW cross-section.

(1) Licensed Professional Engineer

The EMF study to be included in the Article 10 Application will be signed and stamped/sealed by a licensed professional engineer registered and in good standing in the State of New York.

(2) Computer Software Program

The EMF study to be included in the Article 10 Application will identify the name of the computer software program used to model the facilities and make the calculations.

(3) Electric Field Calculation Tables and Field Strength Graphs

The EMF study to be included in the Article 10 Application will model the circuits at rated voltage and provide electric field calculation tables and field strength graphs calculated at one meter above ground level, with 5 foot measurement intervals depicting the width of the entire ROW and out to 500 feet from the edge of the ROW on both sides. Digital copies of all input assumptions and outputs for the calculations will be included in the study.

(4) Magnetic Field Calculation Tables and Field Strength Graphs

The EMF study to be included in the Article 10 Application will model the circuit phase currents equal to the summer normal, summer short term emergency, winter-normal, and winter short term emergency loading conditions. The study will provide magnetic field calculation tables and field strength graphs calculated at one meter above ground level, with 5 foot measurement intervals depicting the width of the entire ROW and out to 500 feet from the edge of the ROW on both sides. Digital copies of all input assumptions and outputs for the calculations will be included in the study.

(5) Magnetic Field Calculation Tables and Field Strength Graphs for Maximum Annual Load within 10 Years

The EMF study to be included in the Article 10 Application will model the circuit phase currents equal to the maximum average annual load estimated to be occurring on the power lines within ten years after the proposed Facility is put in operation. The study will provide magnetic field calculation tables and field strength graphs calculated at one meter above ground level with 5 foot measurement intervals depicting the width of the entire ROW and out to 500 feet from the edge of the ROW on both sides. Digital copies of all input assumptions and outputs for the calculations will be included in the study.

(6) Base Case Magnetic Field Calculation Tables and Field Strength Graphs

The generator lead line will be constructed within a new ROW created specifically for the proposed Project; there are no existing power lines within this ROW. Consequently, this requirement does not apply to the proposed Project and will not be addressed in the EMF study or the Article 10 Application.

2.36 GAS INTERCONNECTION

The proposed Project is not expected to require gas interconnection facilities, and as such, the requirements of this exhibit are not applicable to this Project.

2.37 BACK-UP FUEL

The proposed Project is not expected to require back-up fuel, and as such, the requirements of this exhibit are not applicable to this Project.

2.38 WATER INTERCONNECTION

The proposed Project is not expected to require water interconnection facilities, and as such, the requirements of this exhibit are not applicable to this Project.

2.39 WASTEWATER INTERCONNECTION

The proposed Project is not expected to require wastewater interconnection facilities, and as such, the requirements of this exhibit are not applicable to this Project.

2.40 TELECOMMUNICATIONS INTERCONNECTION

The proposed Project is not expected to require telecommunications interconnection facilities, and as such, the requirements of this exhibit are not applicable to this Project.

2.41 APPLICATIONS TO MODIFY OR BUILD ADJACENT

The Applicant is not proposing to modify, or build adjacent to, and existing facility, and as such, the requirements of this exhibit are not applicable to this Project.

3.0 SUMMARY AND CONCLUSIONS

This Preliminary Scoping Statement has been prepared for the Cassadaga Wind Project, which is proposed to include up to 62 turbines and generate up to 126 MW of renewable energy with no emissions of pollutants or greenhouse gases to the atmosphere and without the need for the use of significant quantities of water. This document has been prepared to facilitate an understanding of the proposed Project, to further solicit input from the various stakeholders, and to satisfy the requirements of 1000.5(l) of the New York Public Service Law.

The proposed facility is a utility scale wind project located in Chautauqua County, New York. Project facilities will be located in four Towns: Cherry Creek, Charlotte, Stockton, and Arkwright. The proposed Project Area boundary (see Figure 2) consists of approximately 35,365 acres of private land, and the general landscape is a mix of agricultural and forest land. There are no Villages or other urban areas within the Project Area boundary.

The Project will consist of up to 62 utility scale wind turbines. The total size of the Project will be a maximum of 126 Megawatts (MW). Wind turbines will only be located in the Towns of Cherry Creek, Charlotte and Arkwright. Other proposed components will include: access roads, above and underground collection lines, above ground generator lead line, collection substation, point of interconnection substation, two permanent meteorological (met) towers, staging/laydown yards, and an Operations and Maintenance (O&M) building. The only proposed Project components in the Town of Stockton are a short section of the generator lead line and the interconnection substation.

The Application will provide a range of turbine models that may ultimately be selected. In no case will the Project consist of more than 62 turbines or be greater than 126 MW. For example, if a 3.0 MW turbine is analyzed and ultimately selected, no more than 42 turbines will be built, whereas if a 2.1 MW turbine is selected, then 60 turbines will be built. (See Appendix N for representative turbine information, which is provided as an example of the types of turbine models that are currently available on the market – the Article 10 Application will likely identify additional turbine models that may be used for this Project).

The Applicant prepared a Public Involvement Program (PIP) plan in accordance with 16 NYCRR § 1000.4. The initial draft of the PIP was submitted to the Siting Board on November 4, 2014, comments on the PIP were received from the New York State Department of Public Service (DPS) on December 4, 2014, and the PIP was updated, finalized and filed by the Applicant on January 4, 2015. The PIP can be accessed, viewed and downloaded on the online case record maintained by the Siting Board and on the Project-specific website maintained by the Applicant:

- (http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?Mattercaseno=14-F-0490)
- (http://everpower.com/cassadaga-wind-project-ny/)

In addition to the websites identified above, the Applicant has established a toll free number (1-844-624-WIND) to call with any questions and comments on the Project, and there is also a Project Facebook page through which stakeholders and the public can submit comments and questions on the Project. The Applicant also distributed two stakeholder mailings and held two open houses, both of which included the following information:

- Project and company fact sheet
- Article 10 Consumer Presentation
- Projects maps from the PIP
- Summary of the Article 10 process

The Applicant has provided paper copies of all documents presented at the open houses at the following repositories:

- Cassadaga Branch Library
- Sinclairville Free Library
- Farman Free Library Association of Ellington

During the time before the submission of the Article 10 Application, the Applicant intends to continue stakeholder outreach. The Applicant will do a mass mailing to all stakeholders following submission of the PSS to provide an update on the Project, invite comments, and remind the stakeholders of the comment period timeframe. The Applicant will continue to attend municipality meetings and will hold at least one additional open house prior to submitting the Application. Finally, the Applicant will also attempt to identify additional community events in which it would participate.

Section 2.0 (Content of Application) of this PSS has been organized in accordance with 16 NYCRR § 1001 (Content of an Application). Specifically, all sub-sections of Section 2.0 correspond directly to 16 NYCRR § 1001 (e.g., Section 2.1 corresponds to 16 NYCRR § 1001.1, Section 2.2 corresponds to 16 NYCRR § 1001.2, etc.). These subsections of the PSS identify numerous Project-specific support studies that will be conducted and included in the Article 10 Application, including:

- Emergency Action Plan
- Complaint Resolution Plan
- Noise Impact Assessment
- Phase 1B Archeological Survey
- Historic Architectural Resources Survey
- Preliminary Geotechnical Investigation
- Invasive Species Control Plan

- Preliminary Stormwater Pollution Prevention Plan
- Preliminary Spill Prevention Containment and Countermeasure Plan
- Plant and Wildlife Species Inventory
- Wetland and Stream Delineation Report
- Visual Impact Assessment
- Shadow Flicker Assessment
- Route Evaluation Study
- Aeronautical Study
- Draft Decommissioning Plan
- AM and FM Radio Analysis
- Off-Air Television Analysis
- Microwave Analysis

Finally, as previously indicated, the Applicant has prepared a content matrix to allow for a comparison of the content of this document with the requirements of 1000.5(l), which is provided below as Table 11.

Table 11. PSS Content Matrix

PSL 1000.5(l) Section	Requirement	Corresponding Section of the Cassadaga Wind PSS	Notes
PSL 1000.5 (l)(1)	as much information as is reasonably available concerning the proposed facility, generally in the form (though in less detail) that it will appear in the application;	Section 2.0	This Section, and all associated subsections, of the PSS contain reasonably available information related to existing conditions, potential impacts and minimization/mitigation.
PSL 1000.5 (l)(2)	a preliminary scope of an environmental impact analysis containing a brief discussion, on the basis of reasonably available information, of the following items:	Section 1.3	This section includes general information regarding Project-related impacts.
PSL 1000.5 (l)(2)(i)	a brief description of the proposed facility and its environmental setting;	Section 1.1, Sections 2.21(l), 2.22(a), 2.22(d), 2.23(a), 2.23(b)	Section 2.1 provides a brief description of the Project, while Sections 2.21(l), 2.22(a), 2.22(d), 2.23(a), 2.23(b) provide a brief description of its environmental setting
PSL 1000.5 (l)(2)(ii)	potentially significant adverse environmental and health impacts resulting from the construction and operation of the proposed facility including also an identification of particular aspects of the environmental setting that may be affected, including any material impacts or effects identified in consultations by the public, affected agencies, and other stakeholders, and a responsive analysis by the Applicant as to those issues identified in consultations;	Section 1.3, Sections 2.15(e) and 2.17(d), Sections 2.21 (m), 2.22 (b), 2.22(f), 2.22(m), 2.22(q), 2.23(b)(4), 2.23(e)(1), 2.24(b)(7), 2.25(d)(2)	Section 1.3 includes general information regarding Project-related impacts, Sections 2.15(e) and 2.17(d) provide information regarding potential health impacts, and Sections 2.21 (m), 2.22 (b), 2.22(f), 2.22(m), 2.22(q), 2.23(b)(4), 2.23(e)(1), 2.24(b)(7), 2.25(d)(2) provide information regarding potential environmental impacts. As of the date of the filing of this PSS, no material impacts have been identified during any consultations.
PSL 1000.5 (l)(2)(iii)	the extent and quality of information needed for the application to adequately address and evaluate each potentially significant adverse environmental and health impact, including existing and new information where required, and the methodologies and procedures for obtaining the new information;	Section 2.0	This Section, and all associated subsections, identify the extent and quality of information that is proposed to be included in the Article 10 Application, including numerous stand-alone support studies.

PSL 1000.5(l) Section	Requirement	Corresponding Section of the Cassadaga Wind PSS	Notes
PSL 1000.5 (l)(2)(iv)	for proposed wind-powered facilities, proposed or on-going studies during pre-construction activities and a proposed period of post-construction operations monitoring for potential impacts to avian and bat species;	Sections 2.22(d) and 2.22(h)(1), Section 2.22(h)(2)	Sections 2.22(d) and 2.22(h)(1) discuss the methodology by which the Applicant proposed and implemented pre-construction avian and bat surveys, while Section 2.22(h)(2) discusses post-construction monitoring.
PSL 1000.5 (l)(2)(v)	a description of how the applicant proposes to avoid adverse impacts to the environment and health;	Section 1.3, Sections 2.15(j) and 2.17(d), Sections 2.22 (c), 2.22(g), 2.22(n), 2.22(q), 2.23(b)(5), 2.23(e)(2), 2.24(a)(10), 2.25(d)(4)	Section 1.3 includes general information regarding Project-related avoidance, minimization and mitigation measures, Sections 2.15(j) and 2.17(d) describe avoidance, minimization and mitigation measures associated with health impacts, and Sections 2.22 (c), 2.22(g), 2.22(n), 2.22(q), 2.23(b)(5), 2.23(e)(2), 2.24(a)(10), 2.25(d)(4) describe avoidance, minimization and mitigation measures associated with environmental impacts.
PSL 1000.5 (l)(2)(vi)	for those adverse environmental and health impacts that cannot be reasonably avoided, an identification of measures proposed to mitigate such impacts;	see above	see above
PSL 1000.5 (l)(2)(vii)	where it is proposed to use petroleum or other back-up fuel for generating electricity, a discussion and/or study of the sufficiency of the proposed on-site fuel storage capacity and supply;	Not applicable to this Project	

PSL 1000.5(l) Section	Requirement	Corresponding Section of the Cassadaga Wind PSS	Notes
PSL 1000.5 (l)(2)(viii)	a description and evaluation of reasonable and available alternative locations for the proposed facility, including a description of the comparative advantages and disadvantages of the proposed and alternative locations, except that a private facility applicant may limit its description and evaluation of alternative locations to parcels owned by, or under option to, such private facility applicant or its affiliates;	Section 2.9	This Section of the PSS specifically addresses alternatives, including reasonable and available alternative locations and the comparative advantages and disadvantages of the proposed and alternative locations. However, as indicated in Section 2.9, this Project is being proposed by a private facility applicant and therefore the description and evaluation of alternative locations will be limited to parcels owned by, or under option to, such private facility applicant or its affiliates.
PSL 1000.5 (l)(2)(ix)	If the proposed facility affects any land or water use or natural resource of the coastal area and federal authorization or funding is necessary, a preliminary analysis of the consistency of the proposed facility with the enforceable policies of the New York State coastal management program or, where the action is in an approved local waterfront revitalization program area, with the local program;	Not applicable to this Project	

PSL 1000.5(l) Section	Requirement	Corresponding Section of the Cassadaga Wind PSS	Notes
PSL 1000.5 (l)(2)(x)	a statement of the reasons why the primary proposed location and source, taking into account the potentially significant and adverse environmental impacts, is best suited, among the alternatives, including a "no action" alternative, to promote public health and welfare, including the recreational and other concurrent uses that the site may serve, except that a private facility applicant may limit its description and evaluation of alternative locations to parcels owned by, or under option to, such private facility applicant or its affiliates and its description and evaluation of alternative sources to those that are reasonable alternatives to the proposed facility that are feasible considering the objectives and capabilities of the sponsor;	Section 2.9	This Section of the PSS specifically addresses alternatives, including a "no action" alternative and a statement of the reasons why the primary proposed location and source, taking into account the potentially significant and adverse environmental impacts, is best suited, among the alternatives, to promote public health and welfare, including the recreational and other concurrent uses that the site may serve. However, as indicated in Section 2.9, this Project is being proposed by a private facility applicant and therefore the description and evaluation of alternative locations will be limited to parcels owned by, or under option to, such private facility applicant or its affiliates.
PSL 1000.5 (l)(2)(xi)	a preliminary identification of the demographic, economic and physical attributes of the community in which the facility is proposed to be located and in which any alternative location identified is located, and a preliminary environmental justice evaluation of significant and adverse disproportionate environmental impacts of the proposed facility and any alternative facility identified that would result from construction and operation considering, among other things, the cumulative impact of existing sources of emissions of air pollutants and the projected emission of air pollutants from the proposed or alternative facility in a manner that is in accordance with any requirements for the contents of an Article 10 preliminary scoping statement contained in 6 NYCRR Part 487 promulgated by the DEC for the analysis of environmental justice issues; and	Sections 2.27 and 2.28	Section 2.27 provides demographic information for the host towns, while Section 2.28 specifically address Environmental Justice, including identification of the nearest Potential Environmental Justice Area

PSL 1000.5(l) Section	Requirement	Corresponding Section of the Cassadaga Wind PSS	Notes
PSL 1000.5 (l)(2)(xii)	an identification of any other material issues raised by the public and affected agencies during any consultation and the response of the applicant to those issues.	Appendix B	As of the date of filing this PSS, no material issues have been raised by the public or affected agencies. However, Appendix B of the PSS includes the most recently filed Meeting Log, which outlines all consultation activities conducted by the Applicant since January 2015.
PSL 1000.5 (l)(3)	an identification of all other state and federal permits, certifications, or other authorizations needed for construction, operation or maintenance of the proposed facility;	Sections 2.32 and 2.33	Section 2.32 addresses state laws and regulations, which Section 2.33(b) addresses anticipated federal permits and approvals.
PSL 1000.5 (l)(4)	a list and description of all state laws and regulations issued thereunder applicable to the construction, operation or maintenance of the proposed facility and a preliminary statement demonstrating an ability to comply;	Section 2.32	Section 2.32 addresses state laws and regulations.
PSL 1000.5(l)(5)	a list and description of all local laws, and regulations issued thereunder, applicable to the construction, operation, or maintenance of the proposed facility and a statement either providing a preliminary assessment of an ability to comply or indicating specific provisions that the applicant will be requesting the Board to elect not to apply, in whole or in part, and a preliminary explanation as to why the Board should elect not to apply the specific provisions as unreasonably burdensome in view of the existing technology or the needs of or costs to ratepayers whether located inside or outside of such municipality;	Section 2.31	Section 2.21 addresses local laws and ordinances.

PSL 1000.5(l) Section	Requirement	Corresponding Section of the Cassadaga Wind PSS	Notes
PSL 1000.5 (l)(6)	a description of the applicant, its formation, status, structure, holdings, affiliate relationships, powers (including whether it has or will seek to obtain the power of eminent domain, either directly or indirectly), franchises and consents;	Section 2.1	Section 2.1 describes the applicant, including the type of business and its formation. The Applicant does not plan to seek to obtain the power of eminent domain.
PSL 1000.5 (l)(7)	a description of the applicant's property rights and interests or those it proposes to acquire to all lands of the proposed facility and any private or public lands or private or public streets, highways or rights-of-way crossed by any interconnections necessary to serve the facility such as, but not limited to, electric lines, gas lines, water supply lines, waste water or other sewage treatment facilities, communications and relay facilities, access roads, rail facilities, or steam lines; and	Section 2.13	Section 2.13 provides information regarding the applicant's property rights and interests.
PSL 1000.5 (l)(8)	any other information that the Applicant may deem to be relevant.	Entire PSS	Any other information deemed relevant by the Applicant has been included in the PSS.

4.0 REFERENCES

Bartos, Virginia. 2013. Leon Grange #795. National Register of Historic Places Registration Form. On file, New York State Office of Parks, Recreation, and Historic Preservation, Waterford, NY.

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