PRELIMINARY SCOPING STATEMENT

Bluestone Wind Project
Towns of Sanford and Windsor, Broome County, New York

Prepared For:

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COMMONLY USED TERMS

Facility: Collectively refers to all components of the proposed project, including wind turbines, access roads, buried and above ground collection lines, overhead transmission line, substations, meteorological towers, staging areas, operations and maintenance building.

Facility Area: An area of land within which all Facility components will ultimately be located (depicted on various figures included in this Preliminary Scoping Statement).

Facility Site: Those parcels currently under, or being pursued, for lease (or other real property interests) with the Project Sponsor for the location of all Facility components.

COMMONLY USED ACRONYMS AND ABBREVIATIONS

APLIC	Avian Power Line Interaction Committee
BBA	Breeding Bird Atlas (New York State)
BBS	Breeding Bird Survey
Calpine	Calpine Corporation
CBC	Christmas Bird Count
CEF	Clean Energy Fund
CES	Clean Energy Standard
FGEIS	Final Generic Environmental Impact Statement
GHG	greenhouse gas
GIS	geographic information system
LWRP	Local Waterfront Revitalization Program
Met	meteorological
MW	megawatt
NYNHP	New York Natural Heritage Program
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
NYSA&M	New York State Department of Agriculture and Markets
NYSERDA	New York State Energy Research and Development Authority
NYSOPRHP	New York State Office of Parks, Recreation, and Historic Preservation
NYSORPS	New York Office of Real Property Services
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
PILOT	payment in lieu of taxes
PIP	Public Involvement Program
POI	point of interconnection
Project Sponsor	Bluestone Wind LLC
PSL	Public Service Law
PSS	Preliminary Scoping Statement
REV	Reforming the Energy Vision
Siting Board	New York State Board on Electric Generation Siting and the Environment
SPCC	Spill Prevention, Control, and Countermeasure
SPDES	State Pollutant Discharge Elimination System
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
VIA	Visual Impact Assessment

1.0 INTRODUCTION

Bluestone Wind, LLC (the Project Sponsor), a wholly owned subsidiary of Calpine Corporation (Calpine), is proposing to submit an Application to construct a major electric generating facility under Article 10 of the Public Service Law (Article 10 Application). Pursuant to the rules of the New York State Board on Electric Generation Siting and the Environment ("Siting Board"), the Project Sponsor is proposing to submit an Application to construct a major electric generating facility under Article 10 and must submit a Preliminary Scoping Statement (PSS). Under 16 NYCRR § 1000.5(c), a Project Sponsor can file a PSS with the Siting Board no earlier than 150 days following the submission of a Public Involvement Program (PIP) Plan. The PIP was filed on December 2, 2016. This PSS is intended to satisfy the filing requirements set forth at 16 NYCRR § 1000.5(c). Pursuant to 16 NYCRR 1000.5(g), within 21 days after the filing of this PSS, any person, agency or municipality may submit comments on this PSS by serving such comments on the Project Sponsor and filing a copy with the Secretary. Further details for filing comments on this PSS are provided in the PSS Notice, which is included in Appendix A of this PSS.

1.1 FACILITY DESCRIPTION

The Project Sponsor is proposing a wind-powered electric generating facility of up to 124-megawatts (MW) to be located in the Towns of Windsor and Sanford, Broome County, New York (Figure 1). The Facility will be located on leased private lands that are rural in nature. The actual footprint of the proposed Facility components 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 and mining practices alongside the proposed wind energy facility components. The area of land within which all Facility components will ultimately be located (the "Facility Area") collectively totals approximately 38,000 acres and is depicted on various figures included in this PSS. The regional Facility location and general Facility Area are depicted on Figures 1 and 2, respectively. The Facility's footprint would be substantially smaller than the Facility Area. The precise locations of Facility components and the parcels that host them (the "Facility Site"), including the location(s) of any proposed alternatives, will be identified in detail in the Article 10 Application. This document is a preliminary scope of the environmental impact analyses that will be provided in the Application in compliance with the specific requirements of 16 NYCRR 1001.

The Project Sponsor proposes the construction and operation of a large-scale wind energy generating facility, which would include the installation and operation of up to 40 wind turbines, up to 2 permanent meteorological towers, together with collection lines (below grade and overhead), access roads, one operation and maintenance (O&M) building, collection substation, a point of interconnection (POI) substation, approximately 2-4 miles of overhead transmission line, and temporary construction staging/laydown areas. These Facility components collectively constitute

the “Major Electric Generating Facility” as defined in 1000.2(v) and the term “Facility” is used in this document to collectively refer to these components.

1.2 FACILITY BENEFITS

Large-scale renewable projects, such as the Facility, offer a wide variety of benefits including economic development and job creation for the host communities, cleaner air, improved energy infrastructure, and progress toward achievement of State clean energy goals. Renewable energy sources represent important contributions toward New York’s current energy portfolio, and increased competition among energy generators aids in bringing down the price of energy to consumers, driving efficiency and innovation, and creating new markets for customers to make more conscious choices about their energy consumption. See Order Adopting a Clean Energy Standard (PSC Case 15-E-0302)(August 1, 2016)(hereafter “CES Order”). As noted in the recent Final Supplemental Environmental Impact Statement (hereinafter “CES FSEIS”) for the Reforming the Energy Vision (REV) and the Clean Energy Standard (CES), the clean energy economy provides clean, reliable, and affordable power while creating jobs and producing other economic and environmental benefits. See CES FSEIS in Case 15-E-0302 (May 19, 2016).

The proposed Facility will help the State achieve the broad goals of the 2015 State Energy Plan. See NY State Energy Law 6-104 and 16 NYCRR 1001.10(g). The State Energy Plan contains a series of policy objectives to significantly reduce greenhouse gas (GHG) emissions and diversify the State’s energy portfolio, while stabilizing energy costs and encouraging economic development and innovation. The State Energy 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 reducing 80% of total carbon emissions by 2050. In addition, the State Energy Plan calls for 50% of generation of electricity to come from renewable energy sources by 2030. According to the State Energy Plan, “Renewable Energy sources, such as wind, will play a vital role in reducing electricity price volatility and curbing carbon emissions.” In furtherance of these objectives, on August 1, 2016, the Commission issued approval of the State’s Clean Energy Standard (CES), which represents the most comprehensive and ambitious clean energy mandate in the state’s history, to fight climate change, reduce harmful air pollution and ensure a diverse and reliable energy supply. The CES will require that at least 50% of New York’s electricity come from renewable energy sources like wind and solar by 2030, with an aggressive phase in scheduled over the next several years. CES Order at 154-57. In the long run, as recognized by the State Energy Plan, benefits may be similar to those New York enjoys from the State’s hydroelectric facilities today (i.e., lower electricity prices and a healthier environment).

As a key component of the CES, new land-based wind energy projects can contribute 4,000 to 5,900 MW of economical, clean energy toward the State’s energy portfolio and the CES’s green energy generation goals., see CES

FSEIS at 5-24 to 5-25. Contributions from land-based wind will be particularly important in the short term, since the CES assumes no offshore wind development by 2023,[1] notes that development of new large-scale hydropower dams or nuclear facilities is unlikely,[2] and emphasizes that, while energy efficiency and other behind-the-meter investments will aid in advancing the goals of the CES, ultimately the incremental renewable target will be met largely through addition of new large-scale renewables. See Staff White Paper on CES (January 25, 2016) at Appx B. In order to reach the near-term and long-term CES goals, the CES FSEIS assumes that at least half of the incremental renewable generation needed will come from land-based wind, accounting for more than 5,000 MW in *additional* installed renewable generation capacity through 2030. CES FSEIS at 4-3 and 4-4. Overall, the State anticipates that the CES-driven procurement of large-scale renewable generation between 2017 and 2021 will be more than twice the level of generation that was procured under New York's former procurement program for renewable energy, the Renewable Portfolio Standard ("RPS"), which added approximately 1,400 MW in renewables. See CES Order at 16.

The Facility fully advances the objectives of the State Energy Plan and potentially the CES, and assists the State in achieving the 50% renewable energy generation objective. The Facility is consistent with these State policies, which encourage the development of renewable energy projects, seek solutions to fight climate change, and emphasize the need for a transition of New York's energy markets away from a reliance on fossil fuels for electricity generation. With a nameplate capacity of up to 124 MW, the Facility will generate enough electricity to meet the average annual consumption of approximately 20,000 households in New York State (EIA, 2016). As such, the Facility represents a significant addition to the State's incremental renewable capacity in the shorter term, since large-scale options like offshore wind are presumed to be unavailable until at least 2023. The Application will discuss further the State Energy Plan, CES and the Facility's role in achieving New York's clean energy goals.

In addition to fighting climate change, it is anticipated that the proposed Facility will have significant positive impacts on socioeconomics in the area through economic development and job creation in the host communities. Local construction employment will primarily benefit those in the construction trades, including equipment operators, truck drivers, laborers, and electricians. The influx of construction workers to the area will also benefit local hotels and restaurants, and increase purchases of local goods and supplies. In addition, Facility operation will generate full-time jobs, such as a Site Manager, and Wind Technicians (additional information is included in PSS Section. 2.4 Land Use). The Facility will also result in increased revenues to the local municipal tax base, school districts, Broome County, and

[1] CES Order at 61.

[2] The FSEIS points out that future hydroelectric development in New York will likely be limited to upgrades of existing dams to increase their capacity and/or efficiency, and the conversion of non-powered dams into energy-producing dams. The estimated maximum cumulative energy potential of additional hydropower is 240 MW. FSEIS at 5-48 to 5-49. Further, the CES does not allow any new storage impoundment for hydroelectric facilities. CES Order at 106.

payments to participating landowners. The proposed scope of study to fully assess these potential direct and indirect benefits is provided in more detail in Section 2.27 of this PSS, titled Socioeconomic Effects.

1.3 SUMMARY OF PRE-APPLICATION ACTIVITIES

Prior to this PSS, the Project Sponsor prepared a PIP plan in accordance with 16 NYCRR § 1000.4, which was filed with the Siting Board, and the Facility was assigned a case number (Case No. 16-F-0559). The initial draft of the PIP was submitted to the Siting Board on October 4, 2016, comments on the PIP were received from the New York State Department of Public Service (DPS) on November 3, 2016, and the PIP was updated, finalized and filed by the Project Sponsor on December 2, 2016 The PIP can be accessed, viewed and downloaded on the online case record maintained by the Siting Board on its Document Matter Management Website: (http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=51826) and on the Facility-specific website maintained by the Project Sponsor http://www.bluestonewind.com/

According to 16 NYCRR § 1000.4(c), a PIP 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 proposed Facility to stakeholders, solicit information from those stakeholders during public outreach events and generally foster participation in the Article 10 process.

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

- Project Representative (for the public and stakeholders to contact with questions, concerns, etc.):
    - Mr. Alec Jarvis, Director of Development, Calpine Corporation.
    - 717 Texas Avenue, Suite 1000, Houston, TX, 77002
    - Phone: (207) 956-1169
- Email: Alec.Jarvis@calpine.com
- Toll Free Number: 1-866-681-3312
- Local Document Repositories:

- Windsor Library, 107 Main Street, Windsor, NY 13865. Patron hours are Wednesday 11:00 AM-12:00PM; Friday 6:30PM-7:30PM; and Saturday 10:30AM-12:30PM.
- Deposit Free Library, 159 Front St, Deposit, NY 13754. Patron hours are Tuesday through Thursday 12:00pm-8:00pm; Friday through Saturday 9:00am-3:00pm; closed Sunday and Monday.

In support of this PSS, the Project Sponsor has consulted with the public, affected agencies, and other stakeholders, as required by 16 NYCRR § 1000.5(b). These consultations included an Open House in the Town of Windsor which was held on January 26, 2017. There were approximately 80 attendees at the Open House including a broad mix of landowners, local officials and other stakeholders. In addition to the Open House, the Project Sponsor has engaged in a wide range of outreach efforts per the project PIP, including the following:

- Presented to the Southern Tier Association of Towns in October 2016
- Sent stakeholder notification letters via direct mail to all stakeholders
- Held meetings with local and county officials, including the Town of Windsor Supervisor, Town of Sanford Supervisor, Broome County Executive, and Directors of the Broome County Industrial Development Agency and Planning Department
- Participated in telephone conversations with representatives from the Oneida Indian Nation and discussed potential for "stone landscapes" (see Section 2.20) within the Study Area
- Met with representatives from the New York Office of Park, Recreation and Historic Preservation (NYSOPRHP) and discussed previous studies in the in the area which can provide protocols and guidance on future cultural efforts (see Section 2.20)
- Held a project update meeting with the Waterman Conservation Education Center (https://www.watermancenter.org/) on January 29, 2017 to review Article 10 regulations and the general construction process for a wind farm. Located in the Town of Windsor, the mission of the Waterman Conservation Education Center is to promote conservation education and environmental literacy.
- Met with members of the Delaware-Otsego Audubon Society concerning the proposed Facility's effect on eagle and raptor populations.

Additional details regarding PIP implementation and outreach to stakeholders, along with initial stakeholder concerns which have been identified during this outreach, are provided in Section 2.2 of this PSS. All such consultations have been documented in a Meeting Log maintained by the Project Sponsor, submitted with this PSS and which will be updated and submitted to the Siting Board regularly following the PSS filing. Meeting logs will be available on the Project Website and on the Siting Board's case record website referenced above. The most recent Meeting Log is

included with this PSS as Appendix D. The Project Sponsor will continue to prepare and file a Facility-specific Meeting Log on a regular basis throughout the duration of the Article 10 review process.

1.4 POTENTIAL IMPACTS

The following information regarding impacts associated with wind powered electric generating facilities is provided in accordance with 16 NYCRR § 1000.5(l)(2)(ii):

The Facility will have numerous positive effects on the community, however its construction and operation will necessarily result in certain unavoidable and potentially significant adverse impacts to the environment. Over the last 15 years, approximately 1700 MW of large-scale wind Projects have been developed in New York State, and these projects have yielded important insights and information regarding the potential environmental impacts to be assessed and studied related to the operation and construction of a wind project. Impacts can be both temporary, resulting from construction-related activities, or permanent resulting from operation of the Facility. The primary construction-related impacts will be temporary disturbance of soils during the development of the construction staging area, the O&M building, the installation of access roads, turbine foundations, the permanent meteorological towers, underground and overhead collection lines, overhead interconnection poles, and substations. 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. Impacts to the community during construction will be similar to those experienced during any major construction project, such as potential noise and traffic impacts discussed in greater detail below.

During construction, potential direct or indirect impacts to wetlands and surface waters may also occur. These impacts will be assessed through delineation and field studies that are detailed in sections 2.22 and 2.23 of this PSS. 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, may result in both permanent (loss of wetland/surface water acreage) and temporary impacts to wetlands. The development and use of temporary workspaces may result in only temporary impacts to wetlands/streams. The installation of above-ground or buried electrical lines (transmission and interconnects) may temporarily disturb streams and wetlands during construction as a result of clearing (brushhogging, or similar clearing method requiring removal of rooted woody plants). In addition, potential conversion of wetland communities as a result of construction activities (e.g. forested to scrub-shrub), and soil disturbance from burial of the electrical 34.5 kV collector lines or from pole installation along the overhead collection lines may occur. 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).

Facility construction will also result in some temporary and permanent impacts to vegetation, forest cover, and wildlife habitat. However, the process for siting Facility components is designed to avoid and minimize impacts to undisturbed 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 Facility-related impact, which divides once continuous large populations into many smaller ones, and can be a significant threat to threatened and endangered species. Again, these potential impacts will be addressed through detailed studies that will assess potential impacts to wildlife and terrestrial habitats associated with the construction of the Facility.

In addition to construction impacts, impacts associated with operation and maintenance of the Facility may be associated with turbine visibility from some locations within the host and adjacent communities. Facility operation may also produce shadow flicker and sound at some receptor locations (residences), and result in 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 Facility impacts is included in Section 2.0 below. Potential visual impacts, as well as potential impacts to historic, cultural or archeological resources, sound, and shadow flicker will be evaluated through studies that are identified in this PSS, and the results of the studies will be provided in the Application.

With careful planning and design, many of the potential impacts associated with wind facilities can be completely avoided or minimized to be compatible with the surrounding areas. Because the studies characterizing these impacts have not yet been conducted, it is difficult to identify specific avoidance, minimization and mitigation measures in this PSS. However, the studies conducted in furtherance of the Article 10 certificate, the scope and methodologies of which are detailed in this PSS, will identify measures to be taken by the Project Sponsor to avoid potential impacts as well as minimization and mitigation measures that will reduce impacts to the extent practicable. In addition, the extent and quality of information required for these studies, as well as a listing of relevant pre- and post-construction studies pursuant to 16 NYCRR § 1000.5(l)(2)(iii) and (iv) is provided in subsequent sections of this PSS (i.e., a detailed scope for a Visual Impact Assessment is included in PSS Section 2.24).

1.5 IMPACT AVOIDANCE MEASURES

Despite the fact that detailed studies have not yet been completed and the layout has not been fully developed, the Project Sponsor is taking into account local and regional environmental concerns (i.e., flooding, forest conversation,

etc.) as well as typical impact avoidance, minimization and mitigation measures, for wind-powered electric generation projects.

Through the Article 10 process, avoidance and minimization measures will be identified and certificate conditions to the Article 10 Certificate will be imposed to ensure that the project does not result in unavoidable significant adverse impacts. The Project Sponsor will implement a range of impact avoidance and minimization practices and the final Facility layout will be in accordance with various siting criteria, guidelines, and design standards that serve to avoid or minimize adverse environmental impacts per 16 NYCRR § 1000.5(l)(2)(v) and (vi). These include:

- Minimizing the number of stream and wetland crossings and avoid impacts to sensitive flood zones or special flood hazard areas (see Figure 3).
- Construction procedures will follow Best Management Practices for sediment and erosion control to minimize adverse water quality impacts to local and regional surface waters (e.g., Susquehanna River).
- Designing, engineering, and constructing the Facility in compliance with various codes and industry standards to assure safety and reliability.
- Siting turbines to minimize sound, shadow flicker, and public safety concerns.
- Using the existing roads, farm roads and/or logging roads for turbine access whenever possible, to minimize impacts to soil, and ecological and agricultural resources. By doing so, the Project Sponsor will also avoid unnecessary clearing of forested areas, thus minimizing forest fragmentation.
- Designing all electrical lines in a manner that minimizes any possibility of stray voltage.
- Minimizing overhead electrical lines and designing any such lines in accordance with Avian Power Line Interaction Committee (APLIC) guidelines to minimize impacts on birds.
- Limiting Facility lighting, where permitted by FAA regulations or, in the case of the O&M building and substation, by local laws, to reduce nighttime visual impacts.
- Installing turbines with appropriate grounding and redundant shutdown/braking capabilities to minimize public safety concerns.
- Complying with the New York State Department of Agriculture and Markets (NYSDAM) guidelines, to the extent practicable, to minimize impacts on agricultural land and farming practices.

Facility 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 (SWPPP), 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 offering a Road Use Agreement with local municipalities to repair local roads potentially impacted by construction and maintenance of the Facility.
- Employing an environmental monitor/inspector to evaluate best practices to be employed at sensitive areas such as stream and wetland crossings.
- Implementing an Invasive Species Control Plan.
- Developing and implementing a single Complaint Resolution Procedure to address potential local landowner concerns throughout Facility construction and operation.
- Preparing a historic resource mitigation program to be developed in consultation with the SHPO.
- If needed, preparing a compensatory wetland mitigation plan to mitigate impacts to streams and wetlands (if required).
- 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 a preliminary Operations and Maintenance Plan
- Developing a preliminary Health and Safety Plan
- Developing a preliminary Site Security Plan
- Developing an emergency and fire response plan with local first responders.
- Implementing a Decommissioning Plan.

Specific impact avoidance, minimization and mitigation for particular resources will be defined in the relevant PSS Sections and subsequently in the Article 10 Application. For instance, efforts to avoid wetland impacts will be summarized as described in PSS Section 2.22.

1.6 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) of this PSS 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.). As a result of this sequence, exhibits that are not necessarily applicable to the Facility have

been included as individual PSS sections in order to maintain consistency. However, exhibits that are not applicable to this Facility (e.g., Natural Gas Power Facilities, Nuclear Facilities) have been identified in the corresponding PSS section as Not Applicable.

With respect to the remaining PSS requirements set forth at 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 representative sections of this PSS.

2.0 CONTENT OF APPLICATION

2.1 GENERAL REQUIREMENTS

(1) Project Sponsor Information

The Project Sponsor is Bluestone Wind LLC (Bluestone Wind), a wholly-owned subsidiary of Calpine Corporation. (Calpine). Bluestone Wind's business address is 717 Texas Avenue, Suite 1000, Houston, TX, 77002.

(2) Facility Website

The Facility website can be found at http://www.bluestonewind.com/

(3) Public Contact

The Facility's public contact is Alec Jarvis, Director of Development, Calpine Corporation. His contact information is:

Mr. Alec Jarvis, Director of Development
Calpine Corporation
717 Texas Avenue, Suite 1000
Houston, TX, 77002
Phone: (207) 956-1169
Email: Alec.Jarvis@calpine.com

(4) Principal Officer

The Principal Officer of Bluestone Wind is William Whitlock. His contact information is:

Calpine Corporation

717 Texas Avenue, Suite 1000

Houston, TX, 77002

William.whitlock@calpine.com

(713) 332-2505

(5) Document Service

The Article 10 Application will indicate if the Project Sponsor desires service of documents or other correspondence on an agent, and if so the required contact information will be provided.

(6) Type of Business

Bluestone Wind, LLC, is a limited liability company incorporated in the State of Delaware and registered to conduct business in New York State. Bluestone Wind, LLC is a wholly owned subsidiary of Calpine.

(7) Documents of Formation

The Facility will be owned by Bluestone Wind, LLC. The certificate of formation for Bluestone Wind, LLC is included as Appendix B to this PSS.

2.2 OVERVIEW AND PUBLIC INVOLVEMENT SUMMARY

(a) Brief Description of the Proposed Facility

The proposed Facility is a large-scale wind facility located in Broome County, New York. The proposed Facility's components will be located in the Town of Windsor and the Town of Sanford. The regional Facility location and general Facility Area is depicted on Figures 1 and 2, respectively. The Facility will be located on leased private land that is rural in nature. The actual footprint of the proposed Facility components 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 alongside those components.

The Facility will consist of up to 40 utility-scale wind turbines, with the total Facility nameplate of up to 124 MW. Other proposed components could include: access roads, above and underground medium voltage collection lines, overhead transmission line, collection and point of interconnection (POI) substations, permanent meteorological (met) tower(s), construction staging/laydown yards, and an O&M building. Currently, the proposed total length of access roads is approximately 18 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 30 miles. There are expected to be up to 3 temporary laydown yards, one O&M building, and 2 permanent met towers. The Facility may also include approximately 2 - 4 miles of overhead transmission line.

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

(b) Brief Summary of the Application Contents

The Article 10 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 Facility:

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

With regards to Exhibits 38 and 39, permitting for well or septic installation is generally a locally administered action and local action not for the construction or operation of the Facility, not subject to Article 10.

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

The initial draft of the PIP was submitted to the Siting Board on October 4, 2016, comments on the PIP were received from the DPS on November 3, 2016, and the PIP was updated, finalized and filed by the Project Sponsor on December 2, 2016.

The first goal of the PIP is to identify affected stakeholders. The PIP presented this information in Exhibit A – Master List of Stakeholders. Since the PIP's final submission, that master list has been updated based on the Project Sponsor's consultations and meetings with stakeholders. An updated Master List of Stakeholders is presented in Appendix C of this PSS. The Project Sponsor has initiated consultations, and the results and summary of these meetings/consultations are in the Meeting Log, which is presented in Appendix D of this PSS. The Meeting Logs will be filed on the DPS website through the entire PSS and Article 10 Application process.

To date, the Project Sponsor hosted one open house in the Town of Windsor on January 26, 2017 which was held from 4:00 PM to 7:00 PM at the Windsor High School. A second open house will be held in the Town of Sanford in the fall of 2017.

At the January open house, the Project Sponsor provided information associated with the proposed Facility, including a series of poster boards and maps of the Facility. The Project Sponsor provided a company fact sheet, and outlined an overview of the Article 10 process along various technical information related to construction, environmental studies and sound. The open house was well attended, with approximately 80 people in attendance. Some of the main items discussed by those in attendance included environmental impacts (i.e., sound from a local gas compressor station), Article 10 regulatory review process and land leases.

As stated previously, the Project Sponsor has also held meetings with wide range of local municipalities, regional environmental groups and state agencies, including:

- Town of Windsor
- Town of Sanford
- Broome County Executive
- Broome County Industrial Development Agency
- Broome County Planning Department
- Southern Tier Association of Towns
- Oneida Indian Nation
- Waterman Conservation Education Center
- Delaware-Otsego Audubon Society
- NYSDPS
- NYSDEC
- NYSOPRHP

These meeting focused on wide range of topics (i.e., cultural landscape, avian and bat habitat, etc.). The results of these discussions have been incorporated in this PSS where applicable.

In addition to these outreach efforts, the Project Sponsor has a Facility specific website (www.bluestonewind.com) as well as a toll-free number to call with any questions or comments. The Project Sponsor has provided paper copies of all documents presented at the open house, including the final PIP and this PSS at the following document repositories:

- Windsor Library, 107 Main Street, Windsor, NY 13865. (607) 655-2024
- Deposit Free Library, 159 Front St, Deposit, NY 13754. (607) 407-2577

During the time before the submission of the Article 10 Application, the Project Sponsor intends to continue stakeholder outreach. The Project Sponsor mailed a notice of PSS filing to members of the Master Stakeholder List (see Appendix C) just prior to the submission of the PSS to provide an update on the Facility and invite comments and remind the stakeholders of the comment period timeframe. Notice letters were also provided to the members of the State legislature in whose district the Facility is proposed, and to individuals who have filed a notice with the Secretary seeking to receive notices in this proceeding. A PSS filing notice was submitted for publication in the local newspapers identified in the PIP, and posted to the Project Website. All of these notices outlined the purpose of the PSS document, and highlighted the fact that there is a 21-day public comment period for stakeholders interested in providing input on this document, and the scopes and methodologies out studies outlined herein.

The Project Sponsor will continue to attend municipal meetings and will hold at least one additional open house (anticipated to be in Sanford) prior to submitting the Article 10 Application. As stated in the PIP, the Project Sponsor will provide notices of future open houses or public meetings to the Master Stakeholder List, as well as by publishing a notice in identified local publications at least 14 days prior to the event, putting a notice on the Project Website, and by notifying those who have filed a statement with the Secretary seeking to receive notices related to the Project. Finally, the Project Sponsor will also attempt to identify additional community events in which it would participate. All outreach efforts will be tracked in the meeting log and described in Exhibit 2 of the Article 10 Application.

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

The Project Sponsor will continue to engage stakeholders following submission of the Article 10 Application. A summary of post-application PIP activities will be included in the Article 10 Application. It is anticipated that the Project Sponsor will continue to attend board meetings for Towns which host Facility components. In addition, the Project Sponsor will continue to meet with other local public stakeholders, such as the Town and County road departments, as needed, to provide notices of major project milestones, and will update the Project Website with additional information. When applicable, the Project Sponsor will respond to suggestions and comments through a detailed response to the commenter, and will summarize the response in the tracking log.

(e) Brief Overall Analysis

This section will include an overall analysis of the relevant and material facts from the Article 10 Application, together with the information and analysis from the studies conducted in support of the Article 10 Application, regarding the

nature of the probable environmental impacts of the construction and operation of the Facility on (a) ecology, air, ground and surface water, and wildlife and habitat (b) public health and safety (c) cultural, historic and recreational resources and (d) transportation, communications, utilities and other infrastructure, as required by Article 10.

In addition, this section will summarize the facts in the Article 10 Application that will provide the Siting Board with the information needed to determine: (a) that the Facility is a beneficial addition or substitution for electric generation capacity of the State, (b) the construction and operation of the Facility will serve the public interest, (c) that the adverse environmental effects of the construction and operation of the Facility will be minimized or avoided to the maximum extent practicable, d) if the Facility results in or contributes to a significant and adverse disproportionate environmental impact in the community in which the Facility would be located, that the Project Sponsor will avoid, offset or minimize impacts caused by the Facility upon the local community for the duration of certificate to the maximum extent practicable using verifiable measures; (e) and that the Facility is designed to operate in compliance with applicable state and local laws and regulations, or in the alternative that such laws and regulations as applied to the Facility are unreasonably burdensome and therefore not applicable. Ultimately, this information will provide a basis for the Siting Board to make the required Findings on the proposed Facility and support a decision to grant the Certificate in accordance with PSL Section 168.

2.3 LOCATION OF FACILITIES

(a) Topographic Maps

Mapping/figures in the Article 10 Application will show the location of the components of the major electric generation and interconnection facilities associated with the proposed Facility including the turbines, access roads, electrical collection system, POI substation, permanent meteorological towers, O&M building, overhead transmission line, and construction staging/laydown areas. These components will be mapped on the U.S. Geological Survey "(USGS) Topo" topographic tile cache base map service, displayed at a scale of 1:24,000 or greater. This map service combines the most current data (Boundaries, Elevation, Geographic Names, Hydrography, Land Cover, Structures, Transportation, and other themes) that make up The National Map (USGS, 2017). The National Map is a collaborative effort between the USGS and other Federal, State, and local partners to improve and deliver topographic information for the United States (USGS, 2016). The "USGS Topo" map service is designed to provide a seamless view of the data in a geographic information system (GIS) accessible format, and depicts information consistent with the USGS 7.5-minute (1:24,000) quadrangle topographic maps at large scales (USGS, 2017).

(1) Proposed Major Electric Generating Facility Locations

In the Article 10 Application, the Facility Site is defined as those parcels currently under, or being pursued for lease (or other real property interests) with the Project Sponsor for the location of all Facility components. Mapping/figures in the Article 10 Application will depict the location of all Facility components within the Facility Site displayed at a scale of 1:24,000 or greater, including the following:

- wind turbines
- temporary and permanent meteorological tower(s)
- access roads
- buried and overhead electrical lines
- O&M building
- construction staging/laydown areas
- POI substation
- collection substation
- turbine and component locations
- overhead transmission

As currently designed, it is not anticipated that any permanent storm water features of a significant nature (e.g., large detention basin) will be utilized during construction and operation of the Facility. The Article 10 Application will discuss the need for and location of a temporary concrete batch plant and, if one is needed, the potential impacts from that equipment.

Although unlikely, to the extent any information is known at the time of the submission of the Article 10 Application regarding potential locations of permanent mitigation/offset sites for impacts to streams/wetlands or historic resources, such locations will be mapped.

To facilitate review of the project by State agencies, GIS shapefiles and/or metadata, where appropriate, will be provided separately upon request. The Project Sponsor anticipates discussing the agencies' specific data and GIS shapefile needs during the Stipulations process, at which time agencies will be asked to indicate what data are needed and how that data would be presented.

(2) Interconnection Location

All Facility components, including the interconnection facilities, will be located within the defined Facility Site and therefore will be mapped as indicated in Section 3(a)(1), above.

(3) Location of Ancillary Features

It is anticipated that the only off-site ancillary features associated with the Facility are temporary public road improvements, if needed. These features will be depicted on mapping/figures in the Article 10 Application.

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

The Facility does not include any components that are subject to Article VII of the PSL.

(5) Study Area

The Facility has been and will be subject to a number of studies in support of the Article 10 Application. A single, universal study area will not be utilized for all studies/analyses, rather the various studies will utilize resource-specific study areas, which will be described briefly in this section of the Article 10 Application, and are described in more detail in the respective section of this PSS. For example, see PSS Section 2.22 for a detailed description of the wetland delineation study area.

(b) Municipal Boundary Maps

Mapping/figures in the Article 10 Application will depict the location of the proposed Facility with respect to village, town, county, and school district boundaries.

(c) Description of Proposed Facility Locations

The locational relationship of the Facility to village, town, county, and school district boundaries will be described in the Article 10 Application including a listing of the proposed number of turbines in each municipality.

Please note that with respect to siting various Facility components, existing disturbances will be utilized wherever practicable. For instance, in many locations linear features of the Facility (e.g., access roads, collection lines) will be sited, in part, on agricultural farm roads, existing logging roads, and pipeline corridors, where practicable and safe. This will be further described in the Article 10 Application.

(d) Facility Shapefiles

The Article 10 Application will include Facility shapefiles and will show the proposed turbine locations, access roads, collection lines, collection substation, POI substation, overhead transmission, construction staging/laydown areas, temporary concrete batch plant if needed, and the O&M building.

2.4 LAND USE

(a) Map of Existing Land Uses

Existing land uses within a 5–mile radius of the Facility will be mapped in the Article 10 Application using publicly available data, including the property classification codes used by the New York Office of Real Property Services (NYSORPS). The following land uses occur within the Facility boundary: 100 – Agricultural; 200 – Residential; 300 – Vacant Land[3]; 400 – Commercial; 500 – Recreation and Entertainment; 600 – Community Services; 700 – Industrial; 800 – Public Services; and 900 – Wild, Forested, Conservation Lands and Public Parks. In addition, the map of existing land uses will include: (i) land subject to a forest management plan pursuant to Real Property Tax Law Section 480-a; (ii) agricultural district land at the Facility Site, which is established pursuant to the NYS Ag. & Markets Law; and (iii) any land subject to a conservation program. To determine the location of any conservation program lands in the vicinity of the Facility Site, publicly available resources will be consulted such as the National Conservation Easement Database (NCED), an initiative of the U.S. Endowment for Forestry and Communities to compile records from land trusts and public agencies throughout the United States. Additionally, the Project Sponsor will coordinate with other conservation groups, such as the Delaware Highlands directly with the Delaware Highlands Conservancy. These efforts will be summarized in the Article 10 Application and information documented on maps as appropriate.

(b) Transmission Facilities Map

Existing overhead and underground major facilities for electric, gas, and telecommunications within a 5–mile radius of the Facility will be identified and mapped (to the extent known by the Project Sponsor). This information will be based on publicly available data sources. The Project Sponsor will also coordinate with public (i.e., NYSDPS) and private (i.e., Millennium Pipeline Company, Bluestone Pipeline, NYSEG) regarding other available underground major utilities. Data on natural gas and oil wells within the Facility vicinity will be obtained from the NYSDEC and NYDPS.

[3]. Additional sub-categories of vacant land (i.e., abandoned residential, non-producing agricultural, etc.) will be included in the Article 10 Application as appropriate based on public data and/or desktop analysis.

(c) Tax Parcel Map

Existing boundaries of parcels where Facility components will be located, and the boundaries of those parcels within 1,500 feet of such properties, will be identified and mapped in the Article 10 Application. This map(s) will show land use, tax parcel number, and owner of record of each property, and any publicly known proposed land use plans for any of these parcels. Parcel and land use data will be obtained from the Broome County GIS Department and through consultations with the Towns.

(d) Zoning District Map

Existing and proposed zoning districts within a 5–mile radius of the Facility, based on data obtained from local governments are depicted in Figure 3 of this PSS, and will be depicted in the Article 10 Application. The Project Sponsor will review zoning regulations for each of the towns and villages within 5-miles of the proposed Facility, and a summary of the zoning regulations will be presented in the Article 10 Application, with a focus on the permitted and prohibited uses within each zoning district where Facility components will be located.

(e) Comprehensive Plan

The proposed Facility is located in the Towns of Windsor and Sanford in Broome County, New York. Both Windsor and Sanford have adopted a Comprehensive Plan in 2006 and 1992 respectively. Broome County adopted a Comprehensive Plan in 2013. The Article 10 Application will include a review of the Comprehensive Plans for each host Town and for Broome County. The Article 10 Application will also discuss whether the proposed Facility land use is consistent with these Plans.

(f) Map of Proposed Land Uses

The Project Sponsor will gather information about proposed land uses from discussions with local planning officials, open houses, the PIP implementation/PSS development process, and other sources, such as the New York State Open Space Conservation Plan. Any information gathered will be described and/or mapped in the Article 10 Application.

(g) Map of Specially Designated Areas

Designated coastal areas, inland waterways, agricultural districts, special flood hazard areas, Local Waterfront Revitalization Program (LWRP) communities, areas identified in the 2016 New York State Open Space Conservation Plan for specific initiatives, and other specially designated areas potentially occurring within a 5–mile radius of the

Facility will be mapped in the Article 10 Application. There are no designated Critical Environmental Areas (CEAs) in Broome County. Table 1 summarizes the sources of data to be used to prepare these maps.

Table 1. Sources of Data Used to Prepare Mapping of Specially Designated Areas

Mapping Requirement	Source
Designated coastal areas	NYS GIS Clearinghouse, NYS Department of State
Inland waterways and local waterfront revitalization program areas	NYS GIS Clearinghouse, NYS Department of State
Groundwater management zones	NYS GIS Clearinghouse
Agricultural districts	NYS GIS Clearinghouse
Flood hazard areas	NYS GIS Clearinghouse, FEMA
Critical Environmental Areas	NYSDEC

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

Recreation areas and other sensitive land uses known to the Project Sponsor within a 5–mile radius of the Facility will be mapped in the Article 10 Application. Table 2 summarizes the sources of data to be used to prepare these maps.

Table 2. Sources of Data Used to Prepare 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; New York State Open Space Conservation Plan
Wildlife management lands	NYS GIS Clearinghouse, NYSDEC, USFWS
Forest management lands	NYS GIS Clearinghouse, NYSDEC
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
Public-access fishing areas	NYS GIS Clearinghouse, NYSDEC
Oil and gas production	NYSDEC
Gas pipelines	Platts, NYSDEC, NYSDPS
Major communication and utility uses and infrastructure	TBD
Institutional, community and municipal uses and facilities	ESRI; TIGER/line files; NYS GIS Clearinghouse

The Facility's Visual Impact Assessment (see Section 2.24 for additional information) will also identify visually sensitive resources, including recreational and other sensitive land uses that may be affected by potential visibility of the Facility.

The Article 10 Application will address the potential for the Facility to have a direct impact on the recreational resources and other sensitive areas identified. In addition, the Facility's potential indirect effect on these resources (e.g., a change in the property's visual setting), will be addressed.

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

The Article 10 Application will quantify the existing land use(s) in the area based on parcel data and NYSORPS classification codes, specifying the area in acres and percentage of the total Facility Site occupied by each land use type. Proposed land uses will be identified through consultation with local officials (i.e., Town Supervisors, Planning Boards, Code Officers, etc.), review of town planning documents, attendance at Town meetings, and/or other outreach efforts. The Article 10 Application will present, in acres, the permanent and temporary impacts to each of the existing and proposed land use classes to be physically affected by the Facility. The Application will identify nearby land uses of particular concern to the communities, and will address the land use impacts of the Facility on residential areas, schools, civic facilities, recreational facilities, and commercial areas.

The Facility's consistency with the host Towns' Comprehensive Plans, and other relevant plans for the region and the State, such as of the 2011 Broome County Intermunicipal Waterfront Public Access Plan; the 2016 New York Open Space Conservation Plan (OSP, 2016); the New York State Historic Preservation Plan 2015-2020; the Statewide Comprehensive Outdoor Recreation Plan 2014-2019; the New York State Office of Parks, Recreation and Historic Preservation Sustainability Plan (April 22, 2009); and the Southern Tier Upstate Revitalization Plan (2015) adopted by the Southern Tier Regional Economic Development Council will be addressed in the Article 10 Application. The following Comprehensive Plans, in effect as of the date of this PSS, will be evaluated:

- Town of Windsor Comprehensive Plan
- Town of Sanford Comprehensive Plan
- Broome County Comprehensive Plan

Only very minor changes in land use are anticipated within the Facility Site as a result of Facility operation, and no changes are predicted outside the Facility Site. The presence of the turbines bases, access roads, overhead transmission, substations, and the O&M building will result in the conversion of some land from its current use to built

facilities. During Facility operation, additional impacts on land use (if any) over the years should be infrequent and minimal. Aside from occasional maintenance and repair activities, Facility operation will not interfere with on-going land use (i.e., farming, mining and forestry activities).

The Article 10 Application will include a statement of compatibility with active mining operations (bluestone, sand and gravel) within the Facility Area (see Figure 6). Additionally, information regarding compatibility with existing oil and gas wells will be included. It is worth noting that a review of NYSDEC data indicates only 4 oil and/or gas wells within the Facility Area (see Figure 6) and of these, only one appears to be active per NYSDEC GIS metadata.

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

The proposed Facility will use above-ground interconnect lines where the usage of underground lines would cause greater environmental impacts, and/or are cost prohibitive, including (but not limited to) along the edges of select agricultural fields, and crossing steep terrain, streams, wetlands, and public roads. The compatibility of proposed above-ground interconnect lines will be assessed in the Article 10 Application.

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

The Facility's proposed underground collection lines will not prohibit the continued use of the land as the impact will only be a temporary disturbance. Compatibility of proposed underground interconnections and temporary disturbances associated with construction will be addressed in the Article 10 Application.

(l) Conformance with the Coastal Zone Management Act

The Facility Area is not located 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

Aerial photographs within a 1-mile radius of the Facility will be included with the Article 10 Application. This mapping will likely be prepared using 0.5-meter resolution natural color orthoimagery from the USDA's National Agriculture Imagery Program (NAIP) captured during the 2015 growing season, or the most recent available at the time of the Article 10 Application.

(n) Aerial Photograph Overlays

The Article 10 Application will map Facility components overlaid on aerial photographs, at a readable scale. These maps will be created using ArcGIS software. Line symbols will be used to depict the centerlines of proposed access roads and electrical collection lines; point symbols to depict turbine and permanent meteorological tower locations; and polygon symbols to depict the substation, operation and maintenance buildings, and construction laydown areas. Buffers around each Facility component will show the limits of clearing and disturbance required (e.g., 20-foot permanent width and 50-foot temporary width for access roads). This mapping will likely be prepared using 0.5-meter resolution natural color orthoimagery from the USDA's NAIP captured during the 2015 growing season, or the most recent available at the time of the Article 10 Application.

(o) Source of Aerial Photographs

It is anticipated that mapping associated with (n) above will be prepared using 0.5-meter resolution natural color orthoimagery from the USDA's NAIP captured during the 2015 growing season, or the most recent available at the time of the Article 10 Application. The ultimate source will be identified in the Article 10 Application.

(p) Community Character

The Facility is proposed to be located in a rural portion of Broome County, which is characterized by a mix of agricultural, forested land interspersed with bluestone and sand and gravel mines. The Article 10 Application will provide a description of community character that includes defining features and interactions of the natural, built, and social environment, and takes into account local land use and zoning. The Facility will introduce additional visible elements (i.e., wind turbines) into the existing landscape, which could be considered a change in community character in some instances. 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. The Article 10 Application will assess the compatibility of the Facility with existing and proposed future uses with respect to community character, and identify avoidance and mitigation measures that will be implemented to minimize adverse impacts on community character.

Any effect land use might have on the Greater Binghamton Airport (BGM) along with local airstrips and heliports, will be addressed in Exhibit 25 (Effects on Transportation) as required by the Article 10 regulations.

2.5 ELECTRIC SYSTEM EFFECTS

(a) System Reliability Impact Study

A System Reliability Impact Study (SRIS) will be prepared for the Facility on behalf of the New York Independent System Operator (NYISO). The SRIS is scheduled to be completed in Q1 2018 and in, and will be included with the Article 10 Application.

(b) Potential Reliability Impacts

Based on NYISO scope, the SRIS will be performed for Summer Peak, Winter Peak and Light Load system conditions. The study system includes the Mohawk Valley Region (Zone E) in the NYISO system. The Article 10 Application will describe the impact of the proposed Facility and interconnection on transmission system reliability in the State in detail.

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

The Article 10 Application will provide greater detail on benefits and detriments of the Facility on ancillary services and the electric transmission system, including impacts associated with reinforcements and new construction necessary as a result of the Facility.

(d) Reasonable Alternatives to Mitigate Adverse Reliability Impacts

The SRIS will evaluate alternatives to eliminate adverse reliability impacts, if any. The results of the alternatives evaluation will be presented in the Article 10 Application.

(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 mitigation or eliminate said reduction.

(f) Criteria, Plans, and Protocols

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

The Facility will be designed in accordance with applicable standards, codes, and guidelines. For portions owned by the Project Sponsor (e.g., collection system), best industry practices will be used, along with any standards/preferences set by the companies designing the Facility The Project Sponsor will develop the construction drawings to include appropriate safety measures (i.e., grounding) per best industry practices and standards listed in this section of the PSS. For the POI station, New York State Electric & Gas (NYSEG) requirements will be followed.

The design of the collection lines shall incorporate, but is not limited to, the following standards and codes when applicable:

- ACI - American Concrete Institute
- ANSI - American National Standards Institute
- ASCE – American Society of Civil Engineers
- ASTM - American Society for Testing and Materials
- Generating Plants and High Voltage Direct Current Converter Stations
- IBC - International Building Code
- IEEE – Institute of Electrical and Electronic Engineers
    - IEEE 48 - Standard Test Procedures and Requirements for Alternating-Current Cable Terminations 2.5 kV through 765 kV
    - IEEE 80 - Guide for safety in AC substation grounding
    - IEEE 400 - Guide for Field Testing and Evaluation of the Insulation of Shielded Power Cable Systems
    - IEEE 400.1 - Guide for Field Testing of Laminated Dielectric, Shielded Power Cable Systems Rated 5kV and Above with High Direct Current Voltage
    - IEEE 400.3 - Guide for Partial Discharge Testing of Shielded Power Cable Systems in a Field Environment
    - IEEE C2 - National Electric Safety Code (NESC)
    - IEEE C37.2 - IEEE standard electrical power system device function numbers and contact designation
    - IEEE C37.90 - IEEE standard for relays, relay systems and associated with electrical power apparatus
    - IEEE C37.110 - Guide for the application of current transformers used for protective relaying purposes

- IEEE C57.13 - IEEE standard requirement for instrument transformers
- IEEE C57.12.10 - American National Standards for Transformers
- IEEE 485 - IEEE Recommended Practice for Sizing Lead-Acid Batteries for Stationary Applications
- IEEE C57.12.10 - American national standards for transformers
- IEEE 998 - IEEE Guide for direct stroke shielding of lightning for substations
- IEEE C37.119 - IEEE Guide for Breaker Failure Protection of Power Circuit Breakers
- IEEE C37.605 - IEEE Guide for Design of Substation Rigid-Bus Structures
- IEEE 605 - Guide for Design of substation rigid-bus structures
- IEEE 693 - IEEE Recommended practices for seismic design of substation
- IEEE 980 - IEEE Guide for Containment and control of spills in substations

- National Electric Safety Code (NESC)
- NEC – National Electric Code
- NEMA - National Electrical Manufacturer's Association
- NESC - National Electric Safety Code.
- NFPA 70 - National Electric Code (NEC)
- NFPA 70 - National Fire Protection Association - National Electric Code
- NFPA 850 - National Fire Protection Association – Recommended Practice for Fire Protection for Electric
- OSHA – Occupational Safety and Health Administration
- RUS Bulletin 1724E-200
- TIA/EIA - Telecommunications Industry Association/Electric Industry Alliance

The Article 10 Application will provide additional detail on the Facility's electric system codes, standards, guidelines, and practices. For the POI substation, NYSEG's requirements will be followed.

(2) Generation Facility Type Certification

The Project Sponsor will ultimately select a turbine that has achieved the necessary third-party certification, and proposes to submit this information to the Siting Board as a post-Certification compliance filing.

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

The various aspects of the Facility will have a written inspection, testing and commissioning plan, as briefly summarized below, that is adhered to during all stages of construction as well as a post-construction inspection and testing phase. When completed, all documentation will be provided to the Siting Board and stored at the Facility Site for easy review/access in the future.

Underground Collection System

The collection system will be inspected, tested and commissioned in accordance with various ANSI, IEEE, NFPA, IETA, ASTM, etc. requirements, as necessary. All tests shall be performed with the equipment de-energized, except where specifically required for it to be energized for functional testing.

Underground cables systems have comparatively less components than overhead lines or substations. All material received for construction of the underground lines will be visually inspected for defects and compatibility with the design/specifications. This includes, but is not limited to, cables, transformers, fiber, splices/junction boxes and grounding material.

Overhead Collection and Overhead Transmission Systems

The overhead lines will be inspected, tested and commissioned in accordance with various ANSI, IEEE, NFPA, IETA, ASTM, etc. requirements, as necessary. All tests will be performed with the line de-energized, except where specifically required for it to be energized for functional testing.

All material received for construction of the overhead lines will be visually inspected for defects and compatibility with the design/specifications. This includes, but is not limited to anchors, poles, conductor, fiber, insulators, hardware, and grounding material.

Collection Substation

The station will be inspected, tested and commissioned in accordance with various ANSI, IEEE, NFPA, IETA, ASTM, etc. requirements, as necessary. All tests shall be performed with the equipment de-energized, except where specifically required for it to be energized for functional testing.

All material received for construction of the station will be visually inspected for defects and compatibility with the design/specifications. Various industry standard electrical and mechanical tests are performed on equipment before leaving the manufacturers' facilities. Some tests are performed on a "class" of equipment, such that the

passing tests results apply to all specific equipment produced. Other tests are required to be performed on each individual piece of equipment. Additional tests will be performed on specific equipment after installation at the Facility site to ensure that there was no damage during handling including, but not limited to:

- Main transformer
- High/medium voltage circuit breakers
- Disconnect switches
- Instrument transformers (current transformer, voltage transformer, etc.)
- Surge arresters
- Station service transformer
- High/medium voltage cables
- Capacitor bank or reactor banks
- DC battery bank and charger

Wind Turbines

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, as well as turbine foundations. Turbine foundation testing and inspection will be in accordance with guidance from AWEA/ASCE in the 2011 document entitled *Recommended Practice for Compliance of Large Land-based Wind Turbine Support Structures*. These procedures will be detailed in the Article 10 Application.

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

The Project Sponsor will prepare a Preliminary Operations and Maintenance Plan (O&M Plan), which will be included in the Application. This plan is intended to be the foundation of the final O&M Plan that will be implemented at the Facility once it becomes operational, and will be based on the Project Sponsor's experience and typical O&M maintenance requirements for wind power projects. Ultimately the Project Sponsor's Facility Operators will be responsible for the O&M Plan's implementation. The objective of the O&M Plan is to optimize the Facility's operational capacity and availability through best in class maintenance guidelines and inspections that are designed to pro-actively detect any significant safety or maintenance issues.

Detailed operations and maintenance plans, procedures, and criteria related to the Facility's electrical components will be presented in the Application.

(g) Heat Balance Diagrams

Since there will be no thermal component to the Facility, this requirement is not applicable to the proposed Facility.

(h) Interconnection Substation Transfer Information

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

The POI substation will be a new NYSEG 115 kV 3 breaker ring bus to be constructed along the existing Afton to Stilesville 115 kV transmission line. The Article 10 Application will include a general arrangement plan view drawing of the POI substation. The exact future transaction and timetable to transfer the POI switchyard to NYSEG will not be known until the Facilities Study is complete.

(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 substation will be designed to NYSEG's standards (i.e., the transmission owner), and will be in accordance with their requirements.

(3) Operational and Maintenance Responsibilities

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

(i) Facility Maintenance and Management Plans

The Project Sponsor will be responsible for the operation, inspection, and maintenance requirements of all Facility components, except for the POI substation. 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 Facility-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 and road use agreements with the local municipalities (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 semi-annually with specific maintenance tasks scheduled for each maintenance visit. Maintenance is done by removing the turbine from service and having 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 20 to 25 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 overhead collection and transmission lines to ensure safe operation and prevent damage to the line. Requirements for clearing vegetation around overhead collector & interconnection lines will be illustrated in the Article 10 Application. All vegetation within the clear cut boundary, with the exception of low lying growth, will be completely cleared. In addition, vegetation extending

above the danger tree clearance line (outside of the clear cut boundary) will be cleared to prevent a potential tree from falling into the line. The Article 10 Application will provide the vegetation clearance requirements for the collection and interconnect lines associated with the Facility.

(ii) Vegetation Management Plans and Procedures

Initial vegetation management prior to and during construction utilizes manual/mechanical methods such as chainsaws, pruners or other heavy machinery. Portions of trees and other vegetation that extend into the clearing regions are typically trimmed. Vegetation that is completely within the clearing regions may be trimmed down such that they are classified as low lying growth, or may be removed completely (up-rooting, removal, etc.).

Continued maintenance may be through a variety of manual trimming methods, as well as environmentally friendly herbicide treatments used to inhibit vegetation growth (where permitted). The frequency of inspection and management will depend on the rate of growth at the particular location along the lines. Low-lying growth and vegetation extending into the clear cut boundary will be checked regularly each year. The Article 10 Application will provide typical details associated with vegetation management for the overhead 34.5 kV lines.

(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. Please see (f)(4) above for information on the maintenance schedule for the electrical system.

(iv) Notifications and Public Relations for Work in Public Rights-of-Way

If work is to be performed in a public right-of-way, notification and any permit(s) to conduct such 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 existing distribution systems.

(j) Vegetation Management Practices for Collection Substation Yard

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 Facility'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 Project Sponsor will accept proposals for sharing of above ground facilities with other utilities as they are submitted. In consideration of such proposals, the Project Sponsor will conduct a site visit with the party proposing the co-location. The Project Sponsor will evaluate the proposal taking into account potential conflicts of interest, interference and reliability issues with the proposed co-location. If necessary, the Project Sponsor may have a qualified third-party review the proposal to determine any detrimental impact of the proposal on the Project Sponsor's Facility.

(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 Facility 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. Wind energy facilities, such as the proposed Facility, are not suitable for blackstart because there is no guarantee that wind would be blowing at sufficient speed. Therefore, the Facility will not have blackstart capabilities.

(n) Identification and Demonstration of Compliance with Relevant Reliability Criteria

Reliability criteria are identified in the SRIS, which includes input from the NYISO and NYSEG. In addition, the Project Sponsor will consult with DPS regarding reliability criteria to confirm that consultation completed through the SRIS will be sufficient for compliance with relevant reliability criteria.

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, meets turbine vendor site suitability requirements, takes local law into consideration, and minimizes potential impacts at sensitive receptors (as defined in detail in Sections 2.19 and 2.24 of this PSS) related to sound and/or shadow flicker. As such, this is an iterative process with the final Facility design reflecting a balance of these factors. The proposed location and spacing of the wind turbines and support facilities is initially based upon site constructability, landowner participation, wind resource assessment, environmental resource factors, proximity to existing transmission and review of the Facility's zoning constraints. As development progresses, preliminary and final turbine layouts and Facility component placements are refined based on further consideration of the following factors:

- Wind resource assessment
- Distance from residences and other buildings, non-participating land parcels, roads, and other infrastructure
- Availability of existing public or private roads or previously disturbed corridors
- Sufficient spacing between turbines
- Agricultural protection measures
- Biological and cultural resources, including outdoor recreation areas
- Unusual landform areas
- Wetland avoidance
- Minimization of potential visual, shadow flicker, ice/blade throw, tower collapse, and sound impacts

As indicated previously, the Facility is proposed to be in an area dominated by forest with a rural low-density character. High density residential land uses are not prominent near the Facility, which will be sited to avoid and/or minimize interaction with sensitive natural and cultural resources (e.g., protected wetlands, streams, archaeological sites) to the maximum extent practicable. More detailed discussion on the Facility's proximity and proposed setbacks (as relevant) to these features and other resources, such as schools and historic properties, will be included in their respective sections of the Article 10 Application. The Project Sponsor is aware that the Public Service Commission has stipulated to a standard setback distance of 1.5 times maximum blade tip height from major above-ground transmission facilities. The Project Sponsor is aware of this setback and will account for it while designing the Facility.

With respect to setbacks, the Article 10 Application will describe how setbacks will ultimately be applied to Facility turbines to ensure the safety of the public and neighboring properties, minimize impacts at residential and other sensitive structures/resources, and ensure consistency with the intent of any applicable land use/zoning setback regulations. Generally, setbacks will be tied to the maximum blade tip height of the turbines selected, except where local laws or other third-party recommendations are presented as fixed distances regardless of turbine height. The Article 10 Application will also present representative turbine models that would be suitable for the Facility and their dimensions.

Finally, any discussion of construction buffer areas, such as the determination of safe work-zone distances for maintenance and construction crews, will be included in Exhibit 12 on Construction.

(1) Manufacturer's Setback Specifications

The Project Sponsor is not aware of any manufacturer's setback specifications for any of the turbine models under consideration for the Facility. Manufacturer's siting guidelines are typically focused on technical issues such as available wind resource at a given site (i.e., on selecting the appropriate technology/ turbine model) rather than on land use/zoning issues such as setbacks. The Article 10 Application will provide a review of manufacturer setback specifications (to the extent available) for the range of potential turbines under consideration for the Facility, and how the Project Sponsor plants to meet such setback specifications, if any.

(2) Project Sponsor's Internal Setback Standards

When identifying appropriate setbacks for a given project, the Project Sponsor generally considers the following: a) ensuring the safety of the public and neighboring properties 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, b) minimizing impacts at residential or other sensitive structures related to sound or shadow flicker, and c) abiding by any applicable land use/zoning setback regulations, to the extent practicable.

The Article 10 Application will provide more detailed information specific to the Project Sponsor's proposed setbacks for this facility.

(3) Setbacks Required by Local Law or Ordinance

Zoning jurisdiction within Broome County is at the town level. The proposed turbines are sited in the Towns of Windsor and Sanford. The Town of Sanford adopted a wind law in January 2017, which is attached hereto as Appendix E. The setbacks required for wind turbines, measured from adjacent non-participating property lines, rights-of-way, easements, public ways, power lines (not including wind project's own power lines), and preexisting structures is equal to the fall zone of the turbine plus 25% of that fall zone. Sanford Land Use Management Law Article XIV, Section 1402.5(A)(4). As of the date this PSS is filed, the Town of Windsor has not adopted laws specific to wind energy development and therefore does not have any local laws or ordinances specifically governing wind turbine setbacks. However, to the extent either of the host towns makes future revisions to applicable local laws prior to the filing of the Application, those revisions will be identified and the Facility's compliance with all local laws will be discussed in the Application. In this PSS, additional discussion of applicable substantive local laws, including zoning or setback requirements, can be found in the sections pertaining to Exhibit 31 of the Application.

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

The Facility's adherence to all appropriate setbacks will be addressed in the Article 10 Application.

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

Equipment reliability is an important criterion in turbine selection. The Project Sponsor has not made a final decision on the turbine manufacturer or model. However, based on preliminary evaluations, 2.75 MW to 4.2 MW represents the range of turbine size types considered for this Facility. 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. The Article 10 Application will include a discussion regarding the status and results of third-party review and certification (type and project) of wind turbines proposed for construction and operation at the electric plant.

(d) Wind Meteorological Analyses

The intent of the wind resource analysis is to optimize the turbine layout to maximize energy production within the context of the existing, site-specific constraints. As part of the detailed wind analysis, micro-scale wind modeling tools

will be utilized to develop the energy yield analysis for the given layout. The analysis also utilizes mesoscale wind resource databases, reanalysis datasets, and publicly available energy production databases. Linear flow models as well as (Computational Fluid Dynamic) CFD models are used 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. A 60-meter tall meteorological tower was installed in Windsor in August of 2016 and a 100-meter tower is currently being installed in Sanford. The meteorological towers have been erected to generate the site-specific data necessary for modeling purposes and validation of the wind resource. A preliminary turbine layout is then devised utilizing the resulting wind resource map created with input from third party wind resource experts and the Project Sponsor. The final layout is determined by correlating the most energetic layouts with the most constructible and logistically economical designs.

2.7 NATURAL GAS POWER FACILITIES

The proposed Facility is not a natural gas power facility, and as such, the requirements of 1001.7 are not applicable and will not be included in the Article 10 Application.

2.8 ELECTRIC SYSTEM PRODUCTION MODELING

Project Sponsor will consult with the agencies during the development of this Exhibit of the Application to determine an acceptable input data set, including modeling for the proposed Facility and inputs for the emissions analysis, as required by the regulations 16 NYCRR § 1001.8.

(a) Computer-based Modeling Tool

The analyses to be presented in Exhibit 8 of the Article 10 Application will be developed using GEMAPS, PROMOD, or a similar computer-based modeling tool. The Project Sponsor will consult with the NYSDPS and the NYSDEC immediately following submission of this PSS to develop an acceptable input data set to be used in the simulation analyses, including modeling for the Project Sponsor's proposed Facility and inputs for the emissions analysis.

(1) Estimated Statewide Levels of Greenhouse Gas Emissions

The Article 10 Application will list the estimated statewide levels of SO2, NOx, and CO2 emissions, in short tons, with and without the Facility for the expected service year.

(2) Estimated Prices Representative of all NYISO Zones

The Article 10 Application will list the estimated minimum, maximum, and average annual spot prices representative of the 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 12-month generation profile will be developed using on site met tower measurements that, based on the observed time period of the measurements compared to a nearby long-term reference station, the observed mast data will be adjusted to represent a long-term average at the positions to reduce the variability with time. From this validated and long-term adjusted distributions at each turbine position, the overall wind farm gross production will be calculated based on the specific turbine power curve and the turbine specific wind distribution based on one turbine model to be presented in the Article 10 Application. Typical losses assumptions for availability, environmental, curtailment and any other potential sources of energy losses will be 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 estimated monthly the annual, on-peak, shoulder, and off-peak megawatt-hours (MWh) output capability factors for the proposed Facility (based on one turbine model of those under consideration by the Project Sponsor).

(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 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 include an estimated production curve for the facility over the year. The long-term adjusted annual wind frequency distributions at each turbine position calculated in a 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 include 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 cogeneration 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

Digital copies of all inputs used in the simulations required in subdivision (a) of this section will be included on a compact disc (CD) with the Article 10 Application. The Project Sponsor will seek the requisite trade secret protection for this information pursuant to NY Public Officer's Law Section 87(2)(d) and 16 NYCRR 6-1.4.

2.9 ALTERNATIVES

(a) Description of Reasonable Alternative 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 Project Sponsor seeks to take advantage of the ample

available wind resource and bulk power transmission infrastructure in the vicinity of the Facility Area in Broome County, New York. A draft Feasibility Study Report involving New York System Operator (NYISO) and NYSEG has been completed and will be followed immediately by initiation of the System Reliability Impact Study (SRIS). Both studies anticipate up to 124 MW of electric power being generated by the proposed Facility. Therefore, the preferred alternative is to construct a wind Facility that can produce up to 124 MW of renewable energy.

The Project Sponsor does not have, and does not anticipate having, eminent domain authority. Therefore, the identification and description of reasonably available alternative site locations to be addressed in the Article 10 Application will be constrained to sites owned by or under contract to the Project Sponsor. It is worth noting that the preliminary selection of wind turbine locations on a regional or statewide basis is limited by several factors that are essential for the Facility to operate in a technically and economically viable manner. These factors include the following:

- Adequate wind resource;
- Adequate access to the bulk power transmission system, from the standpoints of proximity and ability of the system to accommodate the interconnection and accept and transmit the power from the Facility;
- Contiguous areas of available land;
- Compatible land use;
- Willing landowner participants and host communities;
- Limited population/residential development; and
- Avoiding areas of statewide significance or high environmental sensitivity (e.g., Catskill Park).

The Article 10 Application will demonstrate that the location selected for the Facility is suitable for large-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. Large-scale wind power projects can only be located in certain areas 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. Winds adequate to support a commercial wind-powered generating facility are generally limited to certain unique areas in the state, which include coastal areas, ridgelines, elevated plateaus, and mountain peaks. The Project Sponsor's analysis indicates the Facility Area contains adequate wind resources. Further, the Facility Area's proximity to the existing Afton to Stilesville 115 kV transmission line makes this location unique and desirable.

The Project Sponsor selected the proposed site for the Facility because of the presence of the wind resource, the presence of available land and willing landowners, the relative ease of access to the site, low number of nearby

residences to be affected by the proposed turbines, and the proximity and relative ease of connecting to the existing electric transmission grid. These factors combine to make the proposed site desirable from the standpoint of large-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 landowner participants and host communities, and adequate access to the bulk power transmission system), the Article 10 Application will not include a fully developed evaluation of the comparative advantages and disadvantages of alternate locations outside the Facility Area. It is 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. Therefore, the Article 10 Application will provide information regarding the general site selection process for the Facility, some of which is summarized below.

(1) Environmental Setting

The Facility is located within the glaciated Appalachian Plateau physiographic province of New York State. Elevations range from 800 feet above mean sea level (AMSL) at the Susquehanna River to 2,000 feet AMSL in the Catskill Mountains to the East. The Appalachian Plateau in Broome County is characterized by well-rounded rolling streams and rolling hills formed by millions of years of water erosion by the glaciers of the Pleistocene era. The Facility area is characterized by high elevation relative to the local topography, and is located at the boundary of the Upper Delaware and Susquehanna river basins. A description of the Facility's effects on water resources and aquatic ecology will be included in Exhibits 22 and 23 of the Article 10 Application; however, a description of siting process (i.e., avoiding permanent impacts to water resources, avoiding flood prone areas, etc.) will be outlined in this section of the Application.

The majority of the population is located around the western half of the county and is most dense in the Binghamton area. In the eastern portion of Broome County where the study area is located, human disturbances such as settlement and agriculture persist typically within valleys where the soil is fertile, while ridges remain forested and subject to timber harvesting or dairy farming. The Facility Area is comprised of approximately 38,000 acres consisting mostly of forest (85%), and agricultural land (10%). Three state forests comprise approximately 1,500 acres (4% of the total Facility Area) (see Figure 2).

The Facility Area contains unique geologic and pedologic characteristics. Over 90% of the soil in Broome County stems from unsorted glacial till (USDA, 1971). The majority of the bedrock in Broome County is of the upper

Devonian age, and is composed of sedimentary rocks. The dominant soil types underlying the Facility Area are consistent with glaciated areas, and consist of members of the Volusia, Lordstone and Oquaga, and Mardin types (USDA, 1971). While Exhibit 21 of the Article 10 Application will provide additional information on geology and soils at the Facility Site, this section of the Application will provide a description of the Project Sponsor's siting criteria (i.e., suitable subbase materials, avoiding poor soils or steep slopes) used for identifying potential turbine sites.

Local geology, pedology, and topography is not commonly supportive of wetlands. National Wetland Inventory (NWI) mapping indicates there 463 units totaling only 800 acres of various wetland communities, while 8 DEC designated wetlands totaling 175 acres occur in the Facility Area. Exhibit 22 of the Article 10 Application will provide more information pertaining to terrestrial ecology and wetlands, their proximity to the proposed Facility, and the Facility's potential impacts on those features.

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

The Project Sponsor has identified several recreational facilities in the area including, but not limited to, trails (i.e., hiking, snowmobile, biking, etc.), state and local parks, and state forests (see Figure 10). A Phase 1A Historic Architectural Resources Survey and Work Plan is currently being developed for the Facility. As stated previously in Section 2, the Project Sponsor has initiated coordination with local and regional Native American Nations, including specific conversations with staff from the Oneida Indian Nation. Information from these on-going discussions, regarding potential "stone landscapes" and impact avoidance/mitigation measures, will be provided in the Work Plan, and summarized in the Article 10 Application. The information and recommendations included in these reports will 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 Facility. Exhibits 20 and 24 of the Article 10 Application will provide more detailed information on recreational, cultural, and other concurrent uses of the area.

(3) Engineering Feasibility

A Preliminary Geotechnical Evaluation will be prepared to specifically address the suitability of the on-site surface/subsurface conditions to support turbine foundations, and provide specific recommendations regarding foundation design. The details associated with this evaluation will be presented in Exhibit 21 of the Article 10 Application. With respect to interconnections, please see (b)(4) below.

As discussed in Section 2.6(d) of this PSS, the Project Sponsor is conducting a rigorous wind resource analysis for this Facility, the intent of which is to optimize the turbine layout to maximize energy production within the context of the existing, site-specific constraints. A summary of potential turbine technologies and site suitability issues will be included in the Article 10 Application.

(4) Reliability and Electric System Effects

A System Reliability Impact Study (SRIS) is anticipated to be completed in Q1, 2018 which will evaluate the impact of the Facility on the reliability of the New York State Transmission System and to evaluate alternatives to eliminate adverse reliability impacts, if any, resulting from the Facility. Based on the results of the draft Feasibility Study Report, the Facility is not expected to result in adverse impacts to transmission system. Exhibit 5 of the Article 10 Application will provide a more detailed description of the Facility's effects on the reliability of the regional transmission system.

(5) Environmental Impacts

The Facility layout will be designed, in part, through an iterative process of identifying existing access routes and disturbed sites as well as sensitive environmental resources (e.g., agricultural land, steep slopes, flood-prone areas, wildlife habitat, wetlands/streams) and siting Facility components to avoid and minimize impacts to these resources to the extent practicable. This iterative process will be summarized in the Article 10 Application.

(6) Economic Considerations

The purpose of the Facility is to create an economically viable wind-powered electrical-generating facility that will provide a significant source of renewable energy to the New York power grid. To fulfil these goals, adequate wind resource and access to the existing transmission system are some of the most important considerations in selecting the Facility Site. The Facility Site has ample wind resource for the proposed Facility and is located in close proximity to the existing bulk power transmission system. Exhibit 6 of the Article 10 Application will provide information about the wind resource at the Facility Site, and Exhibit 34 will provide information about the electric interconnection. With respect to cost, the Article 10 Application will provide an estimate of the total capital costs of the Facility in Exhibit 14. With respect to alternatives analysis, the Project Sponsor will review construction costs, access road improvements and/or other related costs as part of the iterative design process. Specifically, the Project Sponsor will provide a description of the following economic considerations in this section of the Article 10 Application:

- Proximity to the 115 kV Afton – Stilesville transmission line and the resulting lower costs for interconnection
- Proximity to interstate and the resulting construction cost efficiencies
- Higher output turbine and the resulting need for fewer turbines
- Scale of development and the need to offset fixed costs

(7) Environmental Justice

As indicated in Section 2.28 of this PSS, the Facility is not expected to impact any environmental justice areas.

(8) Security, Public Safety, and Emergency Planning

Although the proposed Facility is located in a low density agricultural and forested region, and overall safety and security risks associated with the Facility are anticipated to be minimal, the Article 10 Application will include a description of public safety impacts associated with the siting of various Facility components. 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 Response Plan (ERP) will be developed before the start of construction and will outline the safety plans of the Facility throughout its lifecycle, in coordination with local first responders. The information contained in the ERP will be developed in conjunction with local emergency service providers, and will be made available to the employees of the Project Sponsor and any visitors or workers to the Facility Site of the procedures to follow in the event of an emergency.

(9) Public Health

Impacts to public health are anticipated to be avoided during construction and operation of the proposed Facility. However, the Article 10 Application will include a brief description of public health and safety implications associated with siting various Facility components. Additional detail is provided in Section 2.15 of this PSS and will be presented in Exhibit 15 of 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 proposed Facility is located in an area of very low seismic hazard, with a 1% or less chance that peak ground acceleration in a 50 year will exceed 10%.[4] Broome

[4] Peak acceleration is the largest increase in velocity recorded by a particular station during an earthquake.

County has no recorded earthquakes (DHSES, 2014). 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 Facility Site. Exhibit 21 of the Article 10 Application will provide a more detailed description of the Facility's potential vulnerability to seismic disturbances.

The Project Sponsor selected a wind generation facility, instead of a coal plant, because it will contribute positively toward efforts to combat climate change, and because wind facilities generate significant amounts of power without GHG emissions or air pollution. The site was deemed appropriate because its character fits well with the list of constraining factors in subsection (a) of this PSS Section. 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, mercury, and carbon dioxide. The proposed Facility is anticipated to have significant, long-term beneficial effects on the use and conservation of energy resources relative to other generation sources. The operating Facility will generate up to 124 MW of electricity without consuming cooling water or emitting pollutants.

(11) Objectives and Capabilities of the Project Sponsor

With respect to capabilities, the Project Sponsor is a wholly owned subsidiary of Calpine Corporation (Calpine), in Houston, Texas with offices in Wilmington, Delaware, and Dublin, California.

Calpine draws from extensive experience with utility-scale wind projects. Calpine uses a unique approach to power development by partnering with landowners and communities to establish itself as a premier developer, owner, and operator of electrical generation projects in the U.S. Calpine specializes in developing, constructing, owning and operating generation assets that use advanced technologies to produce power in a low-carbon and environmentally responsible manner. In early 2015, Calpine launched a new development group with the goal of being a long-term owner and operator of wind energy projects throughout the United States. Calpine's wind development team has more than 40 years of experience and has developed over 2,500 megawatts of greenfield wind energy projects, which are in operation currently. See http://www.calpine.com/operations/commercial-operations/development/new-yorkwind-projects for additional information. As a wind developer, the Project Sponsor will evaluate potential wind turbine models for use at the Facility Site. However, a detailed evaluation of other technologies (i.e., solar, etc.) will not be included.

The Towns of Windsor and Sanford have been selected as the location of the proposed Facility because Calpine has determined the area meets the company's objective of creating 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 within Broome County;
- 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.

Given Bluestone Wind's capabilities, the proposed Facility best advances the company's objectives, as well as the objectives of the State Energy Plan, Clean Energy Standard, and Reforming the Energy Vision initiative.

(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 Project Sponsor 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. Therefore, the majority of the alternatives discussed will be those that can be accommodated within the proposed Facility Area where a lease agreement with the landowner is in place, and within the limitations of these private lease agreements, as it pertains to the size, location, and nature of permissible activities. On-site alternatives will address the following considerations:

(1) General Arrangement and Design

The general arrangement and design, include turbine layout, access roads, collection lines, ancillary facilities (concrete batch plant, O&M building, etc.), and interconnection facilities.

(2) Technology

It is the Project Sponsor's intent and objective to develop a wind power project which harnesses the existing wind resource in Broome County. Accordingly, other power generative technologies (i.e. solar, geothermal, etc.) are not considered reasonable alternatives, as they would either not be renewable, or would not take advantage of the abundant wind resources available in this location.

Regarding alternative wind turbine technologies, the Project Sponsors is proposing to utilize the latest in wind power generation technology to enhance project efficiency and safety. Additional detail regarding alternative 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, as do the practical constraints inherent in there being a limited number of available turbine models and technologies. These constraints make a significantly larger number of turbines than what is proposed within the Facility Area highly unlikely. A smaller number of turbines (with less generating capacity) is not economically advantageous. The Project Sponsor 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 produces lower cost energy. The Article 10 Application will address alternate scale and magnitude of the Facility in the context of the interconnection agreement (i.e., a 124 MW Facility). This will include a discussion of the economics of scale, and the ramifications of utilizing differently sized turbines. 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

A discussion of the final, maximum number of turbines that could be constructed based on siting factors (i.e., setbacks) and identification of the position of all potential turbine locations, as well as alternate layouts within the Facility Site, will be included in the Article 10 Application. The proposed location and spacing of the wind turbines will be directly related to a number of factors, including landowner participation, a wind resource assessment, the location of existing access roads, environmental factors, constructability issues, and the consideration adjacent land uses or any potential zoning constraints. Factors considered during the layout design process for any on-site alternative must 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 Facility Site.
- *Topograph*y. Elevation is a key component of maximizing the capture of wind energy, and higher elevations typically correspond to higher wind resource. In addition, turbine manufacturers require certain elevation and topography criteria be met (i.e., not locating a turbine on too steep of a slope or on too narrow a ridge), or else they will not certify the turbine location as suitable and the turbine cannot be constructed. To ensure turbines were placed in suitable locations, all potential turbine sites were evaluated to meet elevation and topography criteria.
- *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 Facility turbines will be located with enough space between them to minimize wake losses and maximize the capture of wind energy.
- *Local Zoning.* The Town of Sanford has adopted regulations pertaining to renewable energy systems. These regulations specify criteria under which applications for commercial wind energy conversion systems will be evaluated. To maximum extent possible, the Facility will attempt to meet the requirements contained local Wind Energy Regulations, and any exceptions will be discussed in Exhibit 31 of the Article 10 Application. The Town of Windsor has not adopted new regulations pertaining to wind energy.
- *Wetlands and Waterbodies.* Facility components will need to avoid and/or minimize impacts to wetlands and 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 should be sited in such a way that does not cause any significant adverse effect to the Town's or County's existing or proposed trails, trail facilities, and recreation areas.
- *Cultural Resources*. The Facility will be designed to avoid any significant impact to prehistoric or historic resources.

The Facility's turbine layout is also a function of the turbine model that will ultimately be used. As previously mentioned, 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 124 MW. For example, if a 3.8 MW model is selected, then up to 32 turbines will be constructed. The turbine model ultimately selected for this Facility will be based upon 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. However, to assure a worst-case evaluation, the Article 10 Application will assess the impacts associated with up to 40 turbine locations, even though fewer turbines may be built.

This section of the Article 10 Application will also address why turbines of certain heights and dimensions are best suited for this Facility, including an analysis of compliance with and proposed local height restrictions, and reasonable alternatives to those turbines. The alternatives analysis will compare the potential impacts of the turbine(s) proposed for the Facility, with the potential impacts of using fewer, taller turbines or more numerous, shorter turbines. Further, the alternatives analysis will discuss the benefits and tradeoffs associated with a turbine layout that would not require the waiver of local laws, in the event that any such waivers are requested for the Facility, and with turbine layouts that eliminate other environmental impacts.

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

Preliminary results of the draft Feasibility Study Report, do not demonstrate any adverse effects on the New York State power grid. See Section 2.5 for a more detailed discussed of electrical system effects.

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

The Project Sponsor will design the Facility 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 description of 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 Facility are anticipated to include positive impacts on socioeconomics (e.g., increased employment, increased revenues to local municipalities, and school districts), 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 Facility will also benefit ecological and water resources and human health, and aid New York in avoiding the potentially devastating effects of climate change. The Article 10 Application will discuss why the proposed technology, scale, and timing of the Facility are best suited to promote public health and welfare.

(f) No Action Alternative

The no action alternative assumes that the Facility Area would continue to exist as is. This no action alternative would not beneficially or adversely affect current land use, existing natural resources, ambient sound 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 is not a preferred alternative.

(g) Energy Supply Source Alternatives

The Facility is proposed to harvest abundant, renewable wind resources to generate wind energy. For that reason, alternative energy supply sources such as fossil-fuel and biomass combustion would not meet the goals of the Facility, and would not aid New York in meeting its renewable energy goals. Alternative renewable or low-carbon energy generation technologies, such as nuclear or solar would not advance the Facility's goals of harvesting abundant wind resources at this location to generate 124 MW of renewable wind energy. Therefore, the Article 10 Application will not evaluate alternative energy supply sources.

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

Due to the constraining factors of siting wind energy projects discussed in Section 2.9(a) of this PSS, a comparison of the advantages and disadvantages of the proposed and alternative energy sources will not be discussed in the Article 10 Application. Demand-reducing alternatives are not within the objectives and capabilities of the Project Sponsor; therefore a comparative assessment of such alternatives will not be included.

(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 discussion of why the proposed Facility is best suited to promote public health and welfare.

2.10 CONSISTENCY WITH ENERGY PLANNING OBJECTIVES

(a) Consistency with State Energy Plan

The Application will demonstrate that the Facility advances the State's achievement of goals outlined in the most recent State Energy Plan (See NY State Energy Law 6-104), which was issued on June 25, 2015. The State Energy Plan contains a series of policy objectives to increase the use of energy systems that enable the State to significantly reduce

greenhouse gas (GHG) emissions, and increase renewable energy generation, while stabilizing energy costs and stimulating the green economy. 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% generation of electricity from renewable energy sources by 2030—approximately 33.7 million megawatt hours of new generation, which is projected to include between 4,000 and 5,900 megawatts of new land-based wind energy.

The State Energy Plan states that "[r]enewable energy sources, such as wind, will play a vital role in reducing electricity price volatility and curbing carbon emissions" (NYSEPB, 2015). In furtherance of these objectives, on August 1, 2016, the Public Service Commission (PSC) issued approval of the State's Clean Energy Standard (CES), which represents the most comprehensive and ambitious clean energy mandate in the state's history, to fight climate change, reduce harmful air pollution and ensure a diverse and reliable energy supply. The CES will require 50% of New York's electricity to come from renewable energy sources like wind and solar by 2030, with an aggressive phase in scheduled over the next several years.

The proposed Facility fully advances the objectives of the State Energy Plan by bringing the State closer to achieving the 50% renewable energy generation objective, as will be demonstrated in the Application, by reducing greenhouse gas emissions from New York's energy sector and offsetting inefficient fossil fuel generation that results in air pollution and higher energy prices, contributes to the growth of New York's green economy, and infuses millions of dollars of private investment in New York State and the host communities. The Article 10 Application will provide a detailed analysis of the ways in which the Bluestone Wind Project advances the many objectives of the State Energy Plan and the CES, and assists the State in achieving the renewable energy generation objective set forth therein. The Application will also provide a statement demonstrating the Facility's degree of consistency with the State Energy Plan.

Specifically, the Application will highlight how the Facility supports the five "Guiding Principles" of the State Energy Plan, the seven goals listed in the "Initiatives and Goals" section, the specific short- and long-term goals identified for the Reforming the Energy Vision (REV) initiative, as well as New York's 2030 Targets, as identified in the CES and the State Energy Plan. All of these planning documents and the principles articulated therein are interrelated and interdependent; collectively, they aim to spur progress across sectors and throughout the State's many regions, to push the State toward a cleaner, greener, cheaper, more diverse, more flexible, market-based energy future. As this section of the Application will demonstrate, projects such as the Bluestone Wind Project will play a key role in advancing this market transformation, and signify the responsiveness of the private sector to the State's articulated goals and promised reforms.

(1) Five Guiding Principles of the State Energy Plan

REV, as a core initiative of the Plan, is guided by a set of principles that will drive the shift in the State's approach to energy policy. These principles are described on pages 49-54 of the 2015 State Energy Plan, and summarized as follows:

- *Market Transformation* – REV, regulatory reforms, initiatives, and programs will focus on market transformation, allowing for a new, integrated, and self-sustaining private sector-driven clean energy market.
- *Community Engagement* – communities across New York State play a vital role in REV, and one of its fundamental strategies will be for the State to engage with communities.
- *Private Sector Investment* – by removing market obstacles, REV will facilitate development of competitive markets, and will look to increase the leverage of private sector capital investment per ratepayer dollar.
- *Innovation and Technology* – REV will align energy innovation with market demand. New York State Energy and Research Development Authority (NYSERDA) and New York Power Authority (NYPA) will partner with New York's academic research institutions and the private sector to support the development of clean energy technology and innovative business and financing models, along with training the next generation to support the growth of the clean energy economy.
- *Customer Value and Choice* – REV aims to empower customers and enable the private sector to provide the services and energy options that customers value. Residential, commercial, and industrial customers will have the tools to easily and efficiently manage when and how much power they will consume.

Facilities like the Bluestone Wind Energy Facility fully advance the principles of the State Energy Plan. The Facility is a private sector-driven clean energy project, which provides services and energy options that customers value. Wind power is sustainable, clean energy that encourages competitive energy markets. Large scale renewables, such as wind power, are part of a more cost effective and clean energy system.

(2) Seven Initiatives and Goals of the State Energy Plan

The Initiatives and Goals section of the 2015 State Energy Plan identifies the following distinct goals and initiatives:

- Renewable Energy
- Buildings and Energy Efficiency
- Clean Energy Financing

- Sustainable and Resilient Communities
- Energy Infrastructure Modernization
- Innovation and R&D
- Transportation

The Facility will advance the Renewable Energy initiative through providing a source of pollution-free renewable energy to the New York power grid for the operating life of the Facility. Within the Renewable Energy section of the State Energy Plan, there are eight recommended actions and programs that are or will be implemented, including the large-scale renewables (LSR) strategy.

As a commercial scale wind energy project, development of the Facility is consistent with the LSR strategy outlined by in the Renewable Energy section of the State Energy Plan. Immediate benefits of LSRs like the Facility include economic development and jobs for communities, greater stability in customer bills, cleaner air, a healthier environment, and in the long run, benefits may include below-market electricity prices. Wind projects like the Facility help New York's economy over the lifetime of these facilities and create statewide benefits.

(3) Short- and Long-Term REV Goals

In order to turn the broad principles of the State Energy Plan into concrete action, the State's REV has articulated specific short- and long-term goals, which will be discussed in the Application. These include:

- Making energy more affordable for all New Yorkers
- Building a more resilient energy system
- Empowering New Yorkers to make more informed energy choices
- Creating new jobs and business opportunities
- Improving our existing initiatives and infrastructure
- Supporting cleaner transportation
- Cutting greenhouse gas emissions 80% by 2050
- Protecting New York's natural resources
- Helping clean energy innovation grow

(4) 2030 Targets in the State Energy Plan, and the CES

The 2015 State Energy Plan establishes statewide clean energy targets to be met by 2030; The CES is intended to be the framework through which these goals may actually be achieved. The 2030 goals are described on page 112 of the State Energy Plan, and include:

- 40% reduction in GHG emissions from 1990 levels
- 50% of electricity generation from renewable energy sources
- 600 trillion British thermal unit (BTU) increase in statewide energy efficiency.

The Facility advances the first of these two initiatives by providing a reliable source of electricity from clean, renewable energy sources with zero GHG emissions. According to an extrapolation of 2012 data released in 2015 by the U.S. Environmental Protection Agency *Emissions and Generation Resource Integrated Database* (eGRID2012), the Facility is expected to displace approximately 200,000 tons of carbon dioxide (CO2) emissions from conventional power plants on an annual basis (USEPA, 2015).

(b) Impact on Reliability

A System Reliability Impact Study (SRIS) will be completed for the Facility on behalf of the New York Independent System Operator (NYISO) by Q1, 2018 and the results will be presented in Exhibit 8 of the Article 10 Application, with certain issues such as reliability addressed in greater detail in Exhibit 10. The Article 10 Application will describe the impact of the proposed Facility on electrical reliability in the State in greater detail using analyses conducted as part of the SRIS.

(c) Impact on Fuel Diversity

The proposed Facility will improve fuel diversity within the State by increasing the amount of electricity produced by wind power. 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 Facility 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, 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 resources. The Article 10 Application will identify the NYISO Zone within which the Facility will be located, and how the Facility relates to regional electricity demands, and reliable and viable electricity generation.

(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 the western and northern portion of the State, 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 (NYISO, 2014). These transmission enhancements will help transfer 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 Facility 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 Facility will contribute to reducing overall demand for fuel, easing fuel delivery constraints and advancing the State Energy Plan's goal of 50% generation from renewables by 2030.

(g) Impact on Energy Policy

In line with the discussion required in Subsection (a) of this Exhibit, the Application will include a discussion of the Facility's broader impact on State energy policy and long-range planning objectives. The immediate benefits of utility scale renewable energy projects, such as the proposed Facility, include economic development and jobs for the community, greater stability in customer bills, cleaner air, new energy infrastructure, and compliance with State and

Federal mandates. As the recent Final Generic Environmental Impact Statement (FGEIS) for the Reforming the Energy Vision (REV) and the Clean Energy Fund (CEF) states, the clean energy economy provides clean, reliable, and affordable power while creating jobs and producing other economic and environmental benefits. 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 greenhouse gases (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 previously established a Renewable Portfolio Standard (RPS) which initially called for an increase in state-wide renewable energy generation to 25% by the year 2013 (PSC, 2004). In an Order issued in January 2010, the PSC expanded the RPS target from 25% to 30% and extended the target date from 2013 to 2015. The RPS was expected to reduce CO2 emissions by 50 million tons over the life of the projects (NYSERDA, 2015). The CES replaces the expired RPS, and shifts the State's strategy for encouraging development of LSR from a State-run procurement model under the RPS, to the CES's market-based solutions, such as clean energy buying requirements for utilities and a system of tradable renewable energy credits designed to recognize and monetize the value to society that green energy provides.

NYSERDA has proposed a comprehensive CEF to ensure continuity of the State's clean energy programs after 2015. The CEF is one part of New York State's 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.

LSR, which are larger utility-scale renewable energy project developments, such as the Bluestone Wind Project, are a key component of the REV Order, which outlines the issues and tasks necessary to begin to resolve the technical, marketplace, and regulatory challenges necessary to achieve the REV goals. REV recognizes that large-scale renewables, which require more capital and take more planning than other facilities, will be critically important to meeting greenhouse gas emissions reduction goals. 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).

In May 2016, the Department of Public Service (DPS) released the Final Supplemental Environmental Impact Statement ("CES FSEIS") for the Clean Energy Standard. In the CES FSEIS the DPS recognizes the vital rule that

renewable resources such as wind play in helping the state met its goals under the State Energy Plan. Projects such as Bluestone Wind are instrumental to the State in reaching its energy goals.

(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 Project Sponsor has does not intend to present proposed Facility Location alternatives outside of the identified host communities. Rather, the Article 10 Application will focus on comparing alternative facility configurations within the proposed Facility Area. Such alternatives may include alternative project layouts, alternative project size, alternative turbine heights, and a no action alternative and as discussed in Section 2.9.

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

The Facility will have a positive impact on public health and welfare by producing electricity with zero emissions. Electricity delivered to the grid from wind energy projects can off-set the generation of energy at existing conventional power plants, including inefficient fossil fuel plants responsible for harmful air pollution. 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). When the proposed Facility is generating power, electricity generation diversity will be increases.

2.11 PRELIMINARY DESIGN DRAWINGS

The Preliminary Design Drawings prepared in support of Exhibit 11 of the Article 10 Application will be prepared using computer software (i.e., AutoCAD), and these drawings will be labeled "for permitting only, not for construction". The Preliminary Design Drawings will be prepared under the direction of a professional engineer, who is licensed and registered in New York State. Four, full size copies of the drawing set, utilizing a common engineering scale, will be provided to DPS Staff. A single, full size drawing set will also be provided to the NYSDEC Central Office and to Region 7 Staff (total of two full sized sets). All other printed copies (included with the Application) will be at a legible and reduced size (i.e., 11"x17"), also utilizing a common engineering scale (for example: 1"=60'; 1"=100; or 1"=200'). Additionally, a CD-ROM containing electronic PDF files will be submitted to DPS Staff.

(a) Site Plan

The Preliminary Design Drawings will constitute the site plan for the Facility and likely will be prepared at a common engineering scale (e.g. 1" = 100'). Adjoining property will be depicted using publicly available data and based on stakeholder consultations undertaken prior to submission of the Application.

The Preliminary Design Drawings for the Facility will include the following features:

- Access road travel lanes (temporary and permanent);
- Turbine foundations, tower outline, and crane pads;
- Turn-around areas to be used during turbine deliveries;
- Proposed grading (temporary grading for construction purposes and approximate final contours);
- Electric collection lines – the required number of circuits for each collection line route will be indicated on site plans; also, overhead and underground cable routes will be differentiated with specific line-types;
- Limits of disturbance for all project components (turbines, access roads, buildings, electric lines, substation, etc.);
- Clearing limits for all project components (turbines, access roads, buildings, electric lines, etc.);
- Indication of all permanent right-of-way (ROW) for all electric cable installations;
- Proposed locations of any horizontal directional drilling for buried collection line (including laydown area and approximate lengths of trenchless installations);
- Project substation outline, including access driveway and fence-line;
- Overhead transmission
- O&M Building and parking area;
- Permanent meteorological towers;
- Laydown, staging and equipment storage areas;

(b) Construction Operations Plan

Information pertaining to construction operations and phasing will be included in the Article 10 Application on the Preliminary Design Drawings which will depict the location of all anticipated construction staging/material laydown areas, which is where the contractor trailers/offices and parking areas will be located during construction. With respect to notable excavations associated with the Facility, the Preliminary Design Drawings will include plan and profile sheets, each of which will indicate the anticipated cut and fill associated with notable Facility construction activities. 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, more spread out, and designed to fit within the existing land form. An erosion control plan will be presented in the Application consistent with the requirements of 16 NYCRR 1001.11(c). Publicly available contour data will be obtained from Broome County (2-foot contour intervals) and using AutoCAD software a three-dimensional (3D) surface will be created. Existing and proposed contours (2-foot intervals) will be depicted on the plan view sheets of the Preliminary Design Drawings. In addition, a soils type map will be included with the drawing set. Exhibit 21 of the Article 10 Application will provide more detailed information such as depth to bedrock, preliminary cut and fill calculations, and a Preliminary Geotechnical Investigation.

(d) Landscaping Plan

Based on the Project Sponsor's experience with wind power development, the potential locations for landscaping plans are typically only associated with substations. The need for such a plan for the substations will be evaluated in the Article 10 Application.

With respect to those areas where forest cover may be removed due to Facility construction and operation, a vegetation impact map will be developed by depicting the Facility footprint over recent aerial imagery, and the acreage of tree removal will be presented in the exhibit narrative. However, an on-site survey of all trees to be removed will not be included in the Article 10 Application.

(e) Lighting Plan

The Article 10 Application will provide details of lighting associated with turbines, substation, and the O&M building, including the results of consultations with the Federal Aviation Administration (FAA) on hazard lighting. This will include a brief description regarding the feasibility of radar activated lighting.

(f) Architectural Drawings or Typical Details

The Article 10 Application will contain a typical drawing of an O&M building and substation (including preliminary design of substation transformer oil spill containment system) based on the Project Sponsor's experience. Specifically, the typical O&M drawing elevations will be based on the Project Sponsor's standard O&M building design, layout and specifications, and current industry standards along with any specific state building code requirements or the local law

provisions. The drawings will indicate the anticipated length, width, height, material of construction, color and finish of the building. Minor changes to the typical O&M building drawings may be necessary based on final design. Aside from the substation, the O&M building is the only stand-alone building the Project Sponsor anticipates constructing as part of the Facility. Elevation information for turbines or met towers will consist of manufacturers catalogues information such as brochures.

(g) Typical Design Detail Drawings

The Preliminary Design Drawings and various appendices of the Article 10 Application will contain typical design details associated with the Facility, anticipated to include:

- Access roads
- Turbine laydown areas
- Horizontal directional drilling
- Buried and above-ground collection and transmission lines
- Wind turbine foundations
- Wind turbine brochures
- Typical wind turbine technical and safety manuals

(h) Interconnection Facility Drawings

A single line drawing of the POI substation will be included in the System Reliability Impact Study (SRIS), which will be appended to the Article 10 Application. Additional details on the POI substation will be available once the Facilities Study is complete. However, the Facilities Study will not be completed until after the Certificate is issued by the Siting Board. The general arrangement of the POI substation will also be included with the Article 10 Application.

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

The list of codes and standards that have been and will be considered during the design, construction, operation and maintenance of this Facility is extensive. The Article 10 Application will provide a representative list of applicable codes and standards, which will be updated following Certification.

2.12 CONSTRUCTION

(a) Preliminary Quality Assurance and Control Plan

The Balance of Plant (BOP) contractor, hired to construct wind farm, is typically responsible for development and implementation of a final Quality Assurance and Control Plan. The Project Sponsor will require the BOP to provide a final Quality Assurance and Control Plan prior to starting construction, and all sub-contractors will be required to follow that Plan. The Quality Assurance and Control Plan is site specific and therefore not finalized until the BOP Contractor has been selected and the Facility is proceeding with construction. The Project Sponsor will submit the final Quality Assurance and Control Plan to the Siting 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 Project Sponsor's historical experience with plans that were developed for its energy generation facilities across the country.

1. Statement of Authority and Responsibility
2. Organization
3. Safety
4. Quality Assurance Program
5. Facility 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
13. Security
14. Managing Construction Contingencies

A Preliminary Quality Assurance and Control Plan will be provided in the Article 10 Application, based upon this outline. In addition, the Preliminary Quality Assurance and Control Plan will be provided to all BOP contractors invited to bid on the construction of the Facility.

(b) Conformance with Public Service Commission Requirements

(1) Protection of Underground Facilities

The Project Sponsor will require its contractors to comply with the requirements of the Public Service Commission regarding the protection of underground facilities (16 NYCRR Part 753) and will become a member of Dig Safely New York. The Project Sponsor will work coordinate with the pipeline companies identified in the Master Stakeholder List regarding gas pipelines within the Facility Area. Further, the Project Sponsor will consult with local municipalities to determine whether any underground facilities, such as public water or sewer lines, are located in the vicinity of proposed ground disturbances.

(2) Pole Numbering and Marking Requirements

The Project Sponsor and its contractors will comply with the Commission's regulations regarding identification and numbering of above ground utility poles (16 NYCRR Part 217).

(c) Plans to Avoid Interference with Existing Utility Systems

Because the Facility area is rural in nature, rather than a more suburban or urban setting, there are fewer existing utility systems with which the Facility may interfere. The first step in avoidance of interference with existing utility systems is to identify those entities that have utilities within the Facility 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 Facility. The Project Sponsor will also talk to landowners regarding utilities located on their properties. This information on utilities will be taken into account during Facility component siting in order to avoid and minimize conflicts with utilities. Data on natural gas and oil wells within the vicinity of the Facility will be obtained from the NYSDEC and NYSDPS, which are depicted in Figure 6 of this PSS, will be included in the Article 10 Application.

The Project Sponsor will provide the results of any PIP and landowner utility information to the BOP contractor. Prior to construction, the BOP contractor 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, requirements for which will be included in the Preliminary Design Drawings and summarized in the Article 10 Application. The BOP contractor will also be required to mark out any locations of planned excavating. This will ensure that both the Facility excavation and existing utilities are marked to determine any conflicts.

The Article 10 Application will include a map of all existing utility systems known at that time. This map will not be comprehensive but will establish what has been identified to date. A plan for continuing to identify existing utilities will

also be provided. 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 once and there may be changes to utilities between the time the Facility is certificated and the initiation of construction. The Article 10 Application will also provide a discussion of setback distances from existing utilities that the Facility will adhere to.

Post-construction, the Project Sponsor will register with one-call to ensure that its underground collection lines are registered so that they are not impacted by future utility work.

(d) Procedures for Addressing Public Complaints and Disputes

The Project Sponsor will develop a Complaint Resolution Plan that will be provided in the Article 10 Application. The Complaint Resolution Plan will include specification of commitments for addressing public complaints, and procedures for dispute resolution during Facility construction and operation of the Facility. The Complaint Resolution Plan will include steps on informing the public about the complaint process. Complaints will be able to be registered in person at the Facility's O&M building, via phone, or by writing. In addition, the Plan will include a procedure for review and transmittal of complaints, updates and plans for resolution to DPS Staff. The Complaint Resolution Plan will implement a five-point complaint response program for all registered complaints:

- Community engagement
- Process for gathering and analyzing information regarding the complaint
- Complaint response and tracking
- Complaint response follow up
- Further action (If deemed necessary)

The Article 10 Application will provide a detailed description of each of these steps in the complaint resolution process. The Application will also include a process for notification of landowners with drinking water wells within 1 mile of any proposed blasting activities, if applicable, and a complaint resolution process related thereto. Please refer to Exhibit 23 Section (b) for more information.

2.13 REAL PROPERTY

(a) Real Property Map of Generating Site

The Article 10 Application will include a tax parcel map of the Facility Area which depicts the following: (i) the tax parcel IDs for land parcels that are part of the Facility; (ii) current land use and zoning for the parcels that are part of the

Facility; (iii) necessary access and utility easements for the Facility; (iv) proposed laydown area(s) and operation and maintenance building; and (v) public roads planned for use as access to the Facility Area. The data for this map will be obtained from the Broome 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 Facility Area 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 areas will be prepared and included in the Article 10 Application.

(c) Demonstration that the Project Sponsor Has Obtained Title or Lease Interest in Facility Area

The Article 10 Application will provide a description of the agreements for parcels that are secured or under option for the Facility, including ingress/egress access to public roads, easements. A statement that the Project Sponsor has or will obtain the necessary real property rights for all parcels needed for the Facility will be included. The Project Sponsor will continue its internal due diligence to assure that the Facility parcels are not encumbered in a manner that is inconsistent with future wind power use. Please also note that the Project Sponsor has been working with all public and private landowners to obtain leasing or easement rights for the Facility since 2016, and will continue to work towards securing all land necessary to construct and operate the Facility.

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

The Article 10 Application will provide a statement that the Project Sponsor has or will obtain the necessary property rights for the Facility interconnects.

(e) Improvement District Extensions

Based on preliminary discussion with local municipal representatives, the Facility will not need any improvement district extensions, and therefore demonstration that the Project Sponsor can obtain such extensions is not anticipated to be needed.

2.14 COST OF FACILITIES

(a) Total Capital Costs

The Project Sponsor will provide an estimate of the total capital costs of the Facility. Construction and turbine costs vary year to year based on, but not necessarily limited to, availability, competition, commodity pricing and turbine model specification changes. Because a turbine order for the Facility will not be placed until after Certification, all costs presented will be an estimate based on the Project Sponsor's knowledge of market prices and historical experience. Total estimated capital and intangible costs are provided in a range, which encompasses the estimated cost per kilowatt of turbine models presented in the Article 10 Application. Specifically, the costs to be presented will represent the estimated upper and lower bounds of turbine model costs associated with the range of turbines to be presented in the Article 10 Application. The cost estimate will provide a total cost using the lower and upper bounds of this range while keeping the rest of the cost components consistent. Development, legal, and insurance costs are not expected to change based on the turbine model selected. Engineering and turbine related construction costs will vary depending on the turbine model ultimately selected due to foundation specifications, number of turbine locations constructed, access road specifications, etc.

Capital costs include development costs, construction design and planning, equipment costs, and construction costs, and are broken down by:

- Turbine
- Engineering
- Construction (including contingency)
- Insurance
- Development (including contingency)

(b) Source of Cost Estimates

The cost estimate is based on the following sources:

- Wind industry standards
- Project Sponsor experience
- Historical and current price quotes

The cost estimate to be provided will be in 2017 or 2018 dollars.

(c) Work Papers

If requested by DPS, the Project Sponsor will provide an internal work paper or cost estimate documentation that describes the assumptions in estimating the total capital costs as described above in (a).

2.15 PUBLIC HEALTH AND SAFETY

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

New York State's 2015 State Energy Plan calls for reducing Greenhouse Gas (GHG) emissions from the energy sector; a critical step in protecting the health and welfare of New Yorkers. 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 from combustion of fossil fuels. 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, property and natural resources. Renewable energy, such as wind, solar and hydroelectric, avoids the many health risks associated with the combustion of carbon-based fuels and, while these means of producing electric power are not risk-free, increasing the proportion of New York's electricity needs met by wind, solar, and water will, in general, decrease health risks associated with electricity production. Recognition of the benefits of renewable energy has significantly contributed to New York's nation-leading commitment to renewable energy development through the Clean Energy Standard and is one reason New York established the 50% by 2030 goal set forth in the New York State Energy Plan.

The Article 10 Application will include a statement and evaluation that identifies, describes, and discusses all potential significant adverse impacts of the construction and operation of the Facility, the interconnections, and related facilities on the environment, public health, and safety, at a level of detail that reflects the severity of the impacts and the reasonable likelihood of their occurrence, and that identifies the current applicable statutory and regulatory framework.

The Article 10 regulations require the assessment of potential risks associated with the operation of the Facility, which are generally limited to effects associated with movement of the blades and electrical components within the nacelle. Some of the unlikely risks associated with a wind power include ice shedding, tower collapse, blade failure, and fire in the turbines. The Article 10 Application will include a discussion of these risks and their likelihood of occurrence, and

will demonstrate that the Facility will be sited in such a manner that potential risks from these types of incidents are minimized, through such measures as the imposition of setbacks from dwellings, roads, and other existing facilities.

(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 wastes, and it generates a minimal amount of liquid and 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.

Facility construction will generate relatively minor amounts of solid waste, consisting primarily of plastic, wood, cardboard and metal packing/packaging materials, construction scrap and general refuse. This material will be collected from turbine sites and other 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 provide additional information regarding construction-generated wastes, including sanitary facilities and cleared vegetation.

(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. Additionally, a Spill Prevention Control and Countermeasure (SPCC) plan will be prepared as outlined in section 2.22 of this PSS.

(e) Wind Power Facility Impacts

With respect to short-term (construction) and long-term (O&M) worker safety, the Project Sponsor will develop a comprehensive Emergency Response Plan (ERP) to be prepared in accordance with its O&M safety policies and OSHA regulations (see Section 2.18(e)). This information will be included in the Article 10 Application. Based on this Exhibit 15(e) of the Article 10 Application will include an analysis of wind power facility impacts including:

(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. The incidence of such an occurrence is rare and setbacks are generally sufficient to protect area homes and public roads. The Application will include a discussion of applicable setbacks as they relate to protection of public health and safety in Exhibits 6 and 31.

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). Tower failures are typically associated with defects in the tower, the anchor bolts, or the foundation.

The Article 10 Application will include a literature review (limited to peer reviewed articles or papers prepared by government agencies) to identify potential public health and safety impacts including those associated with potential blade throw and tower collapse, along with a discussion of manufacturer recommendations.

(2) Audible Frequency and Low Frequency Noise

The 2015 Final Generic Environmental Impact Statement (FGEIS) for the Reforming the Energy Vision (REV) and the Clean Energy Fund (CEF) recognized data from multiple studies indicate that the sound levels created by wind turbines are not sufficient to damage hearing or cause other adverse health effects.

Infrasound refers to sound pressure fluctuations at frequencies below about 20 Hz. Sound below this frequency is only audible at high magnitudes. Low frequency sound is within the audible range of human hearing, that is, above 20 Hz, but below 100 to 200 Hz. The Facility is not expected to result in any public health and safety issues due to infrasound and audible low frequency noise. See Section 2.19 for additional information on the proposed noise study and analysis to be provided in the Article 10 Application.

Although concerns are often raised with respect to low frequency or infrasonic noise emissions from wind turbines, most of the research showing excessively high levels of low frequency sound and infrasound was performed on older wind turbine designs, such as NASA's MOD-0 and MOD-1, which placed the rotor behind the tower. When the rotor passed through the wake of the tower, it would result in an infrasonic and low frequency impulse. Modern

pitch-regulated upwind-tower wind turbines of the type proposed for this Facility produce lower levels of infrasound and low frequency sound than these early turbines. Research on modern turbines have shown that at typical receiver distances, infrasound levels are lower than some other environmental noise sources, such as vehicle traffic, and generally well below established hearing thresholds (RSG et al. 2016) and do not have negative health impacts on humans (McCunney et al. 2014, Leventhall 2013).

Human response to audible wind turbine noise has been assessed by several studies (Pedersen et al 2008, Michaud 2015, and Yano et al 2013). These studies compared noise annoyance to modeled or measured wind turbine sound pressure levels. In all cases, a correlation was found between the level of wind turbine sound and noise annoyance. Annoyance is generally not a major concern at equivalent sound pressure levels of 45 dBA or less. The World Health Organization's guidelines to prevent nighttime sleep disturbance are 45 dBA. L_{Night} (the sound pressure level averaged over the night) (WHO, 1999), and the Facility's predicted nighttime noise at residential receptors will be compared to this level.

The Application will include a thorough literature review, including government, peer-reviewed scientific and professional studies, including the guidelines and recommendations of the World Health Organization (WHO), regarding the effects on human health from to audio frequency sound, low frequency sound, and infrasound. Community complaint potential will be evaluated based upon identified factors, thresholds, and guidelines. Sound propagation modeling and sound level monitoring performed for the Facility will be compared with thresholds from the literature review to further evaluate potential impacts.

(3) 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 (Garrad Hassan Canada, Inc., 2007; Baring-Gould et al., 2012; Gipe, 2013). However, in theory, ice shedding and ice throw could occur, and could represent a potential safety concern.

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 used to protect the public from falling ice.

(4) Shadow Flicker

To determine operational effects of the Facility, a shadow flicker analysis will be conducted, as outlined in detail in Section 2.24(a)(9) of this PSS. The analysis will look at the potential shadow flicker occurrence on nearby potential sensitive receptors, including number of potential receptors and predicted annual hours of shadow flicker at each receptor within the shadow flicker study area. Sensitive receptors include any known residential structures with a certificate of occupancy (both participating and non-participating), schools, office buildings, store fronts, or high-use public recreation areas that are located within the shadow flicker study area.

Potential shadow flicker impacts will be expressed in hours per year, as discussed in Section 24(a)(9) of this PSS. 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 as well as local sources for use by emergency responders. Data sources for these maps 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 Facility is not expected to result in any significant public health or safety concerns associated with gaseous, liquid, or solid wastes during operations. Construction related impacts are not anticipated to be any different than other large construction projects.

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 oise, ice shedding/ice throw, and shadow flicker. The Article 10 Application will include a summary of potential impacts on the environment, public health, and safety associated with the information identified above in subsections (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 propose measures for monitoring and mitigating such impacts.

(i) Irreversible and Irretrievable Commitment of Resources

While a major advantage of renewable energy is that, once operational, power generation does not require the constant input of natural resources for fuel, such as oil, coal or gas, during construction, the proposed Facility 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 Project Sponsor, the State of New York (i.e., various state agencies), Broome County, and the Towns of Windsor and Sanford for the planning and review of the Facility. The expenditure of funds and human resources will continue throughout the permitting and construction phases of the Facility.

The Facility also represents a commitment of land throughout its operational life, which is expected to be approximately 20-25 years, associated with its footprint (e.g., the land to be developed for wind turbines, access roads, the O&M building, meteorological towers, and collection substation). However, because the turbines /met towers may be removed at the end of their useful life, the commitment of this land to the Facility should not be considered to be irreversible or irretrievable. Furthermore, while certain lands may be used temporarily for construction areas or buried infrastructure, or otherwise leased by the Project Sponsor, such as buffer areas around the base of each turbine, many of those lands can be returned to productive use during the operation of the project, and complimentary land uses can be established or continued alongside the wind turbines and project components following construction.

Various types of manufacturing and construction materials and building supplies will be committed to the Facility. 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 Facility.

The Article 10 Application will provide additional detail regarding the Facility'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 are associated primarily with appropriate siting of the individual wind turbines. The Project Sponsor will adhere to reasonable setbacks for the location of the wind turbines. Based on the Project Sponsor's experience developing and operating other 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 siting criteria, and the proposed control of public access to the turbine sites, it is not anticipated that the Facility 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 Project Sponsor to minimize such impacts, including any measures identified in the Facility-specific studies associated with noise and shadow flicker.

(k) Mitigation Measures

In the Project Sponsor's experience, when a project, such as the Facility, is properly sited and designed, mitigation measures are generally not necessary because significant impacts to public health and safety typically do not occur. To the extent necessary, any mitigation measures that are warranted based on the Facility-specific studies associated with noise and shadow flicker will be identified in the Article 10 Application. In addition, the Complaint Resolution Plan, as defined in detail in Section 2.12(d), will include specification of commitments for addressing public complaints, and procedures for dispute resolution during Facility construction and operation. The Article 10 Application will also incorporate mitigation measures, where feasible, to meet the impact standards and Facility goals. The shadow flicker report will specify mitigation options, if needed, and discuss what additional measures could feasibly be implemented once the Facility is constructed.

(l) Proposed Monitoring

The Project Sponsor is committed to develop and operate its projects in a safe and environmentally responsible manner. In addition to the mitigation measures described/referenced above, an environmental compliance program will be implemented and the Project Sponsor will provide funding for an independent, third party environmental monitor to oversee compliance with environmental commitments and permit requirements. The environmental compliance program will focus on planning, effective training of contractors, preconstruction coordination, and construction and restoration inspections. The Article 10 Application will include detailed descriptions of each of these program components.

2.16 POLLUTION CONTROL FACILITIES

The proposed Facility's operation will not result in pollution to air or water, nor generation of hazardous wastes covered by the Resource Conservation and Recovery Act, and as such, the requirements of 1001.16 are not applicable and will not be included in the Article 10 Application. Please see Section 2.17 of this PSS for information on potential temporary emissions during construction, such as from a concrete batch plant (if proposed), and Section 2.23 for information on the Facility's State Pollution Discharge Elimination System (SPDES) General Permit for construction. Matters related to the incidental generation of other waste materials during construction and operations, such as construction debris or wind turbine lubricants, and measures to eliminate such wastes, will be addressed in Section 2.15.

2.17 AIR EMISSIONS

Generally, this exhibit is not applicable to this Facility because the Facility operations will not generate emissions. However, because global climate change has been recognized as one of the most important environmental challenges of our time (NYSCAC, 2010; NYSDEC, 2009, 2010), the Project Sponsor will provide a discussion of the anticipated air related benefits from the Facility in the Article 10 Application.

(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 New York State Department of Environmental Conservation (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. Since the Facility will likely employ a concrete batch plant, air pollution control permits under the Clean Air Act or New York State law or regulation may be necessary.

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 Facility during operation because it will generate electricity without releasing SO2 or NOx.

(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 2015* (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 7, which encompasses Oswego, Onondaga, Cayuga, Cortland, Madison, Tompkins, Chenango, Broome, and Tioga Counties. There are four monitoring stations in Region 7, one in Oswego County (Fulton), one in Onondaga County (East Syracuse), and one in Madison County (Camp Georgetown). The Fulton Station measures O_3, the East Syracuse Station measures O_3, $PM_{2.5,}$ and SO_2, and the Camp Georgetown Station measures O_3, SO_2, and acid rain.

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 7 sampling points were within the acceptable levels established by the NAAQS for all tested parameters (NYSDEC, 2015) and will be summarized in the Article 10 Application. 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 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 potential impacts to air quality that may be expected from Facility construction and operation. Since wind turbines generate electricity without combusting fuel or releasing pollutants into the atmosphere, the specific requirements of Section 1001.17(d) pertaining to pollutant emissions are not applicable to the proposed Facility and will not be included in the Article 10 Application.

Potential impacts to ambient air quality resulting from the construction of the Facility will be discussed in the Article 10 Application. 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 will significantly impact local air quality. 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, 2016).

The operation of this Facility is anticipated to have a positive impact on air quality by producing electricity with zero emissions (except for negligible emissions from vehicles that periodically service the Facility). The operation of the Facility will offset air emissions from other sources of electrical generation such as fossil fuel powered generation plants. The Article 10 Application will evaluate the estimated annual displacements resulting from Facility operation for the following pollutants: CO2, NOx, SO2, mercury compounds, and lead compounds. The Article 10 Application will include a characterization of emissions from emergency generators that may be sited in association with the O&M, collection substation, or POI substation facilities, in the event that emergency generators are proposed.

(e) Offsite Consequence Analysis for Ammonia Stored Onsite

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

2.18 SAFETY AND SECURITY

Overall safety and security risks associated with the Facility are anticipated to be minimal. Based on its experience with other power projects and reasonable expectations associated with the Facility, the Project Sponsor has developed preliminary plans for site security, health and safety, and emergency action. The Project Sponsor will coordinate with Broome County Emergency Services, local first responders, and the New York State Division of Homeland Security and Emergency Services to ensure appropriate actions are taken in the event of an emergency.

(a) Preliminary Plans for Site Security During Facility Construction

Public access to the Facility Area shall be limited. The Balance of Plant (BOP) contractor and all subcontractors will be required to provide a Site Security Plan for Facility construction, which will be developed by the BOP contractor prior to construction of the Facility and will be provided to the Siting Board upon completion. The Article 10 Application will describe preliminary provisions for security during construction in the Site Security Plan, which will include the following:

(1) Access Controls

Public access to the Facility Area during construction will be restricted through the use of gates and signage. The general public will not be allowed on the construction site. After hours, vehicular access to such sites will be blocked by parked equipment or temporary fencing. Temporary construction fencing or other visible barriers will 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 during Facility 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. The Article 10 Application will include a discussion on additional security lighting considerations such as the use of task lighting and full cut-off fixtures.

(4) Setback Considerations

The Article 10 Application will provide a detailed outline of proposed setbacks and related safety concerns.

(b) Preliminary Plans for Site Security During Facility Operation

It is anticipated that the Project Sponsor will own and operate the Facility, and therefore will be responsible for site safety and security during operation and for the preparation of the Preliminary Security Plan. The Article 10 Application will contain a Preliminary 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 the substations will be fenced, and locked at all times. In the Project Sponsor's experience, door locks have proven to be sufficient to prevent access to the turbines 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 alarm systems in place. No other electronic security is currently anticipated for the Facility. However, as mentioned above, intrusion detection can be added to the wind turbine towers if needed.

(3) Security Lighting

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 and to minimize potential wildlife impacts. 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. The Article 10 Application will provide a detailed description of security lighting activities associated with the Facility, including additional considerations such as the use of task lighting and full-cutoff fixtures.

(4) Aircraft Safety Lighting

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

(5) Setback Considerations

Exhibit 6 of the Article 10 Application will provide a detailed discussion of Facility setbacks, including those meant to address potential safety hazards.

(6) Cyber Security Program

The Article 10 Application will discuss how the Project Sponsor will comply with the North American Electric Reliability Corporation's (NERC's) Critical Infrastructure Protection (CIP) standards. These mandatory Reliability Standards include CIP Standards 002 through 011, 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 across the critical infrastructure 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 Federal Emergency Regulatory Commission (FERC), to

accomplish NERC's mission of ensuring the security and reliability of the electric grid (NERC 2016). Periodic validation of compliance with the applicable standards by an independent auditor will be carried out as required by 16 NYCRR 1001.18(b)(6).

(c) Preliminary Safety Response Plan

The Project will have an Emergency Response Plan during construction through commissioning and a new revised Emergency Response Plan after commercial operation:

A Construction Emergency Response Plan (ERP), will outline the required response when an event occurs at the Facility during the construction phase. The ERP will be developed by the Project Sponsor or General Contractor at the time of project award. A draft Construction ERP will be provided with the Article 10 Application. The information contained in the Construction ERP will be developed in conjunction with local emergency service providers and will outline the procedures to follow in the event of an emergency, as well as a discussion of contingencies related to Facility construction and commissioning that constitute a qualifying event or security emergency. A Facility ERP will also be developed regarding operational emergency procedures. A draft Facility ERP will be included in the Article 10 Application. In addition to identifying specific emergencies that could arise at the Facility, the ERP will identify the following:

- Alarm and emergency evacuation procedures for potential contingencies identified.
- Procedures to be followed by site personnel who operate critical tasks before they evacuate, based on potential contingencies identified.
- Rescue and medical duties for all on-site personnel of the Project Sponsor, the BOP, and the BOP subcontractors following emergency evacuation, including any contingency-specific considerations.
- Persons who can be contacted for further information or explanation of duties under this plan.

(1) Identification of Contingencies that Would Constitute an Emergency

The ERP as described above will outline the contingencies that would constitute a safety or security emergency.

(2) Emergency Response Measures by Contingency

In the event an emergency response measure is necessary the ERP 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, a wind power project does not create safety concerns of a magnitude that would necessitate an evacuation. Therefore, Facility-related operations are not anticipated to require evacuation. Although unlikely, natural disasters (e.g., tornadoes, earthquakes) represent the only possible circumstances that may require evacuation. However, in the event an evacuation from the Facility Area is necessary, the ERP described above will provide detailed instructions to on-site personnel of the Project Sponsor, the BOP contractor and its subcontractors, the general public, and emergency responders.

(4) Community Notification Procedures by Contingency

The ERP 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 Article 10 Application will include documentation of submittal of the Preliminary Site Security Plan and the Preliminary ERP to the New York State Division of Homeland Security and Emergency Services. As documented in the PIP, the Project Sponsor will continue to coordinate with the Local Hazard Mitigation point of contact and will provide provisions as needed per their input.

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

The Facility Area 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 Project Sponsor will coordinate with Broome County Emergency Services, and local emergency responders, and provide a copy of the Preliminary ERP to those entities.

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

The ERP, as described above, will include a detailed list of all equipment available for responding to fire emergencies or hazardous substance incidents. In general, the Project Sponsor 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 unit 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 towers.

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

The ERP will contain a section describing actions that would be implemented in the event a fire emergency or hazardous substance incident occurs. In addition, a Preliminary Spill Prevention, Control, and Countermeasure (SPCC) plan will be prepared, and implemented, for both the construction and operation phases of the Facility. The Preliminary SPCC plans will provide a detailed assessment of potential hazardous substances that could be on-site during the construction, operation and maintenance of the Facility. Typically, potential hazardous substances would consist of petroleum products such as diesel fuel, hydraulic oil, mineral oil, and lubricating oil.

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

The ERP, as described above, will be provided to the local emergency first responders that serve the Facility Area and the Local Hazard Mitigation point of contact (see PIP), prior to submission, and such consultation will be documented in the Article 10 Application.

2.19 NOISE AND VIBRATION

A Noise Impact Assessment ("NIA") for the noise impacts of the construction and operation of the Facility, related facilities, and ancillary equipment, will be prepared by Robert O'Neal of Epsilon Associates, Inc. (Epsilon). Mr. O'Neal has over twenty-five years of experience in the areas of community noise impacts, meteorological data collection, and analyses. He is Board Certified by the Institute of Noise Control Engineering ("INCE") in Noise Control Engineering and is a Certified Consulting Meteorologist ("CCM") by the American Meteorological Society. Both of these certifications are national programs. The Application will include a detailed Curriculum Vitae for Mr. O'Neal demonstrating his qualifications as an expert in this field.

(a) Sensitive Sound Receptor Map

A map showing the location of sensitive sound receptors in relation to the Facility will be provided in the Article 10 Application. Sensitive sound receptors include non-participating residences, schools, hospitals, care centers, libraries, places of worship, cemeteries, public parks and non-participating seasonal homes (i.e., dwellings which provide residence for a continuous period of time). Structures that do not require a certificate of occupancy and/or do not provide for continuous or permanent residency (i.e., hunting cabins, travel trailers, etc.) will be identified as unoccupied and not considered sensitive sound receptors. A desktop analysis using aerial imagery and field verification will be used to develop and classify sensitive sound receptors within the Facility Site boundary. For sensitive sound receptors outside the Facility Site boundary, only aerial imagery and limited field verification will be used to identify those

receptors within 1 mile of the nearest turbine. If access for field verification is not possible, and aerial imagery cannot provide an obvious classification of a structure (i.e. residential vs. non-residential), then the structure will be classified as a sensitive sound receptor (i.e. residential). For publicly-owned open spaces, the Project Sponsor will identify the location of the potential receptor within the property boundaries, (i.e., defined gathering space) and does not consider the property boundary or lot line alone to function as a sensitive receptor for assessing noise.

(b) Ambient Pre-Construction Baseline Noise Conditions

On behalf of the Project Sponsor, Epsilon completed winter (leaf off) background sound level monitoring at six representative locations in and around the Facility Area (see Figure 4) (see Appendix F for the winter ambient monitoring protocol). Summer (leaf on) background sound level monitoring was also conducted at local receptors in the same manner as documented in the winter ambient protocols. Sound level meters (SLMs) were utilized during this monitoring to measure various broadband A-weighted (dBA) and one-third octave band sound levels including the Leq, Lmax, Lmin, L10, and L90. The one-third octave band data will be used to determine whether a prominent discrete (pure) tone currently exists in the baseline. Temporal accuracy will be calculated for the Leq and L90 descriptors by following the procedures indicated in ANSI/ASA Standard S12.9/Part 2-1992 (R-2013) for a 95% confidence interval at each measurement location, and will be reported in the Article 10 Application to include mean values as well as upper and lower limits for the 95% confidence interval. A detailed discussion of methodologies, and conformance to the applicable portions of ANSI/ASA standards and Article 10 requirements, and results will be included in the Article 10 Application.

Intermittent noise will be "filtered" by reporting the L90 metric which eliminates intermittent sound sources. Seasonal noise will be excluded by using the method in ANSI Standard S12.100-2014 to report the A-weighted, noise-compensated (ANS-weighted metric) which excludes sounds above the 1000 Hz octave band. Periods of rain and snow, excessive wind (10-minute average above 5 m/s), as well as weather conditions out of the range of specifications for the equipment will be noted and excluded from calculation of ambient noise results. Monitoring sites were chosen to capture a variety of existing sound level conditions. The various representative areas include rural residential, farming, town, low and high traffic roads, high truck traffic, recreational areas, and remote areas. The Sound Level Measurement Protocol is included as Appendix F to this PSS.

(c) Future Noise Levels at Receptors During Facility Construction

Construction of wind power projects requires the operation of heavy equipment and construction vehicles for various activities including construction of access roads, excavation and pouring of foundations, the installation of buried and above ground electrical interconnects, and the erection of turbine components. The noise generated by these activities

will be associated with gasoline and diesel-powered engines, back-up warning signals, operating dump trucks, and possibly impact noise from jackhammers and/or rock drills, or even localized blasting, if required due to geotechnical conditions. It is expected that Facility-related construction noise will be similar to that of typical road or utility construction projects. Construction of the turbines will take place primarily on remote hills and/or in the middle of farm fields throughout the Facility Site, generally away from residences. Any work done on roads and utilities could be close to sound receptors, but this work will be conducted for only a short duration. Expected hours of construction for the Facility will be provided in the Article 10 Application.

Noise resulting from construction will be modeled based on predicted construction equipment, and construction activities sound emissions from Federal Highway Administration (FHWA) Roadway Construction Noise Modeling (RCNM). The modeling will be done at locations expected to be closest to sensitive sound receptors to construction using the RCNM software, or a 3-D computer propagation model. This will provide construction sound levels at residences for the main phases of construction (e.g., excavation, foundation, erection of turbines). Representative measured ambient data will be assigned to each specific receptor modeled for construction noise impacts. The results will be presented in the Article 10 Application.

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

The Article 10 Application will provide an estimate of the sound levels at each sensitive sound receptor identified in subsection (a) to be produced by operation of the proposed Facility assuming sound propagation under worst-case wind and atmospheric conditions using computer noise modeling under the ISO 9613-2 propagation standard. A ground absorption factor, G, of zero (G=0) will be used to represent water bodies. A temperature of 10 degrees C and 70% relative humidity will be used to calculate atmospheric absorption. The wind turbine model with the highest sound power levels will be used in the propagation modeling.

In addition, the ISO 9613-2 propagation standard will also be run using the Conservation of Clean Air and Water Europe (CONCAWE) meteorological adjustments for estimating the annual L10 (worst-case) and L50 (typical) sound levels. One full year of hourly wind speed data will be used in the CONCAWE run. Sound levels will be predicted at both specific sensitive sound receptors and for a grid which will generate sound level contours within the Facility Area.

The Article 10 Application will include a brief discussion about the accuracy of selected outdoor propagation models, methodologies, ground absorption values, assumptions and the correlation between measurements and predictions for documented cases as compared to other alternatives, if available.

(e) Future Noise Levels at Receptors During Facility Operation

This section of the Article 10 Application will provide the following:

(1) Future Noise Levels During Operation

Future noise levels during operation of the proposed Facility including predicted A-weighted sound levels and un-weighted full octave band sound levels at all sensitive sound receptors;

(2) Tonal Evaluation

A tonal evaluation based on the reported sound power of the wind turbines and substation transformers in accordance with ANSI S12.9 Part 3, Annex B, section B.1. (informative). For substation transformers, the modeled results at the closest sensitive sound receptors will be evaluated to assess the prominence of transformer tones. For the purposes of this evaluation a prominent discrete tone is identified as present if the tone is audible and the time-average sound pressure level (Leq) in the one-third-octave band of interest exceeds the arithmetic average of the time-average sound pressure level (Leq) for the two adjacent one-third-octave bands by any of the following constant level differences: 15 dB in low-frequency one-third-octave bands (from 25 up to 125 Hz);8 dB in middle-frequency one-third-octave bands (from 160 up to 400 Hz); or, 5 dB in high-frequency one-third-octave bands (from 500 up to 10,000 Hz). The same method will be used to assess whether a prominent discrete tone exists from the wind turbines. Calculations for both the transformer and wind turbines will use a spreadsheet approach since ISO 9613-2 does not accommodate one-third octave band data.

(3) Turbine Model Selection and Avoidance/Minimization Measures

Noise modeling will be performed for the turbine model with the highest sound power levels presented in the Article 10 Application. The final turbine model selected may have a different, but lower sound power level than those presented in the Article 10 Application. There will be a discussion on the Project Sponsor's avoidance and minimization of sound impacts presented in the Article 10 Application.

(4) Potential for Low Frequency and Infrasound

The Application will include a list of available sound data, detailed discussion and appropriate literature references for proposed turbine models or from similar projects with similar wind turbine models. Should a model be selected that has available infrasound data, then this information will be used as the basis for infrasound evaluation. Otherwise sound power level data may be extrapolated down to the infrasound region for fractional band data (full

or one-third octave band data) as appropriate. Calculation of infrasound levels at the most impacted sensitive receptors will give consideration to the decay rate as a function of distance. This section will also include a discussion of infrasound and low frequency noise, as well as a literature review on this issue with respect to wind turbines.

(5) Basis of Sound Power Levels Used

The Article 10 Application will state the basis for the sound power levels used.

(6) Amplitude Modulation Generation Estimates

i) The Application will include a literature review of amplitude modulation from wind turbines with a summary of findings including, but not limited to, measurement methodologies and post-construction operational mitigation options. The review will also include an analysis of the effects of amplitude modulation in adverse community noise reaction including annoyance and complaints. At a minimum the following reference will be included in the literature review: Review of the evidence on the response to amplitude modulation from wind turbines. Phase 2 Report. Department for Business, Energy and Industrial Strategy. U.K. Commissioned by the Department of Energy & Climate Change (DECC). United Kingdom. August 2016.
ii) A detailed discussion of the on-site meteorological tower data, including tower location, sensor heights and period of data collection.
iii) Wind shear and turbulence information will be provided based on one-year of data collected from the on-site met tower.

(f) Predicted Sound Levels Table

The Article 10 Application will provide the A-weighted/dBA sound levels at the sensitive sound receptors identified in subsection (a), for the operating Facility in tabular form. Predicted sound levels at property lines will be shown through graphical isolines of A-weighted decibels. Contours will be at 1-dB increments above 40 dBA and at 5-dBA increments below 40 dBA, with each 5 dBA contour interval clearly identified. All maps will be generated at a scale that is legible to the reader. Measured ambient data will be assigned to each noise receptor giving consideration to similarity of soundscapes between the evaluated position and the location where the ambient noise levels were measured. The table will include the following:

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 (7 AM to 10 PM) 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 (10 PM to 7 AM), 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 (10PM to 7AM), during the winter 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 (summer and winter), to the modeled upper tenth percentile sound level (L10) of the Facility. The L10 statistical noise descriptor corresponds to estimates for one year of operation. Daytime will be 15 hours (7 AM – 10 PM).
5) The worst case future noise level during the summer nighttime period will be determined by logarithmically adding the most representative summer nighttime ambient sound level (L90), as related to the location being evaluated, calculated from background sound level monitoring, to the modeled upper tenth percentile sound level (L10) of the Facility at each evaluated sensitive sound receptor. The L10 statistical noise descriptor is proposed to be estimated for the summer nighttime period for one year of operation. Nighttime will be 9 hours (10 PM – 7 AM).
6) The worst case future noise level during the winter nighttime period will be determined by logarithmically adding the most representative winter nighttime ambient sound level (L90), as related to the location being evaluated, calculated from background sound level monitoring to the modeled upper tenth percentile sound level (L10) the Facility at each evaluated sensitive sound receptor. The L10 statistical noise descriptor is proposed to be estimated for the winter nighttime period for one year of operation. Nighttime will be 9 hours (10 PM – 7 AM).
7) The daytime ambient average noise level will be calculated by logarithmically averaging sound pressure levels (Leq) after exclusions from the background sound level measurements over the daytime period at each monitoring location. These calculations will include both summer and winter data after all exclusions are applied. Daytime will be 15 hours (7 AM – 10 PM).
8) Typical facility noise levels will be calculated as the median sound pressure level emitted by the Facility. The median sound pressure level will be calculated by determining the 50^{th} percentile of the sound levels at a receptor with the use of the CONCAWE meteorological corrections. The L50 statistical noise descriptor will correspond to the daytime in a year. Daytime will be 15 hours (7 AM – 10 PM).

9) Typical Facility daytime noise levels will be calculated after exclusions as the daytime equivalent average sound level (Leq) that was measured, as related to the location being evaluated, logarithmically added to the median Facility sound pressure level (L50) at each evaluated sensitive sound receptor. The L50 statistical noise descriptor will correspond to the daytime in a year. Daytime will be 15 hours (7 AM – 10 PM).

(g) Applicable Noise Standards

A description of the noise standards, noise goals, and guidelines applicable to the Facility will be provided with the Article 10 Application. The noise design goal(s) will take into consideration the following:

- Town of Windsor Noise Control §68-8 (Maximum Permissible Continuous Sound Levels)
- Town of Sanford Renewable Energy Systems §1402.5(A)(5)
- NYSDEC Noise Assessment Program Policy (2001)
- US EPA Guidelines (speech interference—daytime)
- WHO Community Noise Guidelines (1999)
- WHO Night Noise Guidelines for Europe (2009)
- NARUC report Table ES-5 (October 2011)
- ANSI standard S12.9 -2005/Part 4 Annex

(h) Noise Standards Comparison

A table outlining noise standards applicable to the Facility. The Project Sponsor will review local codes as described in Exhibit 2.31 and will provide a summary of applicable noise standards from these codes. In addition, the Project Sponsor will include a summary of noise-modelling results from the Noise Impact Analysis for all noise sensitive receptors in relation to applicable noise ordinances, guidelines, goals and identified criteria by using the specific requirements as related to noise descriptors (e.g. Leq, L90, L10, etc.), weighting scales (e.g. A) and time frame of measurement and determination (e.g.: minutes/hour in a year, 8-hour/night in a year, 1-year, etc.). A summary of thresholds and guidelines as well a description of compliance with these thresholds and guidelines, will be provided in the noise report to be included with the Article 10 Application.

(i) Noise Abatement Measures for Construction Activities

The Project Sponsor takes seriously any reasonable complaints that it receives from members of the public. Therefore, the Complaint Resolution Plan, as defined in detail in Section 2.12(d), will include specification of commitments for

addressing public complaints, and procedures for dispute resolution, during Facility construction and operation. Construction mitigation measures will be addressed in section (m) of this PSS.

(j) Noise Abatement Measures for Facility Design and Operation

Adverse noise impacts will be avoided or minimized through careful siting of Facility components based on the results of the sound model that will be developed for the Facility and will include the use of alternative designs, alternative technologies, and alternative facility arrangements, if necessary. The Article 10 Application will include a discussion of different mitigation options that are available for wind turbines and ancillary equipment to avoid or minimize environmental noise and vibration impacts, if necessary. The studies will analyze all potential impacts (e.g.: noise, vibration) and whether abatement measures are necessary.

(k) Community Noise Impacts

This section of the Article 10 Application will include the following:

(1) Potential for Hearing Damage

The potential for the Facility to result in hearing damage will be based on OSHA standards, recommendations of the United States Environmental Protection Agency and the guidelines of the World Health Organization (1999).

(2) Interference in the use of outdoor public facilities and areas.

A discussion of the potential for interference of use at outdoor spaces based on guidelines from the United States Environmental Protection Agency and the World Health Organization (1999). As stated previously, the Project Sponsor will evaluate impacts at actual locations intended for use at public facilities, such as gazebos, gathering areas, etc., within the publicly owned land.

(3) Potential for Speech Interference

A discussion of the potential for indoor and outdoor speech interference based on guidelines from the United States Environmental Protection Agency and the World Health Organization (1999).

(4) Potential for Annoyance/Complaints

Potential for annoyance and complaints will be evaluated by conducting a review of studies, peer reviewed publications, government, scientific and professional publications, specific to the relationship between wind turbine noise and annoyance/complaints. Community complaint potential will be evaluated based upon identified factors, thresholds and guidelines. The review will include but will not be limited to the following references: NARUC 2011; Pedersen. The review will also include a discussion about the effect of infrasound, Amplitude Modulation and Prominent tones in Annoyance/Complaints or adverse community noise reaction.

(5) Potential for Ground-borne Vibration

Potential for ground-borne transmitted vibrations from the operation of the Facility to reach noise sensitive receptors and cause vibrations on the floors or on building envelope elements that may be perceived at the receptor. The discussion can be illustrated with publicly available or measured data from similar projects and an analysis of whether ground borne transmitted vibrations from the operation of the turbines could exceed vibration thresholds as recommended by ANSI S2.71-1983 (R 2012) or ISO 2631-2-2003 for residential use. Description of the validity and applicability of data from other Wind Facilities will include technical considerations such as similarities between oscillating masses, frequency of rotation, vibration isolation, foundation, soil type and distances.

(6) Potential for Air-borne Vibration

The potential for air-borne induced vibrations from the operation of the facility to generate annoyance, cause vibrations, rumbles or rattles in windows, walls or floors of sensitive receptor buildings will be analyzed by applying the outdoor criteria established in annex D of ANSI standard S12.9 - 2005/Part 4. Applicable portions of ANSI 12.2 (2008) may be used for the evaluation of frequency bands where ANSI 12.2 (2008) may be more restrictive criteria, or if it is expected that ANSI S12.9-2005/Part 4- Annex D guidelines would be met but still represent a potential for perceptible vibrations at indoor locations of sensitive sound receptors, if any.

(7) Potential for Structural Damage and Interference Technological, Industrial, or Medical Activities that are Sensitive to Sound

A map and a discussion about the potential of low-frequency noise including infrasound and vibration from operation of the facility to cause interference with the closest seismological and infrasound stations within 100 miles of the Facility site will be created based on available information and included in the Article 10 Application. If the distances from the Facility Site are more than 100 miles, a discussion may be substituted for a map.

(l) Post-construction Noise Evaluation Studies

A post-construction noise monitoring and compliance protocol to determine compliance with the operational noise design goals will be included in the Article 10 Application.

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

The Article 10 Application will include an identification of practicable post-construction operational controls and other mitigation measures that will be available to address reasonable complaints. A Complaint Resolution Plan, as defined in detail in Section 2.12(d), will include specification of commitments for addressing public complaints, and procedures for dispute resolution, during Facility construction and operation. The Article 10 Application will include an assessment of reasonable noise abatement measures during construction (i.e., implementing BMPs, complaint resolution plan, etc.) as well as potential abatement measures for Facility design and operations. The Article 10 Application will include a list of potential abatement measures.

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

Specific modeling input parameters will be included with the Article 10 Application. GIS files containing data used for modeling including topography, turbine and substation locations, sensitive sound receptors, and all representative external boundary lines identified by Parcel ID number will be provided to the DPS at the time of filing the Article 10 Application.

2.20 CULTURAL RESOURCES

Consistent with 16 NYCRR § 1001.20 and the New York State Office of Parks, Recreation, and Historic Preservation's (NYSOPRHP's) *Guidelines for Wind Farm Development Cultural Resources Survey Work* (the SHPO Wind Guidelines; NYSOPRHP, 2006), the Project Sponsor initiated consultation with the NYSOPRHP on March 22, 2017 to develop the scope and methodology for cultural resources studies for the Facility. To date, formal consultation with NYSOPRHP has included initiating Facility review and consultation through NYSOPRHP's Cultural Resources Information System (CRIS)[5] website[6] and submission of technical reports/work plans. In addition, the Project Sponsor has met with

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

[6] SHPO has requested that its CRIS website be utilized for project submittals. Efforts will be made by the Project Sponsor to utilize CRIS to the maximum extent practicable while maintaining compliance with Article 10 filing requirements.

NYSOPRHP staff to review this project (see PSS Section 2.2) and has participated in conversations with representatives from the Oneida Indian Nation in March 2017. Project Sponsor will continue to track its outreach and stakeholder engagement efforts, and will include a summary of those efforts in the Article 10 Application.

Generally, the Facility is located between the Villages of Windsor and Deposit, and is not located within the Susquehanna River corridor, which SHPO records indicate contains a number of known NRHP listed sites and/or districts. Based on a recent review of SHPO's CRIS database, there are no known NRHP listed sites and/or districts within the Facility Area (see Figure 5). Ongoing consultations and outreach with visual stakeholders (i.e., host communities, local municipal officials, DPS, NYOPRHP, etc.) (see section 2.24 of this PSS) will aid in identifying listed sites and/or districts and/or other potential sensitive sites within the Facility Study Area, to the extent they exist. Exhibit 20 and other relevant portions of the Application, such as the Visual Impact Assessment in Exhibit 24, will identify and address potential impacts to those resources, if any.

Representatives of the Oneida Indian Nation have informed the Project Sponsor that potential "stone landscapes" may be located within the Study Area. Generally, these sites are stone features – sometimes stacked stones, sometimes boulders arranged in a certain way – that have (and/or had) some traditional/ceremonial importance for Native American tribes. The Project Sponsor continues to work with tribal representatives to identify any potential stone landscapes of cultural significance within the Facility Study Area, and will include an analysis of potential impacts in the Application. As part of the cultural resources studies to be performed, effort will need to be made discern between Indian Nation stone landscapes and Euro-American stone landscapes. The Project Sponsor will continue to coordinate with SHPO and Oneida Indian Nation regarding available stone landscape identification protocols and/or studies.

Project Sponsor intends to avoid archeological impacts, to the extent practicable, by shifting the project components. Given the topography of this area, and the Project Sponsor's anticipated ability to avoid impacts, Bluestone Wind does not anticipate that it will be necessary to mitigate impacts to these resources. However, if avoidance is impracticable, and mitigation is necessary, the Article 10 Application will address proposed mitigation measures.

(a) Archaeological Resources

The Article 10 Application will contain a full analysis of the potential impacts of the construction and operation of the Facility on archeological resources.

(1) Summary of Impacts and Avoidance Measures

The Article 10 Application will include summary of potential impacts as well as potential impact avoidance and minimization measures. As noted above, the Project Sponsor believes that many cultural impacts can be avoided

or minimized, such as by relocating project components or adjusting Facility design, such that mitigation will not be necessary. However, to the extent that impacts cannot be avoided or minimized, the Application will so indicate, and will include a discussion of proposed mitigation strategies.

(2) Phase 1A Cultural Resources Study

The Project Sponsor will prepare a Phase 1A Archaeological Resources Survey and, Phase 1B Archaeological Survey Fieldwork Plan (in the event a Phase 1B study is required) for the Bluestone Wind Project. The purpose of the Phase 1A archaeological study is to determine whether previously identified archeological sites are located in the areas that may be affected by the proposed project, and to evaluate the potential for previously unidentified cultural resources to be located in the project's area of potential effect (APE). This will include:

- review of NYSOPRHP's Cultural Resources Information System (CRIS) database to identify previously recorded archaeological sites located within or immediately adjacent to the proposed Facility Site;
- identification and review of previous archaeological survey reports conducted in the project vicinity;
- review of historical research materials, with particular emphasis on historic cartographic sources;
- preparation of a GIS-based landscape classification analysis and Phase 1B archaeological survey research design, in accordance with the *SHPO Wind Guidelines*; and,
- performance of a site reconnaissance to document (photograph) representative existing conditions in the Study Area.

The Phase 1A report/work plan will provide a detailed methodology and scope for the Phase 1B archaeological survey and report (in the event a Phase 1B is required), which will be based on site-specific landscape model and archaeological sensitivity analysis. This will include summary of the results of previous archaeological studies in areas near the proposed Facility Site (including surveys conducted for nearby wind projects and/or other energy projects such as Constitution Pipeline). The report will be prepared in accordance with NYSOPRHP's *Phase 1 Archaeological Report Format Requirements* (NYSOPRHP, 2005) as well as the SHPO *Wind Guidelines* and will be submitted to NYSOPRHP/SHPO via their CRIS website.

(3) Phase 1B Cultural Resources Study

A Phase 1B Archaeological Survey will be conducted, if required, to determine whether archeological sites are located in the areas of proposed ground disturbance for the Facility. The Phase 1B survey will be conducted under the supervision of a Registered Professional Archeologist (RPA) in a manner consistent with the *SHPO Wind*

Guidelines, and in accordance with NYSOPRHP's *Phase 1 Archeological Report Format Requirements* (NYSOPRHP, 2005). This report will be summarized in the Article 10 Application and appended to Exhibit 20.

As indicated above, the scope and methodology for the Phase 1B Archaeological Survey will be outlined in the *Phase 1A Archaeological Resources Survey & Phase 1B Fieldwork Plan*, to be submitted to NYSOPRHP prior to commencement of field work in fall of 2017 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 which are more likely to contain sensitive resources, rather than undertaking an even distribution of sampling throughout the APE. Following this approach, the Project will identify landscape classes within the Facility Area 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 used during the archeological survey included 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 archaeological sampling within the archaeological APE will be determined in the field using professional judgment under the direction of an RPA. Areas where proposed Facility 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, as will be areas deemed to have high sensitivity for prehistoric archaeological materials. These latter included flat areas of well-drained soils in close proximity to perennial streams or large wetlands.

Please note that the Facility layout will be reviewed prior to conducting the Phase 1B survey. It is also worth noting that prior to conducting the Phase 1B survey, the Facility APE for Direct Effects and survey effort will be adjusted in accordance with Facility layout modifications consistent with the assumptions and methodology for determining the APE for Direct Effects as presented herein.

(4) Phase 2 Study

If recommended avoidance measures (e.g., such as removing or re-locating Facility 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 (S/NRHP). The need for and scope of work for such investigations would be determined in consultation with NYSOPRHP and DPS upon completion and review of the Phase 1B survey report.

(5) Archaeological Material Recovered During Cultural Resources Studies

In the event that any artifacts are recovered during the cultural resources studies for the Facility, 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 Project Sponsor understands that all artifacts recovered during this contract will be the property of the land owner from which the artifacts were recovered. The Project Sponsor also anticipates that the Facility'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 identifies the actions to be taken in the unexpected event that resources of cultural, historical, or archaeological importance are encountered during

Facility 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

(1) A complete Historic Architectural Survey

The Project Sponsor will provide a *Phase 1A Historic Architectural Resources Survey & Work Plan* to NYSOPRHP staff prior to completing this activity. The purpose of the *Phase 1A Historic Architectural Resources Survey Report and Work Plan* is to define the Facility'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 Facility on those resources.

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 Facility's potential effect on a given historic property within the Study Area would be a change (resulting from the introduction of wind turbines) in the property's visual setting and potential noise/vibration impacts (see below). Therefore, the APE for visual effects on historic resources must include those areas where Facility 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 Facility includes parts of the Towns of Colesville, Sanford, Windsor, and parts of the Villages of Windsor and Deposit in Broome

County. It also includes parts of the Town of Afton in Chenango County and parts of the Towns of Masonville, Deposit and Tompkins in Delaware County (see Figure 10).

The Facility's APE relative to historic-architectural resources will include the areas of potential Facility visibility based on the topographic viewshed to be conducted within 5 miles of the Facility. This area represents a conservative, "worst case" assessment of potential Facility visibility.

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

Per a review of CRIS website maintained by NYSOPRHP, there are four individually-listed properties (the Jedediah Hotchkiss House, Ouaquaga Bridge, the Harpursville United Methodist Church, and the State Theater) and one historic district (the Windsor Village Historic District) listed on the NRHP with the five-mile-radius APE. No properties listed on or determined eligible for the NRHP are located within the Facility Site.

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

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 (per CFR, 2004a; 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.

The NRHP-listed and NRHP-eligible properties within the study area include residences, bridges, churches, cemeteries, 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, 2004a]), and often derive their significance from being representative examples of vernacular nineteenth-century architectural styles that retain their overall integrity of design and materials. 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.

The Project Sponsor will prepare a Historic Architectural Resources Effects Analysis for the 5-mile study area. The Historic Architectural Resources Effects Analysis will be conducted by a qualified architectural historian who meets the Secretary of Interior's Standards for Historic Preservation Projects (36 CFR Part 61) and will be summarized in the Article 10 Application and appended to Exhibit 20.

(2) A summary of the nature of the probable impact of Facility construction and operation on any historic resources.

Construction of the Facility will not require the demolition or physical alteration of any buildings or other potential historic resources. The Project Sponsor anticipates that no direct physical impacts to historic-architectural resources will occur as a result of the Facility.

The Facility's potential effect on historic resources would be a change (resulting from the introduction of wind turbines) in the visual setting associated with a given historic resource and potential impacts from noise/vibration (see Section 2.19 of this PSS). The potential effect of the Facility on the visual setting associated with historic resources is highly variable, and is dependent on a number of factors including the distance to the project, the number of visible turbines, the extent to which the Facility is screened or partially screened by buildings, trees, or other objects, and the amount of existing visual clutter and/or modern intrusions in the view. It is also worth noting that visual setting may or may not be an important factor contributing to a given property's historical significance. Scenic views and/or association with the landscape are not specifically identified as contributing to the significance of the historic resources in the study area. These impacts will be described in the Article 10 Application.

In addition to potential visual effects on historic resources, impacts from construction such as blasting are possible and will be described in the Article 10 Application.

The Project Sponsor will prepare a Historic Architectural Resources Effects Analysis that will evaluate the potential visual effect of the Facility on properties determined by NYSOPRHP to be NHRP-listed. This will include consideration of distance and the effect of vegetation and other landscape features that may screen or minimize views of the Facility from historic resources, and will include visual simulations where appropriate. The visual effects analysis will specifically address the visual effect of the Facility on the setting associated with NRHP-eligible and listed sites and/or districts within the APE. The visual effects analysis will also include recommendations regarding potential cultural resources mitigation projects, as appropriate. The completed Historic Architectural Resources Effects Analysis 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 Area consisting of the identification and mapping of existing conditions, an impact analysis, and proposed impact avoidance and mitigation measures, as appropriate.

(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 and included in the Article 10 Application. 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

Preliminary Design Drawings showing existing and proposed contours at 2-foot intervals will be included in the Article 10 Application (see Section 11). The Project Sponsor will use publicly available elevation data from the Susquehanna Basin LIDAR 2007 which was mapped at 2-foot contours to fulfill the Application requirements.

(c) Cut and Fill

The Article 10 Application will include preliminary and approximate cut and fill calculations based on 2-foot contours interpolated from publicly available 10-meter resolution elevation data, including separate approximations for topsoil, sub-soil and bedrock. A description of typical scenarios that would result in cut and fill necessary to construct the facility will also be included.

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

A preliminary calculation of the amount of required fill, gravel, etc. based on the proposed layout of turbines, access roads, collection lines, staging areas and all other project facilities and construction areas will be included with the Article 10 Application.

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

No soil/rock materials will be removed from the Facility Area. 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

Activities associated with the construction of 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 Project Sponsor's experience (in New York and other states) and available site conditions data. The majority of excavation activities will be associated with turbine foundation, substation construction, and collection lines, while additional excavations will likely be associated with other aspects of Facility construction in specific locations as needed. For example, it is anticipated that the majority of the Facility'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 Project Sponsor does not expect Facility-related excavation will result in adverse impacts to geology or soils. The Article 10 Application will provide a detailed description of construction methodologies and activities associated with the Facility, 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

The process of determining excavation locations will be described, and preliminary cut and fill locations, based on the information shown on the Preliminary Design Drawings, will be identified in the Article 10 Application. Final cut and fill storage areas will be determined following Certification, and included in the final construction drawings

(h) Suitability for Construction

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

- Literature review of 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, and appended to the Article 10 Application. This stand-alone report will be based on a Facility-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 Broome County, Deep Wells in New York State, Geology of Broome 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 possible test borings to be completed at a subset of turbine/substation locations depending on seasonal restrictions.

In addition, before construction commences, a site survey will be performed to stake out the exact location of proposed Facility 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.

(i) Preliminary Blasting Plan

Based upon review of publicly available data, a general constructability review conducted by the Project Sponsor's construction manager on-site at the Facility, and the Project Sponsor's experience with wind facility construction, it is

anticipated that blasting will be required. A Preliminary Blasting Plan will be developed and included in the Article 10 Application.

(j) Potential Blasting Impacts

Blasting may be required, and, as indicated above, the Article 10 Application will provide additional detail, including the results of a Facility-specific Preliminary Geotechnical Investigation and Preliminary Blasting Plan. 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 Facility Area contains four existing oil or natural gas wells, of which only one appears to be active per a review of NYSEC GIS data (See Figure 6). 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 are expected to eliminate potential impacts associated turbine foundation construction.

(k) Mitigation Measures for Blasting Impacts

Should any blasting be required, it will be conducted in accordance with the Facility-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.

(l) Regional Geology, Tectonic Setting, and Seismology

The Facility is located within the glaciated Appalachian Plateau physiographic province of New York State. Elevations range from between 800 feet at the Susquehanna River, to 2,000 feet in the Catskill Mountains to the East. The Appalachian Plateau in Broome County is characterized by well-rounded rolling streams and rolling hills formed by millions of years of water erosion by glaciers of the Pleistocene era. The smaller streams divide the area into a network of smaller hills and ridges. Over 90% of the soil in Broome County was formed in unsorted glacial till (USDA, 1971). The majority of the bedrock in Broome County is of the upper Devonian age, and is composed of sedimentary rocks. The dominant soil types underlying the Facility Area consist of members of the Volusia, Lordstone and Oquaga, and Mardin types (USDA, 1971). The Facility Area contains 29 quarries scattered throughout, where Pennsylvania Bluestone is mined. This stone is special to the southern tier of New York and has many applications and is sought after for its strength, aesthetic qualities, and carving properties. The Facility's effect on these quarries and the contextual geologic character will be explained in Exhibit 21 of the Article 10 Application.

The surficial geology underlying the Facility 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 up to four feet on some ridge tops to more than 10 feet below higher ridges (USDA, 1971). The surficial geology of the river valleys contained within the Facility Area such as the Oquaga Creek valley, are characterized by alluvial gravelly loam soils varying thickness as well as proglacial fluvial outwash.

Based on the 2014 New York State Hazard Map (USGS, 2014), the Facility is located in an area of very low seismic hazard, with a 1% or less chance that peak ground acceleration [7]in a 50 year will exceed 10%. Broome County has no recorded earthquakes (DHSES, 2014). 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 Facility Area.

(m) Facility Impacts on Regional Geology

Facility components will be sited to avoid or minimize either temporary or permanent impacts to physiography, geology, and soils, to the extent practical. The Facility is not anticipated to result in any significant impacts to geology. However, depth to bedrock in the Facility 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 Project Sponsor's experience constructing other wind power projects, 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 is anticipated to be negligible.

Prior to commencing construction the Project Sponsor 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 Facility 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

[7] peak acceleration is the largest increase in velocity recorded by a particular station during an earthquake.

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 Project Sponsor 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 Facility-specific Preliminary Geotechnical Investigation.

(n) Impacts of Seismic Activity on Facility Operation

As previously indicated, faults within the vicinity of the Facility 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 Facility. Therefore, this topic will not be further addressed in the Article 10 Application.

(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 Broome County, New York (USDA, 1971) indicates that the Facility Area predominantly consists of four General Soil Associations. These are the Freemont-Mardin, Hornell-Freemont-Mardin, Volusia-Mardin, and the Lordstown-Arnot associations. The Mardin, Volusia, Oquaga, and Lordstown soil series comprise the soils within the Facility Area. General descriptions of these four series are provided in Table 3 below.

Table 3. Soil series and their characteristics within the Facility Area.

Soil Series	Main Characteristics
Mardin Series	• Moderately well drained, medium textured • Depth to bedrock greater than 78 inches • Gently sloping to moderately steep on upland plateaus • Well expressed fragipan at a depth of 14–23 inches • Rate of water movement is moderate above the fragipan and slow in and below the fragipan
Volusia Series	• Somewhat poorly drained • Depth to bedrock greater than 78 inches • Found on long uniform slopes that are on valley sides and broad divides on uplands. • Well defined fragipan at a depth of 10-20 inches • Rate of water movement is moderate through both the surface layer and often highly impeded at or below the fragipan layer
Lordstown Series	• Well drained • Moderately deep, depth to bedrock 20-40 inches • Found on gently sloping to very steep bedrock-controlled ridges, hilltops, and steep valley sides • Rate of water movement is moderate throughout soil
Oquaga Series	• Consists of well drained, strongly acid loamy soils formed in medium-textured till • Gently to steeply sloping soils are generally in Eastern Broome County • Moderately permeable soils with a root zone of 20-40 inches

Source: Soil Survey of Broome County (USDA, 1971)

The Article 10 Application will include the results of a detailed geotechnical study that will be conducted for the proposed Facility. The geotechnical study will extensively characterize the soil conditions in the proposed locations of Facility components, and address the suitability of these soils for construction of the Facility.

(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 Facility. 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 include 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. In addition, foundations will be constructed and inspected in accordance with relevant portions of the NYS Building Code and in conformance with the Preliminary Geotechnical Investigation.

(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 Facility, and a preliminary subsurface investigation conducted at a subset of test borings, will be included in the Article 10 Application. This information will be used to specifically address the suitability of the on-site surface/subsurface conditions to support turbine foundations, and provide siting and/or design 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 Facility 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 Facility.

(2) Pile Driving Assessment

It is anticipated that pile driving will not be needed for this Facility. If this is required, an assessment will be provided.

(3) Mitigation Measures for Pile Driving Impacts

It is anticipated that pile driving will not be needed for this Facility. However, if required an assessment of mitigation measures will be provided.

(s) Vulnerability to Earthquake and Tsunami Events

As previously indicated, the Facility appears to have minimal vulnerability associated with seismic events based on review of publicly available data. In addition, because the Facility is located approximately 115 miles from the nearest large water body (Lake Ontario), there is no vulnerability associated with tsunami events.

2.22 TERRESTRIAL ECOLOGY AND WETLANDS

(a) Plant Communities

For the purposes of the Article 10 Application, plant communities will be broadly identified based on desktop analysis and reconnaissance-level field review, as summarized below.

Desktop Analysis

Land Cover in the Facility Area was determined using National Land Cover Data (NLCD) information, which is compiled by the United States Geological Survey (USGS) (Homer et. al, 2015). The Facility Area encompasses approximately 38,131 acres and is primarily forested (84% including deciduous forests, mixed forests, evergreen forests, and woody wetlands) and agricultural land (11% including pasture/hay and cultivated crops) as shown in Table 4. According to the NLCD, the Facility Area also includes 5% or less of developed open space, grassland, and shrub/scrub, and less than 1% of coverage of open water, emergent herbaceous wetlands, barren land, and low, medium, and high intensity development.

Table 4. Land Cover Classes Found within the Facility Area

Cover	Acres	Percent Cover (%)
Deciduous Forest	19,273.90	50.5
Mixed Forest	9,829.51	25.8
Pasture/Hay	3,264.53	8.6
Evergreen Forest	2,567.25	6.7
Cultivated Crops	922.56	2.4
Developed, Open Space	867.84	2.3
Shrub/Scrub	381.21	1.0
Woody Wetlands	355.18	0.9
Open Water	197.72	0.5
Developed, Low Intensity	153.91	0.4
Emergent Herbaceous Wetlands	133.45	0.3
Grassland/Herbaceous	103.64	0.3
Barren Land (Rock/Sand/Clay)	49.60	0.1
Developed, Medium Intensity	29.58	0.1
Developed, High Intensity	1.11	0.0
Total	38,130.98	

Source: NLCD 2011

Field Review

Plant communities found within the Facility Area will be identified and characterized during wetland delineation surveys conducted during the late summer of 2017. All of the major plant communities found within the Facility Area are common to New York State. Forestlands and agricultural lands are the dominant community type in the Facility Area, while successional old field, wetland, and disturbed/developed community type occur to a lesser extent. Brief descriptions of each of these ecological communities are provided below.

Mixed Deciduous/Coniferous Forestland

Mixed forestland constitutes the largest ecological community type within the Facility 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 Facility Area and make up the major community type. Tree species vary based on topography and hydrology, but dominant or co-dominant species in most locations could include sugar maple, red maple, and American beech. Other tree species typically found in these community types include eastern hemlock, white oak, northern red oak, yellow birch, gray birch, eastern hophornbeam, red spruce, white pine and quaking aspen. Understory trees and shrubs frequently observed in these communities include striped maple, dogwoods, witch hazel and numerous saplings. Characteristic herbaceous plants include woodland ferns (common wood fern, New York fern, Christmas fern, interrupted fern), Canada mayflower, white wood aster and a variety of flowering plants.

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 Facility Area, this community is located primarily along roadsides, or adjacent to active agricultural fields. Species found in these areas typically include orchard grass, timothy, goldenrods, clovers, milkweed, asters, Queen Anne's lace, and burdock. Shrubs such as bush honeysuckles, buckthorns, 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 Facility 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

typically comprised of old-field, often non-native, herbaceous species such as pokeweed, bull thistle, ragweed, curly dock, and various upland grasses.

Agricultural Land

As defined by the United States Department of Agriculture (USDA, 2007), and for the purposes of this Application, agricultural land or crop land consists of cropland harvested, crop failure, cultivated summer fallow, cropland used only for pasture, and idle cropland. Each of these categories consists of variation in vegetation type, intensity of agricultural operations (tillage, seeding, harvesting etc.) and overall land use. Agricultural land use within the Facility Area is anticipated to be row crops that are planted on tilled soil and then harvested, cover crops used to stabilize exposed soils/replenish soil nutrients/provide feedstock for livestock, and pasture land used for livestock grazing and silage production. Vegetation species found on cropland vary from planted crops, and typically include corn, wheat, soybeans, barley, oats, etc., to pasture crops, including timothy, rye or other perennial grasses. Pasture land is similar in vegetation composition to successional old field with the difference depending on usage for grazing or silage purposes versus a fallow or abandoned agricultural field.

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 Facility-specific field investigations, along with roadside observations and aerial photo interpretation for adjacent properties.
- Detailed description of all ecological communities identified within the Facility Site.
- Plant species list, including year observed and location, based on Facility-specific field investigations.

(b) Impact to Plant Communities

Proposed temporary and permanent impacts to plant communities presented in the Article 10 Application will be calculated using GIS software. Specifically, Facility-related impacts for all plant communities depicted in the mapping described above in support of 1001.22(a) will be calculated in ArcGIS based on the assumptions presented in Table 5 below. A map overlaying the preliminary Facility layout on the vegetation resource maps provided in 1001.22(a) will be provided to illustrate the areas of potential temporary and permanent impacts to those resources.

Table 5. Impact Assumptions.

Facility Components	Typical Area of Vegetation Clearing	Typical Area of Total Soil Disturbance (temporary and permanent)	Typical Area of Permanent Soil Disturbance
Wind Turbines and Workspaces	Up to 265' radius per turbine	Up to 265' radius per turbine	0.20 acre per turbine (pedestal plus crane pad)
Access Roads	100' wide per linear foot of road	80' wide per linear foot of road	40' wide per linear foot of road
Buried Electrical Collection Lines	75' wide per linear foot of line per collection line circuit	15' wide per linear foot of line per collection line circuit	None
Overhead Electrical Collection Lines	100' wide per linear foot of line	15' wide per linear foot of line	0.10 acre per pole
Permanent Meteorological Towers	1.5 acre per tower	0.10 acre per tower	0.05 acre per tower
O&M Building and associated site (4,000 – 6,000 sf)	5 acres	5 acres	5 acres
Staging Area	5 acres per staging area	5 acres per staging area	None
Collection substation	5 acres	5 acres	5 acres

These impact assumptions will be used to calculate the total impact to various resources that could result from Facility construction and operation. The method of calculating impacts typically results in a very conservative estimate, because it does not account for instances where access roads and collection lines follow existing disturbed corridors such as farm lanes and logging roads. In addition, impacts will be calculated by each Facility component, which does not account for overlap of Facility component areas. For example, in areas where collection lines and access roads are co-located, the disturbance resulting from the access road will be added to the disturbance from collection line, without accounting for overlap in these areas. This method accounts for differences in timing of vegetation disturbance. For example, if access roads are constructed prior to installation of collection line, the vegetation may be restored along access road margins but then re-disturbed during collection line installation. This method is especially conservative

for impacts to forests, because forests cleared at any point during construction will not have regenerated by the time the vegetation would be re-disturbed.

The Article 10 Application will include an Invasive Species Control Plan (ISCP), which will describe methods for conducting a pre-construction invasive plant survey. This survey will not be conducted prior to the submittal of Article 10 Application, but rather will take place as close to the start of construction data as possible, in order to accurately identify conditions existing at the commencement of construction. The ISCP included in the Article 10 application will describe survey methods used to identify existing invasive plant species within the Facility Area, Best Management Practices that will be implemented, measures to educate workers, measures to control the spread of invasive species, including construction materials inspection; target species treatment and removal; construction equipment sanitation; and restoration. The ISCP will also outline post-construction monitoring to take place after the Facility is operational. The complete ISCP will be provided in the Application.

(c) Measures to Avoid or Mitigate Plant Community Impacts

The Article 10 Application will include a description of measures that will be implemented to avoid or minimize any impacts to plant communities within the Facility Site. Such measures may include siting considerations, demonstrated avoidance of sensitive vegetative communities, locating Facility components within existing disturbances (e.g., logging roads), and access restrictions to be implemented during construction and operation.

(d) Vegetation, Wildlife, and Wildlife Habitats

Vegetation

See the plant communities discussion above in Section (a) for a description of the dominant plant communities found within the Facility Area. In addition, the New York Natural Heritage Program (NYNHP) is an agency that maintains data on rare, threatened, and endangered plant and animal species, as well as significant ecological communities in the State. A site-specific request for data on rare wildlife species was submitted to NYNHP. The NYNHP provided a response on March 23, 2017, which identified no rare, threatened, or endangered vegetation species. A description of these communities will be included in the Article 10 Application.

Wildlife

Mammals

Publicly available information regarding the occurrence of mammalian species in the Facility Area is generally not available. Therefore, the occurrence of mammals will be determined through observations of species, habitat, and

signs made during on-site field surveys for other studies such as wetland and stream delineations. Mammal species expected to be found in the Facility Area include raccoon, porcupine, gray squirrel, red squirrel, eastern chipmunk, whitetail deer, opossum, beaver, skunk, muskrat, woodchuck, mink, eastern coyote, fisher, weasels, foxes, and a variety of small mammals (mice, voles, moles, and shrews).

Based on correspondence with the NYSDEC, no pre-construction monitoring or sampling will be conducted for bat species, rather the project Sponsor will focus on developing an adaptive management plan and Bird and Bat Conservation Strategy (BBCS) with input from the NYSDEC and USFWS. A draft of the BBCS will be included in the Article 10 Application. A draft outline is included in Appendix G of this PSS.

Birds

To determine the type and number of bird species present within the Facility Area, the Project Sponsor has coordinate with Western EcoSystems Technology, Inc. (WEST) in developing the following work plans:

- Eagle Surveys Protocols dated March 9, 2016
- Raptor Migration Surveys Protocols dated July 14, 2016
- Breeding Bird Survey Protocol dated May 3, 3017

The protocols for the on-site avian studies to be conducted by WEST were developed in consultation with the NYSDEC and USFWS guidelines, and are included in Appendix G.

In addition to information from on-site surveys, the Article 10 Application will present information on birds from the New York State Breeding Bird Atlas (BBA), which is a comprehensive, statewide survey that indicates the distribution of breeding birds in the State. Point counts are conducted by volunteers within 5-km by 5-km survey blocks across the state (McGowan and Corwin, 2008). The Facility Area is located within or immediately adjacent to 13 survey blocks, including 4466C, 4466D, 4566A, 4566B, 4566C, 4566D, 4465A, 4465B, 4565A, 4565B, 4465C, 4465D, 4565C. The Article 10 Application will compile information on birds within the vicinity of the Facility based on records from these survey blocks.

Two other publicly available data sources that contain information about bird species are the North American Breeding Bird Survey (BBS) and Audubon Christmas Bird Count (CBC). The 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

Corbettsvile BBS route runs east-west through the central portion of the Facility Area. The most commonly observed species along the Corbettsvile route include the European starling, red-winged blackbird, American robin, song sparrow, American crow, common yellowthroat, yellow warbler, chipping sparrow, mourning dove, and bobolink. One State-listed threatened species (Henslow's sparrow), and four State-listed species of special concern (yellow-breasted chat, vesper sparrow, red-shouldered hawk, sharp-shinned hawk) have been observed along this route. No federally-listed endangered or threatened species are listed for within the Facility Area.

The primary objective of the CBC is to monitor the status and distribution of wintering bird populations across the Western Hemisphere. Counts take place on a single day during a three-week period around Christmas, when volunteers comb a 15-mile (24 km) diameter circle in order to tally up all bird species and individuals observed. Since the edge of the closest count circle to the Facility Site (the Binghamton circle) is approximately 18 miles west of the Facility Area, data from the CBC is not applicable to the Facility Site and will not be included in the Article 10 Application.

The NYNHP provided a report on rare birds and rare bats in the general vicinity of the Facility Area. The report states that two threatened birds, the Bald Eagle, and Henlsow's Sparrow are located within 10 miles of the study area (see Appendix H of this PSS).

Amphibians and Reptiles

The New York State Amphibians & Reptile Atlas Facility (Herp Atlas) is based on 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 will be queried for the North Sanford, Windsor, Gulf Summit and Deposit USGS 7.5 minute quadrangles, which encapsulate the Facility Area. Information from this query, as well as assessments of suitable reptile and amphibian habitat in the vicinity of the Facility Area, will be included in the Article 10 Application. Additionally, a site-specific request for data on rare wildlife species was submitted to NYNHP. The NYNHP provided a response on March 23, 2017, which identified the Timber Rattlesnake as a threatened species and is documented within the southwestern portion of the Facility Area.

Invertebrates

Publicly available data on terrestrial invertebrate species are generally not available for upstate New York. As stated above, the New York Natural Heritage Program (NYNHP) is an agency that maintains data on rare, threatened, and endangered plant and animal species, as well as significant ecological communities in the State. NYNHP does track several invertebrate groups, however, not all invertebrate groups are monitored (NYNHP, undated). A site-specific request for data on rare wildlife species was submitted to NYNHP. The NYNHP provided a response on March 23,

2017, which did not identify any rare, threatened, and endangered invertebrates within the Study Area (see Appendix H of this PSS). The Article 10 Application will also provide information on major taxonomic groups of invertebrates likely to be found in the Facility Site, based on available habitat, but will not identify these invertebrates to the species or genus level.

Wildlife Habitat

Any plant community types identified in 2.22(a) will serve as habitat for various wildlife species, and these communities, will be discussed in the context of wildlife habitat in Exhibit 22 (d) of the Article 10 Application.

The Article 10 Regulations state that Exhibit 22(d) shall include an identification and depiction of any Significant Coastal Fish and Wildlife Habitats (SCFWH) designated by the New York Department of State and NYSDEC. The Facility Area is not within any coastal areas. Therefore, the Facility will not result in impacts to any SCFWH, and SCFWH will not be discussed in the Article 10 Application.

(e) Species List

A Plant Species Inventory and a Wildlife Species Inventory will be included in the Article 10 Application to identify species that are reasonably likely to occur in the vicinity of Facility Site. Both lists will be based on existing data, on-site surveys, and publicly available data including the NYNHP, NYSDEC, USFWS, BBA, USGS BBS, and eBird.

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

Any impacts to vegetation 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 any construction-related impacts that may occur, 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. Potential 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 collisions with the wind turbines. To the extent any documented wildlife travel corridors are identified within or adjacent to the Facility Site, impacts to such corridors will be addressed.

The Article 10 Application will also present additional information regarding the presence of threatened and endangered (T&E) species, species of conservation concern, rare species, and Species of Greatest Conservation Need (SGCN),

and the Facility's potential to impact such species or their habitats. A table containing information on all species within these categories will be compiled and included in the Article 10 Application. Species included in this table will come from a number of sources, including correspondence with NYNYP, mentioned above, and the USFWS Information for Planning and Conservation (IPaC) database. The IPaC is a tool that identifies threatened, endangered, and candidate species listed under the Endangered Species Act for a given Facility Site. IPaC was queried for such records on March 10, 2017 (see Appendix H). The only federally-listed species identified for the Facility Area is the threatened northern long-eared bat (*Myotis septentrionalis*). Finally, any protected species documented on-site through wildlife surveys, ecological surveys, or wetland/stream delineations will be included in this table. A discussion of potential impacts to the species included in the table from construction and operation of the Facility will be included in the Article 10 Application.

(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.

The Article 10 Application will include a description of measures to be implemented to avoid or mitigate impacts to wildlife and wildlife habitat within the Facility 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, adhering to seasonal restrictions (e.g., tree clearing dates), and adhering to construction best management practices.

(h) Avian and Bat Impact Analysis and Monitoring Program:

(1) Avian and Bat Impacts

As previously mentioned, numerous pre-construction avian studies are being conducted. Copies of all reports prepared in accordance with this work plan were provided to NYSDEC personnel in 2017 and these reports will be updated based on NYSDEC comments, if any, and included with the Article 10 Application. Based on the results of these studies, and standard industry practice, the Article 10 Application will discuss potential construction and operation-related impacts to protected avian and bat species, including northern long-eared bat.

In addition, the Article 10 Application will include an analysis of potential cumulative impacts to avian and bat species that could result from operation of the Facility. The cumulative analysis will include:

- Cumulative Collision Mortality

    - Examining data on installed wind capacity in New York as well as the projected increase in installed New York wind capacity during the life of the Project.
- Cumulative Avian Impacts
    - Examining bird mortality (birds/turbine/year) across New York in the past 10 years as well as within 100 miles of the Project.
    - Based on the results of the results in the BBCS, species composition of potential avian mortality will be estimated.
    - Based on the two years of eagle observation surveys completed at the Project, the USFWS Bayesian collision risk model (or an updated model) will be run to determine the potential take of bald and golden eagles at the Project and compare that to the Local Area Population (LAP) per the USFWS Eagle Conservation Plan Guidance.
- Cumulative Bat Impacts
    - Examine bat mortality (bats/turbine/year) across New York in the past 10 years as well as within 100 miles of the Project.
    - Based on the results in the BBCS, species composition of potential bat mortality will be estimated.
    - Potential for take of northern long-eared bat will be examined based on the most recent publicly-available data and past mortality data from New York wind projects across the state and within 100 miles of the Project.

The cumulative analysis will utilize post-construction monitoring data from operating wind facilities throughout New York and within 100 miles of the Project to assess potential impacts to bird and bat species given the proposed Facility's location relative to other wind-power projects.

(2) Avian and Bat Post-Construction Monitoring

The Article 10 Application will provide information 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 ultimately be developed in consultation with the NYSDEC and USFWS.

(3) Avian and Bat Impact Avoidance and Mitigation Plan

The Article 10 Application will include a draft Bird and Bat Conservation Strategy (BBCS), which will describe measures to avoid, minimize, and mitigate impacts to avian and bat species. A preliminary outline of the BBCS, is included as Appendix G of this PSS.

(i) Map Showing Delineated Wetland Boundaries

Wetland delineations within the Facility Site will be conducted within a 200-foot wide corridor centered on linear Facility components (e.g., access roads, buried electrical interconnect, overhead transmission line), and within a 200-foot radius of turbines and other components such as permanent meteorological towers, operations and maintenance (O&M) building, staging areas, and the collection substation. This area where delineations will take place is referred to as the Delineation Study Area. Wetland delineations will be conducted in accordance with the three-parameter methodology described in the U.S. Army Corps of Engineers (USACE) *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", the locations of which will be documented using Global Positioning System (GPS) technology with sub-meter accuracy. Wetlands identified by these methods will be referred to as delineated wetlands.

In order to define boundaries out to 500 feet from Facility components, the Project Sponsor's consultant will use interpretation of aerial imagery signatures, on-site observations, analysis of topography, and existing data bases of wetland mapping maintained by National Wetland Inventory (NWI) and NYSDEC. Wetlands identified in this way will be referred to as approximate wetlands.

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 Facility Area (see Figure 8). These wetlands are interspersed throughout the Facility Area and many are associated with mapped streams and/or are found within the valleys of Cascade Creek and Oquaga Creek. Table 6 provides a summary of State-regulated wetlands in the Facility Area.

Table 6. NYSDEC-Mapped Wetlands

Wetland	Class[1]	Total Size (acres)	Size Within Facility Area (acres)
NS-1	II	21.1	14.7
GS-2	II	36.8	36.8
GS-3	III	16.5	16.5
GS-4	II	16	16
GS-5	II	17.3	17.3
GS-6	II	26.7	26.7
GS-7	II	22	22
GS-8	II	19.5	19.5

[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 indicates 493 wetland communities exist within the Facility Area, which cumulatively total 844 acres. The NWI data indicate that riverine wetlands comprise the majority of wetland communities on-site, totaling approximately 226 acres. Other NWI-mapped wetland communities on-site include palustrine forested/shrub wetlands (208 acres), palustrine ponds (128 acres), palustrine emergent wetlands (126 acres), and lakes (155 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 with a Wetland Delineation Report attached to the Article 10 Application.

(k) Wetland Functional Assessment

A functions and values assessment will be included in the Article 10 Application. It is anticipated that this assessment will follow the general methodology described in the *Wetlands Functions and Values: Descriptive Approach* in the September 1999 supplement to *The Highway Methodology Workbook* (Supplement) by the New England Division of the USACE (USACE, 1995).

Wetland functions are ecosystem properties that result from the biologic, geologic, hydrologic, chemical and/or physical processes that take place within a wetland. These functions include:

1. Groundwater Recharge/Discharge

2. Floodflow Alteration
3. Fish and Shellfish Habitat
4. Sediment/Pollutant Retention
5. Nutrient Removal/Retention/Transformation
6. Production (Nutrient) Export
7. Sediment/Shoreline Stabilization
8. Wildlife Habitat

Wetland values are the perceived benefits for society that can be derived from the ecosystem functions and/or other characteristics of a wetland. Values attributed to wetlands in the Supplement include the following:

1. Recreation
2. Education/Scientific Value
3. Uniqueness/Heritage
4. Visual Quality/Aesthetics
5. Threatened or Endangered Species Habitat

These functions and values will be evaluated in the Article 10 Application.

(l) Offsite Wetlands Analysis

As described above in 22(i), wetland boundaries within 500 feet of all Facility components will be mapped using interpretation of aerial imagery signatures, on-site observations, analysis of topography, and existing data bases of wetland mapping maintained by NWI and NYSDEC. This mapping will be used to inform an analysis of hydrological connections to offsite wetlands, including those that are state mapped wetlands protected by NYSDEC.

(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 collection lines, and the development and use of temporary workspaces around the turbine sites. Direct impacts, including clearing of vegetation, earthwork (excavating and grading activities), and the direct placement of fill in wetlands and surface waters, are typically associated with the development of access roads and workspaces around turbines. The construction of access roads is anticipated to result in permanent filling (loss of wetland/surface water acreage), permanent forest conversion (forested wetlands only), 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 collection lines 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). In addition, soil disturbance and permanent forest conversion from burial of the electrical collection lines may occur. 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., potential impacts based on application of impact assumptions). Impacts will be presented in a table that identifies the type of impact and associated crossing methodology, clearly discerning between federal and state wetland (and 100-foot adjacent area) impacts.

(n) Measures to Avoid/Mitigate Wetland Impacts

In order to avoid wetland impacts to the greatest extent practicable, the Project Sponsor will conduct a field-based preliminary wetland survey during the growing season of 2017, which will utilize the methodology described in 22(i) above to map wetland boundaries within much of the proposed Facility Site. The results of this survey will be used to inform Facility design, and Facility components have been sited to avoid these areas where possible.

The Article 10 Application will provide more detail on measures to be implemented to avoid and mitigate wetland impacts (e.g., locating turbine sites and access roads outside of wetland resources). 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. Compensatory mitigation measures may be proposed, depending on level of impacts anticipated.

(o) State and Federal Endangered or Threatened Species

State and federal T&E species documented within or adjacent to the Facility Site, along with potential impacts, if any, to such species, will be identified in the Article 10 Application. In addition, a Threated and Endangered Species Mitigation Plan, if needed, will be provided. Please see the T&E discussion above in association with 1001.22(f) for more information.

(p) Invasive Species Prevention and Management Plan

Please see (b) above for a description of the Invasive Species Control Plan (ISCP) to be prepared.

(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 generally follow the guidelines established by the New York State Department of Agriculture and Markets (NYSDAM).

2.23 WATER RESOURCES AND AQUATIC ECOLOGY

Exhibit 23 of the Article 10 Application 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. The Application will also include a brief summary of any significant high-volume water usage needs related to Facility construction, such as potential water sources which could be used for concrete mixing operations.

(a) Groundwater

(1) Hydrologic Information

Based on preliminary evaluations conducted in support of this PSS, depth to groundwater ranges from the ground surface to greater than 78 inches throughout the Facility Area, with high water tables most common in low-lying areas in and adjacent to wetlands. Depth to bedrock ranges from 16 inches to greater than 78 inches, the majority of the Facility Area having soils greater than 78 inches (Soil Survey Staff, 2017). The Article 10 Application will include maps showing depth to bedrock and depth to water table throughout the Facility Site, based on the Soil Survey of Broome County, New York.

(2) Groundwater Aquifers and Recharge Areas

Based on preliminary evaluations conducted in support of this PSS, the Facility Area does not contain a primary aquifer, a designation applied by US Geological Survey (USGS) and New York State Department of Environmental

Conservation (NYSDEC) to aquifers that are highly productive and utilized by major municipal water supply systems (NYSDEC, 2011). See Figure 7 of this PSS for more information pertaining to groundwater aquifers.

The Facility Area overlays parts (in some cases very small parts) of seven unconsolidated aquifers mapped by NYSDEC Division of Water, Bureau of Water Resources Management (NYSDEC, 2008). The US Environmental Protection Agency (USEPA) maintains authority over sole source aquifers, which are those that supply at least 50% of the drinking water in a given area. Approximately 6,500 acres of the Facility Area lie within the Clinton Street-Ballpark Valley Sole Source Aquifer in the western half of the Facility Area (USEPA, 2011). USEPA review is required when a proposed Facility lies within a SSA and also receives federal funding. Bluestone Wind does not receive federal funding and is therefore not subject to the EPA's review process associated with the Safe Drinking Water Act (SDWA). Adverse impacts to this aquifer are not anticipated because the project will not result in new point of stormwater discharge or significant new impervious cover.

To identify existing water wells in the area, a Freedom of Information Law request letter will be sent to the NYSDEC and to Broome County in the late summer 2017. These letters will request any information pertaining to groundwater wells (including location, construction logs, depths, and descriptions of encountered bedrock) within the Facility Area. The Article 10 Application will include information received from the NYSDEC and Broome County on water wells, including location, depth, yield, and use, if such data are available.

In addition, private wells will be identified by sending a well survey to all residences/businesses located within a 500-foot radius of project components. A summary of responses received from the well survey will be included in the Article 10 Application, along with a corresponding GIS-based parcel map. However, the Project Sponsor cannot guarantee that a response to all (or even a majority of the) surveys will be received.

(3) Groundwater Impacts

The majority of the proposed turbines will be located on hilltops, generally above and outside of the aquifer footprints located in the valleys. The Facility is not anticipated to result in any significant impacts to groundwater quality or quantity, drinking water supplies, or aquifer protection zones. 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 Facility will add only small areas of impervious surface, which will be dispersed throughout the Facility site, and will have a negligible effect on groundwater recharge. Additional detail regarding groundwater impacts will be provided in the Article 10 Application, including results from a

geotechnical evaluation, as well as specific avoidance, minimization, and mitigation measures that will be implemented to protect groundwater resources during construction of the Facility.

(b) Surface Waters

(1) Surface Waters Map

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

(2) Description of Surface Waters

The Facility Area is located in a high elevation area relative to local relief at the boundaries between two major watersheds. Approximately 55% of the Facility Area, including all of the eastern portion, lies within the Upper Delaware drainage basin (USGS Hydrologic Unit 02040101) while the western portion of the Facility Area (approximately 45%) drains into the Upper Susquehanna drainage basin (USGS Hydrologic Unit 02050101). Both the Delaware and the Upper Susquehanna river basins combine to drain Broome, Tioga, Chenango, Madison, Cortland, Delaware, and Otsego counties. These two watersheds, and their rivers and streams supply clean drinking water in the Mid-Atlantic region. However, these drainage basins are highly susceptible to flooding. For example, widespread record flooding in June 2006 put the Village of Windsor's potable water wells in jeopardy (NOAA, 2016), and a flood in January of 1996 rendered the Village's Department of Public Works inoperable. Mitigation efforts resulting from construction and operation of the Facility will likely have positive effects on the local watershed.

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 Facility Site (see Figure 8). Characteristics of the streams in the Facility Site will be described in the Article 10 Application, based on publicly available data and when available, supplemented by field data collected during any on-site wetland and stream delineations.

With respect to fish species, a letter will be sent to the NYSDEC inquiring about fish communities in streams associated with the Facility Area. These data provide information on fish species that have been caught or identified in the streams of interest. The resulting data will be included in the Article 10 Application.

Please note that 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 will not be included.

(3) Drinking Water Supply Intakes

A FOIL request on the location of downstream surface drinking water intake sites will be submitted to Broome County Department of Public Health in late summer 2017. The inquiry requested data on public surface drinking water intake sites within 1 mile of the proposed Facility or, if there are no such intake sites, the nearest intakes downstream of the Facility Area. Because the proposed Facility would be located within two watersheds, the Project Sponsor requested data for the Upper Susquehanna, and Delaware watersheds. The Article 10 Application will identify the surface drinking water intake sites identified through this correspondence, and discuss the type, nature, and extent of services provided by each source based on the information received.

(4) Impacts to Surface Waters

The general character of the Southern Tier and the Facility Area have unique topographic, geologic, and pedologic properties which make the area flood-prone. The Facility Area is comprised of steep dendritic V-shaped valleys which area underlain by relatively old and consequently impervious sedimentary rock. Dendritic drainage patterns indicate impervious and non-porous rock types, and effects from runoff are compounded by steep valley walls (USDA, 1971).

As a result, the Facility area has been subject to destructive flooding events such as those experienced in 2004, 2006, and 2011. The Town of Sanford experienced heavy flooding in August of 2004 which resulted in greater than $52,000 in damages of roadway losses within the town. The Town of Windsor has exceeded flood stage ten

times since 1993 (NOAA, 2016). The three most recent events in 2006, 2007, and 2011 were characterized as major floods (NOAA, 2016) primarily affecting the Susquehanna River. Based on the preliminary design considerations, these flooding events will not be compounded by the development of the wind generating facility, which will limit work within the flood zone and will not cause substantial grading/impervious area within floodplains. Further, the Project Sponsor will work to develop a flood-mitigation strategy for construction which could include the following measures:

- Locating lay down areas or access road out of floodplains
- Removing construction equipment from floodplains prior to storm events when feasible
- Reinforce erosion controls in advance of storm events when feasible

Facility 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 Facility, including wind turbine foundations, the O&M facility, and substation, are anticipated to avoid surface waters to the maximum extent practicable. In addition, large temporary construction areas (e.g., staging areas) will avoid surface water impacts to the maximum extent practicable. The number of 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 and temporary workspaces around the substation. 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. Wetland and Stream Delineation Report will be prepared and included with the Article 10 Application. Based on the Facility layout (i.e., proposed footprint of all Facility components) and the delineated stream and wetland boundaries, desktop GIS calculations, as verified by on-site delineation work, will be performed to determine the approximate acreage of surface waters that may be temporarily and permanently impacted. The Article 10 Application will also address potential Facility-

related impacts to drinking water supplies. No dredging is proposed as part of this Facility. Therefore, the Article 10 Application will not identify precautions taken to avoid or minimize the need for dredging.

(5) Measures to Avoid or Mitigate Surface Water Impacts

Direct impacts to surface waters will be minimized by designing the Facility layout to avoid surface water impacts where practicable, and other measures such as 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 a minimum.

Where crossings of surface waters are required, Best Management Practices will be utilized, as required by the NYSDEC and the USACE. Specific mitigation measures for protecting surface water resources will be described in the Article 10 Application, and 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 Facility 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 Facility. Silt fences, hay bales, and temporary

siltation basins will be installed and maintained throughout Facility 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 Facility Stormwater Pollution Prevention Plan (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.

(c) Stormwater

(1) Stormwater Pollution Prevention Plan

Prior to construction, the Project Sponsor will seek coverage under the NYSDEC State Pollution Discharge Elimination System (SPDES) General Permit with a Notice of Intent for Stormwater Discharges from Construction Activity issued in January 2015 and effective on January 29, 2015 (modified July 15, 2015) (please see http://www.dec.ny.gov/docs/water_pdf/gp015002.pdf). This authorization is subject to review by NYSDEC, and is independent of the Article 10 process. The Article 10 Application will contain a Preliminary SWPPP, which will describe in general terms the erosion and sediment control practices that will likely be implemented during construction activities. The Preliminary 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 Preliminary 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 Facility construction has been completed. The Article 10 Application will include a description of the green infrastructure practices (e.g., vegetative filters) for stormwater quality to be implemented at the Facility Site, as described in the Preliminary SWPPP.

Following Certification of the Facility, 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 Facility access roads intersect with existing public 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). Because final engineering will not be completed until the Facility has been certified, and because the Project Sponsor will ultimately seek coverage under the SPDES General Permit independent of the Article 10 process, a final SWPPP will not be included in the Article 10 Application.

(d) Chemical and Petroleum Bulk Storage

(1) Spill Prevention and Control Measures

The Article 10 Application will describe the Best Management Practices to be implemented during construction to prevent and contain spills. In addition, the Article 10 Application will contain a Preliminary Spill Prevention, Containment and Countermeasures (SPCC) Plan that will be implemented during Facility operation to minimize the potential for unintended releases of petroleum and other hazardous chemicals. This plan is anticipated to contain information about water bodies to be included in the final SPCC, procedures for loading and unloading transfers of oil, discharge or drainage controls, procedures in the event of discharge discovery, a discharge response procedure, a list of spill response equipment to be maintained on-site,), methods of disposal of contaminated materials in the event of a discharge, and spill reporting information.

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

It is not anticipated that the Facility 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.). This will be confirmed in the Article 10 Application.

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

It is not anticipated that the Facility will require the on-site storage or disposal of large volumes of any substances subject to regulation under local laws. This will be confirmed in the Article 10 Application.

(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 Facility components (as needed) so as to further minimize impacts to surface waters, as practicable. Based on the Facility 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, as discussed above in Section 2.23(b)(4). The identification of the locations of surface waters to be impacted will allow for an analysis of potential impacts on biological aquatic resources, including any listed endangered, threatened, or special concern species that may occupy potentially affected waters.

For additional information on how aquatic invasive species will be addressed in the Article 10 Application, please see Section 2.23(b)(2) above.

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

Avoidance measures implemented to minimize impacts to surface waters will also serve to avoid or mitigate impacts to aquatic resources. Please see Section 2.23(b)(5) above for additional information.

(f) Cooling Water

The proposed Facility does not involve the use of cooling water, and as such, the requirements of this section are not applicable to this Facility. 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 the Facility's visual impacts. 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 (1995), the U.S. Department of Transportation, Federal Highway Administration (1981), and the New York State Department of Environmental Conservation (NYSDEC, 2000). The components of the VIA will 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.

(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*."

Although a five-mile study area is typical in some instances, a 10-mile study area (hereafter referred to as Visual Study Area) will be used in order to identify any potential "significant resource concerns" beyond five miles that would warrant the use of a larger study area. A more inclusive inventory of locally significant visually sensitive resources will be conducted for the area within five miles of the proposed Facility. A preliminary visual study area is presented in Figure 9 of this PSS.

The Article 10 Application will discuss the physiographic and vegetative community characteristics of the 10-mile radius Visual Study Area. Per the requirements set forth in 16 NYCRR § 1000.24(b)(1), Landscape Similarity Zones (LSZs) will be defined within the Visual Study Area and will be identified along with other indicators of potential visual impact on viewshed maps. Definition of discrete landscape types within a given study area will provide a useful framework for the analysis of a project's potential visual effects. These landscape types, referred to in the PSS and Article 10 Application as LSZs, will be defined based on the similarity of various landscape characteristics including landform, vegetation, water, and/or land use patterns, in accordance with established visual assessment methodologies (USDA Forest Service, 1995; USDOT Federal Highway Administration, 1981; USDI Bureau of Land Management, 1980). Distinct LSZs within the Visual Study Area will be identified, defined, and the approximate location of these LSZs will be illustrated in the Article 10 Application.

(2) Visibility of the Facility

The VIA will include an analysis of potential visibility and identify locations within the Visual Study Area where it may be possible to view the proposed Facility turbines and substations. This analysis will include identifying potentially visible areas on viewshed maps and verifying line of sight conditions in the field. The purpose of these field visits will be to verify the existence of direct lines of sight to the Facility as indicated by a viewshed analysis, and to obtain photographs for subsequent use in the development of visual simulations. With respect to the methodology to be used for line of sight profiles, please see section (b)(1) below.

Topographic and vegetation viewshed maps will be created to identify potential visibility of wind turbines. The methodology for these analyses is described in detail below in Section (b)(2). In addition, visual field review will be conducted in the Visual Study Area. During these site visits, public roads and public vantage points will be visited to document locations from which the turbines would likely be visible, partially screened, or fully screened. This determination will be made based on the visibility of the distinctive Facility Site ridges/landforms, as well as existing tall structures (such as silos and temporary meteorological towers) on the Facility Site, which will serve as locational and scale references. These site visits will result in photographs from many (in excess of 100) representative viewpoints within the Visual Study Area. The viewpoints will document potential visibility of the Facility from the various LSZs, distance zones, directions, visually sensitive resources, and area of high public use throughout the Visual Study Area.

During the site visits, photos will be taken using digital SLR cameras with a minimum resolution of 12 megapixels. All cameras will utilize 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 assessments because it most closely approximates normal human perception of spatial relationships and scale in the landscape (CEIWEP, 2007). 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 (cameras, GPS units, etc.) and noted on field maps and data sheets. The results of the field review will be presented in detail with visual aids in the VIA.

(3) Visibility of Above-ground Interconnections and Roadways

It is unlikely that access roads or surface grading will be visible from many viewpoint locations with the 10-mile VIA study area due to the potential long distances of views. However, when applicable, access roads will be included in visual simulations in which they would be visible. With respect to any proposed overhead collection or transmission line, the final engineering design (e.g., pole locations and height) may not be completed prior to the submittal of the Article 10 Application. Therefore, a preliminary line(s) will be used to address the potential visual effect of the overhead collection line and one or two such simulations (from locations to be determined as part of the VIA) will be included in the Article 10 Application.

(4) Appearance of the Facility Upon Completion

To show anticipated visual changes associated with the proposed Facility, high-resolution computer-enhanced image processing will be used to create realistic photographic simulations of the proposed Facility from selected

viewpoints [the proposed viewpoint selection process, including outreach, is detailed below under 24(b)4]. The photographic simulations will be developed by using appropriate software (e.g., Autodesk 3ds Max 2017®) 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., topography, buildings, roads) will be modeled based on aerial photographs and digital elevation model (DEM) data, and a three dimensional (3-D) topographic mesh of the landform (based on DEM data) will be brought into the 3-D model space. At this point minor adjustments will be 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 turbines) will be shown in proportion, perspective, and proper relation to the existing landscape elements in the view. As a result, the alignment, elevations, dimensions and locations of the proposed Facility structures will be accurate and true in their relationship to other landscape elements in the photograph.

A computer model of the proposed turbine layout will be prepared based on specifications and data provided by the Project Sponsor. All turbine rotors will be modeled facing into the prevailing wind (e.g., oriented to the west). Using the camera view as guidance, the visible portions of the modeled turbines will be imported to the landscape model space described above, and set at the proper coordinates.

Once the proposed Facility is accurately aligned within the camera view, a lighting system will be created based on the actual time, date, and location of the photograph. Thus, light reflection, highlights, color casting, and shadows will be accurately rendered on the modeled Facility based on actual environmental conditions represented in the photograph. The rendered Facility will then be superimposed over the photograph and portions of the turbines that fall behind vegetation, structures or topography will be masked out.

In addition, for some views, “wireframe renderings” may be prepared to illustrate the potential screening effect of vegetation or other features in the photograph from a given viewpoint that screen or partially screen views of the Facility. In these wireframe renderings, the portions of the proposed turbines that would be screened by vegetation (or other factors) will be shown in a bright color (for illustrative purposes). These wireframe renderings may be prepared for viewpoints that are being considered as candidates for visual simulations, or for the explicit purpose of illustrating the effects of screening.

(5) Lighting

The potential visibility of FAA warning lights for the proposed turbines is described in Section (b)(1) below. The Article 10 Application will include discussion of potential visibility from exterior lighting at the O&M facility, the collection substation, and the POI substation.

(6) Photographic Overlays

To show anticipated visual changes associated with the proposed Facility, high-resolution computer-enhanced image processing will be used to create realistic photographic simulations of the completed turbines from each of the selected viewpoints. See Section (a)(4) above for discussion of the methodology to be used for creating the simulations.

(7) Nature and Degree of Visual Change from Construction

Visual impacts during construction are anticipated to be relatively minor and temporary in nature. Representative photographs of construction activities will be included in the VIA and summarized in the Article 10 Application. Anticipated visual effects during construction will also be described. Construction and operation of the Facility will likely result in impacts to soils and on-site plant communities. These impacts may include vegetation clearing and disturbance from construction, as well as permanent loss of vegetated habitats by conversion to built facilities.

(8) Nature and Degree of Visual Change from Operation

To evaluate anticipated visual change, the photographic simulations of the completed Facility will be compared to photos of existing conditions from each of the selected viewpoints. These “before” and “after” photographs, identical in every respect except for the Facility components to be shown in the simulated views, will be provided as 11 x 17-inch color prints to three registered landscape architects, who will determine the effect of the proposed Facility in terms of its contrast with existing elements of the landscape. The methodology to be utilized is a simplified version of the U.S. Bureau of Land Management (BLM) contrast rating methodology (USDI BLM, 1980). It involves using a short evaluation form, and a simple numerical rating process to assign visual contrast ratings on a scale of 0 (insignificant) to 4 (strong). A copy of this form is included as Appendix I to this PSS. Along with having proven to be accurate in predicting public reaction to wind power Facilities, this methodology 1) documents the basis for conclusions regarding visual impact, 2) allows for independent review and replication of the evaluation, and 3) allows a large number of viewpoints to be evaluated in a reasonable amount of time. Landscape, viewer, and Facility related factors to be considered by the landscape architects in their evaluation will include the following:

- *Landscape Composition:* The arrangement of objects and voids in the landscape that can be categorized by their spatial arrangement. Basic landscape components include vegetation, landform, water and sky. Some landscape compositions, especially those that are distinctly focal, enclosed, detailed, or feature-oriented, are more vulnerable to modification than panoramic, canopied, or ephemeral landscapes.

- *Form, Line, Color, and Texture*: These are the four major compositional elements that define the perceived visual character of a landscape, as well as a Facility. Form refers to the shape of an object that appears unified; often defined by edge, outline, and surrounding space. Line refers to the path the eye follows when perceiving abrupt changes in form, color, or texture; usually evident as the edges of shapes or masses in the landscape. Texture in this context refers to the visual surface characteristics of an object. The extent to which form, line, color, and texture of a Facility are similar to, or contrast with, these same elements in the existing landscape is a primary determinant of visual impact.

- *Focal Point*: Certain natural or man-made landscape features stand out and are particularly noticeable because of their physical characteristics. Focal points often contrast with their surroundings in color, form, scale or texture, and therefore tend to draw a viewer's attention. Examples include prominent trees, mountains and water features. Cultural features, such as a distinctive barn or steeple can also be focal points. If possible, a proposed Facility should not be sited so as to obscure or compete with important existing focal points in the landscape.

- *Order*: Natural landscapes have an underlying order determined by natural processes. Cultural landscapes exhibit order by displaying traditional or logical patterns of land use/development. Elements in the landscape that are inconsistent with this natural order may detract from scenic quality. When a new Facility is introduced to the landscape, intactness and order are maintained through the repetition of the forms, lines, colors, and textures existing in the surrounding built or natural environment.

- *Scenic or Recreational Value*: Designation as a scenic or recreational resource is an indication that there is broad public consensus on the value of that particular resource. The particular characteristics of the resource that contribute to its scenic or recreational value provide guidance in evaluating a Facility's visual impact on that resource.

- *Duration of View*: Some views are seen as quick glimpses while driving along a roadway or hiking a trail, while others are seen for a more prolonged period of time. Longer duration views of a Facility, especially from significant aesthetic resources, have the greatest potential for visual impact.

- *Atmospheric Conditions*: Clouds, precipitation, haze, and other ambient air related conditions, which affect the visibility of an object or objects. These conditions can greatly impact the visibility and contrast of landscape and Facility components, and the design elements of form, line, color, texture, and scale.

- *Lighting Direction*: Backlighting refers to a viewing situation in which sunlight is coming toward the observer from behind a feature or elements in a scene. Front lighting refers to a situation where the light source is coming from behind the observer and falling directly upon the area being viewed. Side lighting refers to a viewing situation in which sunlight is coming from the side of the observer to a feature or elements in a scene. Lighting direction can have a significant effect on the visibility and contrast of landscape and Facility elements.

- *Scale*: The apparent size of a proposed Facility in relation to its surroundings can define the compatibility of its scale within the existing landscaping. Perception of Facility scale is likely to vary depending on the distance from which it is seen and other contextual factors.

- *Spatial Dominance*: The degree to which an object or landscape element occupies space in a landscape, and thus dominates landscape composition from a particular viewpoint.

- *Visual Clutter*: Numerous unrelated built elements occurring within a view can create visual clutter, which adversely impacts scenic quality.

- *Movement*: Moving Facility components can make them more noticeable, but in the case of wind turbines, have also been shown to make them appear more functional and visually appealing. Numerous studies have documented that viewers prefer to see wind turbines in motion.

(9) Operational Effects of the Facility

Shadow flicker refers to the moving shadows that an operating wind turbine casts over an identified receptor (i.e., non-participating residence) 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).

The Article 10 Application will include a Facility-specific shadow flicker analysis. Specifically, a study of potential shadow flicker impacts on nearby receptors will be conducted. Sensitive receptors include any known residential structures with a certificate of occupancy (both participating and non-participating), schools, office buildings, store fronts, or high-use public recreation areas that are located within the shadow flicker study area. A maximum distance of potential effect of 10 rotor diameters will be used for this analysis to ensure that all potentially impacted receptors will be assessed. Potential shadow flicker impacts will be expressed in hours per year, as discussed further below.

The shadow flicker analysis for the proposed Facility will use *WindPRO version 2.9* software (or similar version) and the associated Shadow module. This is a widely-accepted modeling software package developed specifically for the design and evaluation of wind power projects. The stand-alone shadow flicker analysis will include the results from the WindPRO software, in tabular format, as both "worst-case" and "real/expected-case." Input variables and assumptions used for shadow flicker modeling calculations will include:

- Latitude and longitude coordinates of all proposed wind turbine sites under consideration in the Article 10 Application.
- Latitude and longitude coordinates for sensitive receptors located within a 10 rotor diameter radius of all proposed turbine locations (the shadow flicker study will be limited to the area defined by 10 times the rotor diameter of the turbines).
- USGS 1:24,000 topographic mapping and USGS digital elevation model (DEM) data (10-meter resolution).
- The rotor diameter and hub height of the largest proposed turbine model at the time of submittal.
- Annual wind rose data.

- The average monthly percent of available sunshine at the Binghamton, New York National Oceanic and Atmospheric Administration (NOAA) weather station. Data will be obtained from NOAA's "Comparative Climatic Data for the United States through 2015" (NOAA, 2016).

The Project Sponsor will work with the Towns to identify, within the 10 rotor diameter radius study area, all primary non-participating residential structures and any officially-announced, planned land use developments, such as residential sites or community buildings, under review or already approved for site plan development or building permit issuance at the time of filing the Article 10 Application. All data obtained will be used in the shadow flicker assessment.

Shadow flicker effects 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 at each receptor (as needed). This omni-directional approach reports total shadow flicker results at a receptor regardless of the presence or orientation of windows at that particular receptor (i.e., it assumes shadows from all directions can be perceived at a receptor, which may or may not be true). A receptor[8] 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. In addition, shadow flicker contours that are generated by the WindPRO software will be overlain on mapping of known public recreational areas (e.g., trails, state forest land).

No consistent national, state, county, or local standards exist for allowable frequency or duration of shadow flicker from wind turbines at the proposed Facility 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. A threshold of 30 shadow flicker hours per year will be applied to the analysis of the proposed Facility to identify any potentially significant impacts based upon the guidance obtained from the other states and countries. 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

[8] The Project Sponsor will utilize a uniform receptor identification system, to the extent practicable, across various exhibits in the Article 10 Application.

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). International guidelines from Europe and Australia have suggested 30 hours of shadow flicker per year as the threshold of significant impact, which was determined to be the point at which shadow flicker is commonly perceived as an annoyance (NRC, 2007; DECC, 2011; DPCD, 2012).

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

(10) Measures to Mitigate for Visual Impacts

Mitigation options are anticipated to be limited, given the nature of the Facility and its siting criteria (very tall structures typically located in open fields at the highest locally available elevations). However, in accordance with NYSDEC Program Policy (NYSDEC, 2000), various mitigation measures will be considered, such as the following:

- Facility Design
- Screening
- Camouflage
- Downsizing
- Alternate Technologies
- Non-specular Materials
- Lighting
- Maintenance
- Offsets

Not all of these mitigation measures are anticipated to be feasible for the Facility. The Article 10 Application will discuss feasibility of the various mitigation options.

(11) Description of Visual Resources to be Affected

Visually sensitive resources of statewide significance will be identified within the larger 10-mile Visual Study Area. As defined in the NYSDEC Visual Policy, these include any of the following types of resources:

- Properties listed on or determined eligible for listing on the National Register of Historic Places.
- State Parks.
- New York State designated Heritage Areas).
- The State Forest Preserve (i.e., Catskill Parks).
- National Wildlife Refuges, State Game Refuges, and State Wildlife Management Areas.
- National Natural Landmarks.
- The National Park System, Recreation Areas 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.
- A State or federally designated trail, or one proposed for designation.
- 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 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 residents. See (b)(3) below for additional detail on identification visually sensitive resources, including stakeholder consultation to aid in this effort.

(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 methodology to be employed is described below.

(1) Viewshed Maps

Viewshed maps define the maximum area from which any turbine within the completed Facility could potentially be seen within the 10-mile Study Area. Maps showing the results of viewshed analysis will be prepared based on

the screening effect of topography alone, and the combined screening effect of mapped forest vegetation and topography. Viewshed analysis will be based on maximum blade tip height and FAA warning light height. These maps will be presented on both USGS DEM Hillshade and the most recent edition 1:24,000 scale topographic base map. Additionally, results of the viewshed analysis will also be shown on maps that depict visually sensitive sites, viewpoint locations, and LSZs.

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 the Article 10 Application, the viewshed analyses will also serve to document the line of sight profiles for resources of statewide concern.

(2) Viewshed Methodology

Topographic viewshed maps for the Facility will be prepared using 10-meter resolution USGS digital elevation model (DEM) data (7.5-minute series) for the Visual study area, the location and height of all proposed turbines, an assumed viewer height of 1.7 meters, and ESRI ArcGIS® software with the Spatial Analyst extension. Two ten-mile radius topographic viewsheds will be mapped, one to illustrate “worst case” daytime visibility (based on a maximum blade tip height above existing grade) and the other to illustrate potential visibility of turbine lights (based on an assumed height for the lights on top of the nacelle above existing grade).

The ArcGIS program defines the viewshed by reading every cell of the DEM data and assigning a value based upon the existence of a direct, unobstructed line of sight to proposed Facility location/elevation coordinates from observation points throughout the ten-mile Study Area. The resulting viewshed maps define the maximum area from which any portion of any turbine in the completed Facility could potentially be seen within the Study Area during both daytime and nighttime hours based on a direct line of sight, and ignoring the screening effects of existing vegetation and structures. A turbine count analysis will also be performed to determine how many wind turbines are potentially visible from any given point within the viewshed. The results of this analysis will then be grouped by number of turbines potentially visible and presented on a viewshed map.

Because the screening provided by vegetation and structures is not considered in this analysis, the topographic viewshed represents a true "worst case" assessment of potential Facility visibility. Topographic viewshed maps assume that no trees exist, and therefore are very accurate in predicting where visibility will not occur due to

topographic interference. However, they are less accurate in identifying areas from which the Facility could actually be visible. Trees and buildings can limit or eliminate visibility in areas indicated as having potential Facility visibility in the topographic viewshed analysis.

To supplement the topographic viewshed analysis, a vegetation viewshed will also be prepared to illustrate the potential screening provided by forest vegetation. A base vegetation layer will be created using the USGS National Land Cover Dataset (NLCD) to identify the mapped location of forest land 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 will then be re-run, as described above. As with the topographic viewshed analysis, two vegetation viewsheds will be mapped, one to illustrate "worst case" daytime visibility and the other to illustrate potential visibility of turbine lights. The vegetation viewshed is based on the assumption that in most forested areas, outward views will be well screened by the overhead tree canopy. During the growing season the forest canopy will fully block views of the proposed turbines, and such views will typically be almost completely obscured, or at least significantly screened by tree trunks and branches, even under "leaf-off" conditions. Although there will be certainly areas of mapped forest that may have natural or man-made clearings that could provide open outward views, these openings are rare, and the available views would typically be narrow/enclosed and include little of the proposed Facility.

Because it accounts for the screening provided by mapped forest stands, the vegetation viewshed will be a much more accurate representation of potential Facility 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 Facility visibility.

Per the requirements set forth in 16 NYCRR § 1000.24(a), the potential cumulative visual effect of the Facility as well as other wind energy projects proposed in the surrounding region must be considered. Cumulative impacts are two or more individual environmental effects which, when taken together, are significant or that compound or increase other environmental effects. The individual effects may be effects resulting from a single project or from separate projects. The Article 10 Application will address the potential cumulative visual impacts that may arise from interactions between the proposed Facility and other nearby operating wind projects. There are no operating facilities nearby the proposed Bluestone Wind project, in New York or in Pennsylvania.

To evaluate the potential cumulative visual impact of these multiple wind power projects, cumulative viewshed analyses will be prepared. The 10-mile radius vegetation viewshed analysis for the proposed Facility (based on

maximum blade tip height) will be overlaid on viewshed analyses prepared using the same methodology described herein for the above nearby operating projects. The viewsheds for these projects will then be plotted on a base map, and areas of viewshed overlap identified.

(3) Sensitive Viewing Areas

In accordance with standard visual impact assessment practice in New York State, visually sensitive resources will be identified in accordance with the New York State Department of Environmental Conservation (NYSDEC) Program Policy DEP-00-2 Assessing and Mitigating Visual Impacts (NYSDEC, 2000), which define specific types of properties as visually sensitive resources of statewide significance. The types of resources identified by NYSDEC in Program Policy DEP-00-2 are consistent with the types of resources identified in 16 NYCRR § 1000.24(b)(4) and include landmark landscapes; wild, scenic or recreational rivers administered respectively by either the DEC or the APA pursuant to ECL Article 15 or Department of Interior pursuant to 16 USC Section 1271; forest preserve lands, scenic vistas specifically identified in the Catskill Park State Land Master Plan (2008) conservation easement lands, scenic byways designated by the federal or state governments; Scenic districts and scenic roads, designated by the Commissioner of Environmental Conservation pursuant to ECL Article 49 scenic districts; areas specifically targeted in the New York State Open Space Conservation Plan (2016); state parks or historic sites; sites listed on National or State Registers of Historic Places; areas covered by scenic easements, public parks or recreation areas; locally designated historic or scenic districts and scenic overlooks; and high-use public areas.

To identify visually sensitive resources within the Visual Study Area, a variety of data sources will be consulted including digital geospatial data (shapefiles) obtained primarily through the NYS GIS Clearinghouse or the Environmental Systems Research Institute (ESRI); 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. Aesthetic resources of statewide significance will be identified within 10 miles of the proposed Facility, and locally significant aesthetic resources and areas of intensive land use will be identified within five miles of the proposed Facility.

In addition, per the requirements set forth in 16 NYCRR § 1000.24(b)(4), the Project Sponsor will conduct a public outreach to assist in the identification of visually sensitive resources. Initial outreach letters to visual stakeholders regarding locally sensitive sites will be sent upon the filing of the PSS and prior to conducting the visual field work. A detailed discussion of this process will be included in the VIA and the Article 10 Application.

(4) Viewpoint Selection

16 NYCRR § 1000.24(b)(4) includes the requirements that "*the Project Sponsor shall confer with municipal planning representatives, DPS, DEC, OPRHP . . . in its selection of important or representative viewpoints*". The Project Sponsor will conduct outreach to agency staff and stakeholder groups to determine an appropriate set of viewpoints for the development of visual simulations. This outreach is anticipated to include:

- The Project Sponsor will distribute a written request to appropriate agency personnel, municipal representatives, and other visual stakeholders, seeking feedback regarding the identification of important aesthetic resources and/or representative viewpoints in the Facility vicinity to inform field review efforts and the eventual selection of candidate viewpoints for the development of visual simulations. The materials to be provided as part of this request are anticipated to include: a summary of the purpose and necessity of consultation per the requirements of Article 10; a definition, explanation, and map of the Visual Study Area; a preliminary inventory and map of visually sensitive resources identified in accordance with the NYSDEC Program Policy DEP-00-2 *Assessing and Mitigating Visual Impacts*; a preliminary viewshed (visibility) analysis; a discussion of anticipated subsequent steps, including additional consultation regarding the eventual selection of viewpoints for development of visual simulations; and, a request for feedback regarding additional visually sensitive resources to be included in the analysis.
- Following the visual fieldwork and associated data processing, the Project Sponsor will distribute a memorandum related to recommendations for Visual Simulations to the visual stakeholders. This memo is anticipated to include: a summary of research and consultation undertaken to date; description of the field review/photography for the Facility; a rationale for viewpoint selection; and, recommendations for viewpoints to be considered by agencies and stakeholders from which a subset will be selected for the preparation of visual simulations. Viewpoint selection will include the following factors:

    - Providing representative views from the various LSZs and Distance Zones within the study area.
    - The locations of visually sensitive resources/sites within the study area, including recommendations for sensitive sites received from stakeholders.
    - The predicted visibility of the Facility based on viewshed analysis.
    - The availability of open views towards the proposed Facility as determined by field review/site visits.

Ultimately, viewpoints will be selected for simulation based upon the following criteria:

1. They provide open views of proposed turbines (as indicated by field verification), or provide representative views of the screening effects of vegetation and/or buildings from selected areas.
2. They illustrate Facility visibility from sensitive resources with the Visual Study Area identified by local stakeholders and state agencies.
3. They illustrate typical views from LSZs where views of the Facility will be available.
4. They illustrate typical views of the proposed Facility that will be available to representative viewer/user groups within the Visual Study Area.
5. They illustrate typical views of different numbers of turbines, from a variety of viewer distances, and under different lighting conditions, to illustrate the range of visual change that will occur with the Facility in place.
6. The photos obtained from the viewpoints display good composition, lighting, and exposure.

(5) Photographic Simulations

In order to show anticipated visual changes associated with the Facility, high-resolution computer-enhanced image processing will be used to create photo-realistic simulations of the completed turbines 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 Facility due to vegetation in the photographic simulations. Therefore, it is not anticipated that both leaf-on and leaf-off simulations will be required.

(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 will not be prepared.

(7) Simulation Rating and Assessment of Visual Impact

Three registered landscape architects (LAs) will evaluate the visual impact of the proposed Facility. Utilizing 11 x 17-inch digital color prints of the selected viewpoints, the LAs will review the existing and proposed views, evaluate the contrast/compatibility of the Facility with various components of the landscape (landform, vegetation, land use, water, sky, land use and viewer activity), and assign quantitative visual contrast ratings on a scale of 0 (insignificant) to 4 (strong). The average contrast score assigned by each LA will be calculated for each viewpoint,

and an average score for each viewpoint will be determined. Copies of the rating forms will be included in the VIA. The methodology for the rating panel exercise is described in detail above in Section (a)(8).

Results of the rating process for the proposed Facility will be presented in the Article 10 Application, along with an explanation of the factors contributing to visual impact and the significance of that impact. Wind turbines are unlike most other energy/infrastructure facilities, such as transmission lines or conventional power plants that are almost universally viewed as aesthetic liabilities. Wind turbines have a clean sculptural form that is considered attractive by some viewers (Pasqualetti e al., 2002). The greatest perceived visual impact typically occurs when numerous turbines are visible, where the turbines are close to the viewer, or where the turbines appear out of place in their setting (e.g., in a residential context). These conditions tend to heighten the Facility's contrast with existing elements of the landscape in terms of line, form, and especially scale.

Although at times offering appreciable contrast with elements of the landscape, the proposed Facility is not anticipated to necessarily be perceived by viewers as having an adverse visual impact. This assessment is supported by recent annual surveys conducted by Jefferson County Community College in Lewis County, New York (location of the 195-turbine Maple Ridge Farm Facility in operation since 2006), which revealed strong community support for wind power (JCCS, 2008, 2010, 2011, 2012). A significant majority (approximately 90%) of Lewis County residents who participated in these surveys expressed support for the development of additional wind energy projects (JCCS, 2010, 2011, 2012). Approximately 70% of respondents have consistently indicated that wind farms have had a positive impact on Lewis County (JCCS, 2009, 201, 2012). The 2008 survey indicated that 77% of individuals that were able to see and/or hear turbines from their homes indicated that the wind farms have had a positive impact on Lewis County. Additionally, only 7.5% of participants who live within 1 mile of the nearest wind turbine felt that wind farms have had a negative impact (JCCS, 2008).

(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 receptors. Details of this study are discussed in in Section 2.15 of the PSS.

2.25 EFFECT ON TRANSPORTATION

(a) Conceptual Site Plan

For the purposes of the Article 10 Application, the Preliminary Design Drawings prepared in association with Exhibit 11 will serve as the conceptual site plan, and those drawings will identify access road locations and widths, and the number

of turbines to be accessed per road. A Route Evaluation Study will be prepared, which will establish a Route Evaluation Study Area, and identify public road constraints (e.g., inadequate turning radii/intersections and road widths) and anticipated haul routes within that area. Where possible, and to the extent the information is known at the time of Application, the conceptual site plan will identify and characterize road intersection suitability. The final haul routes for the turbines and necessary components will be finalized in coordination with the selected turbine manufacturer, and will be used to prepare the final construction drawings.

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

(1) Traffic Volume and Accident Data

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 within the Facility. Accident information along those routes contained in the Accident Location Information System (ALIS) will be requested from the New York State Police, Broome County Sherriff's office, and/or NYSDOT regional office. However, as noted above the final haul routes will ultimately be defined in coordination with the turbine manufacturer.

(2) School District Bus and Routes

The Article 10 Application will include a review of bus routes for those school districts that occur within the Route Evaluation Area. This will be accomplished by obtaining school bus routes, number of buses, and times from the Windsor Central School District and Deposit Central School District.

(3) Emergency Service Providers

This section of the Article 10 Application will identify the locations of emergency service provider stations that serve the Facility Site, including approximate distances to turbine locations. It is anticipated that the following agencies will be identified: NYS Police, Broome County Sherriff's Office, Deposit Volunteer Fire & EMS, Ouquaga Fire Company, West Windsor Fire Company, Windsor Fire Company, United Health Wilson and Binghamton Hospitals, and Our Lady of Lourdes Hospital. In addition, the Article 10 Application will detail consultations that have occurred between the Project Sponsor and the previously listed local emergency service providers.

These consultations will inform the Windsor and Deposit Volunteer Fire companies about the Facility, the Article 10 process, and how the Project Sponsor typically interacts with fire and emergency service providers during

Facility construction and operation. The Project Sponsor will notify the fire departments that there will be a Preliminary Emergency Response Plan developed as part of the Article 10 Application process.

Consultation with each emergency service provider will also determine specific routes that are currently used within the vicinity of the Facility Area. A map of all emergency service provider locations and routes will be provided in the Article 10 Application, and following construction will be posted in the Facility's O&M building (and provided to the emergency service providers). All turbines will have a unique 911 ID/address.

(4) Available Load Bearing and Structural Rating Information

The Project Sponsor's transportation consultant will drive all potential haul routes to identify load restricted bridges and/or roadways along the proposed approach and departure routes for the Facility. For non-posted bridges along those routes, information from the NYSDOT's Highway Data Services website will be reviewed to determine potential load capacity restrictions. In addition, the Project Sponsor has corresponded with local and county Highway Supervisors. Such consultations will continue throughout the Article 10 process and prior to construction. This information will be summarized in the Article 10 Application.

(5) Traffic Volume Counts

The Facility 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 construction vehicle trips will be provided based on the above-referenced haul routes, turbine locations, the number of phases, and estimated quantities of materials required to construct the Facility. Exact scheduling of construction work and required vehicles will be determined by the Project Sponsor's 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 estimated construction vehicle volumes for the Facility broken down by Facility component/truck type.

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

During Facility construction, all trucks carrying water, fuels, or chemicals will utilize the same haul routes used by other construction vehicles/component delivery haulers. These routes will be shown in the Article 10 Application, as described above.

(3) Cut and Fill Activity

The Article 10 Application will provide an estimate of the major cut and fill activity, trip frequency, time of day distribution, and vehicle characteristics based on the Preliminary Design Drawing prepared in support of Exhibit 11.

(4) Conceptual Haul Routes and 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.

As noted previously, final haul routes cannot be determined until the turbine manufacture has been selected and has reviewed and approved (or amended), the haul routes, and therefore the final haul routes will be provided to the Siting Board prior to Facility construction. However, conceptual haul routes will be identified by an experienced transportation engineer, and included in the Article 10 Application. The Application will include a preliminary estimate of the number of vehicles that would utilize the identified conceptual haul routes and staging/worker parking areas.

(d) Traffic and Transportation Impacts

(1) Levels of Service Along Linear Segments of Highway

Based on the experience of the Project Sponsor and analysis on traffic volumes from other wind projects, typical operations of the Facility will result in a negligible increase in existing traffic volumes during operation. Industry standard software such as Synchro or 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 Facility is not in a congested urbanized area. Therefore, detailed intersection analysis is not anticipated to be required in the Article 10 Application.

(2) Route Evaluation Study

As indicated above, the Article 10 Application will identify the anticipated haul routes to be utilized, the adequacy of these routes to accommodate vehicles required for construction and operation of the Facility, and a preliminary estimate of the extent and duration of traffic interferences along these routes during the construction period. A detailed description of potential haul routes will be provided, and will include information regarding roadway condition, width, bridges, culverts, and any observed potential obstacles such as low hanging branches or distribution lines.

Once the Facility is commissioned and construction activities are officially concluded, traffic will be negligible and likely concentrated around the O&M building as a result of Facility employees traveling to and from the Facility. Some of these personnel will also need to visit various turbine locations. Each turbine typically requires routine maintenance visits once every three months, but certain turbines or other Facility improvements may require periods of more frequent service visits should a maintenance issue arise. Such service visits typically involve one to two pick-up trucks. However, because all turbines and associated access road are located on (and accessed from) private land, public road use will not be required for routine maintenance activities. If major repairs or maintenance is needed, such as maintenance involving a crane, the Road Use Agreement (see discussions in d(4) and d(5) below) between the Project Sponsor and the host communities will dictate the procedures followed by the Project Sponsor to ensure that any impacts to public roads are avoided or mitigated. Anticipated terms of this agreement will be presented in Exhibit 25 d(4) and d(5) of the Article 10 Application.

(3) Over-sized Deliveries

The Route Evaluation Study will describe the turning radii requirements of anticipated delivery vehicles. A review of aerial photography and online street view maps, in conjunction with driving all potential delivery routes, will be conducted to identify physical conditions that could restrict the delivery of Project components. Required temporary improvements will be identified and shown on a location map that will be developed and included in the Article 10 Application. The following construction activities may be required as part 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 culverts.
- Re-direction of ditch lines.
- Construction of a suitable roadway surface.

(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 Facility are expected to occur. The Project Sponsor anticipates entering into a road use agreement with the towns that will host the Facility. This agreement will establish the measures that the Project Sponsor will implement to ensure that any impacts to local roads resulting from Facility construction will be mitigated in a manner that is amenable to the towns and the Project Sponsor. The road use agreement will also include mitigation measures for impacts that may be incurred to local roads during maintenance of the Facility.

Prior to construction, any public road upgrades that may be required to accommodate construction vehicles will be identified. These improvements will be made at the Project Sponsor's expense prior to the arrival of oversized/overweight vehicles. Final transportation routing will be designed in consultation with the County and each Town's Highway Superintendent to avoid and/or minimize, to the extent practicable, safety issues associated with the use of the approved haul routes, which will confine the heavy truck travel to a few select roads. These and other commitments anticipated to be included in the Draft Road Use Agreement as a means of mitigating traffic and transportation impacts will be included in the Article 10 Application.

(5) Road Use and Restoration Agreements

This section of the Article 10 Application will describe 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 New York State Department of Transportation (NYSDOT). The Project Sponsor will provide a Draft Road Use Agreement as an Appendix to the Article 10 Application.

In addition, the Article 10 Application will detail the meetings and consultations that the Project Sponsor has had with the highway departments for the towns of Windsor and Sanford. During these meetings, the Project Sponsor will discuss the proposed Facility, Article 10 process, road use agreements, and general construction and transportation process when constructing a wind farm.

(e) Impact of the Facility on Mass Transit Systems

No rail or bus mass transit systems are expected to be impacted by the proposed Facility. Chenango Bridge Airport and Kirkwood Airpark are respectively 12 and 7.8 miles away from the Facility Site, and the United Health Wilson

Memorial Hospital heliport in Binghamton is 16.9 miles away. The Article 10 Application will provide in-depth description of the Facility tower locations and heights in relation to the local airport.

(f) Federal Aviation Administration Review

The Project Sponsor will submit the proposed Facility layout to the FAA so that aeronautical studies of the location of each proposed turbine, and permanent meteorological towers, 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 potential hazard and another that identifies no hazard. 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, then a letter is issued called a Notice of Presumed Hazard (NPH). Structures over 499 feet automatically receive an NPH and must be publicly circulated prior to a final FAA determination. This notification identifies a potential hazard that must be further studied and/or mitigated in some manner. Mitigation could include changes by the Project Sponsor, 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. If the proposed structure is under 499 feet and no potential hazards to air navigation are identified then a letter is issued called a Determination of No Hazard (DNH). 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.

The Article 10 Application will provide the status of FAA consultations.

(1) Department of Defense Review

The Project Sponsor will submit applications for FAA determinations. This submission initiates formal consultation and review of the applications by the Department of Defense (DoD), which is coordinated by the FAA. The results of the FAA review and formal will be discussed in the Article 10 Application.

(2) Consultation with Nearby Airports/Heliports

Letters regarding the Facility's development and status have been sent to the following Airports in accordance with the PIP: Greater Binghamton-Edwin A. Link Field Airport, Sidney Airport, Greene Airport, Chenango Bridge Airport, Luke Airport, Tri-Cities Airport, Wilson Memorial Regional Medical Center Heliport, and the Kirkwood Airpark Airport. To date, no response has been received. Following submission of the PSS, the Project Sponsor plans to meet with the airport managers of the aforementioned Airports. The Article 10 Application will discuss the results of those consultations.

(3) Responses from the FAA and DoD

Please see Section (f) and (f)(1) above.

2.26 EFFECT ON COMMUNICATIONS

(a) Existing Broadcast Communication Sources

The Article 10 Application will identify existing broadcast communication sources in the area, including:

(1) AM Radio

A review of Federal Communications Commission (FCC) license data, and a list complied, of AM and FM radio stations within approximately 30 kilometers (18.6 miles) of the proposed Facility, will be presented in the Article 10 Application.

(2) FM Radio

A review of FCC license data, and a list complied, of AM and FM radio stations within approximately 30 kilometers (18.6 miles) of the proposed Facility, will be presented in the Article 10 Application.

(3) Television

Off-air television stations broadcast signals from terrestrially-based facilities directly to television receivers. Off-air reception does not include cable or satellite television reception, neither of which are affected by the presence of wind turbines. The coverage of television stations and communities in the area that could potentially have degraded television reception as a result of Facility operation will be evaluated in the Article 10 Application.

(4) Telephone

Wireless operators are granted area-wide licenses from the FCC to deploy their cellular networks, which often include handsets with Emergency 911 capabilities. Mobile phone market boundaries differ from service to service. The carriers' licensed areas will be disaggregated down to the county level. The type of service (e.g., cellular [CELL], advanced wireless service [AWS], personal communication service [PCS]) for each mobile phone carrier in Broome and Delaware Counties will be provided in the Article 10 Application.

(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. To assure an uninterrupted line of communication, 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. A study evaluating the potential impact of the Facility's wind turbines on licensed, proposed, and applied-for microwave systems in the area will be included in the Article 10 Application. The Fresnel zones will also be depicted on a Figure to be included in the Article 10 Application.

(6) Emergency Services

An assessment of the emergency services communication sources in the vicinity of the Facility Site will be conducted, to identify potential impacts from the planned turbines. Registered frequencies for the following types of first responder entities will be evaluated: police, fire, emergency medical services, emergency management, hospitals, public works, local school districts, transportation and other state, county, and municipal agencies. It is currently anticipated that this would include, at minimum, the New York State Police, Broome County Sheriff's Office, and Fire Departments/EMS services, and town-owned, for-profit, and volunteer emergency services in the towns of Windsor and Deposit. Land mobile and emergency services incumbent data will be derived from the FCC's Universal Licensing System and the FCC's Public Safety & Homeland Security bureau.

The Project Sponsor will work with the public safety entities described above to remedy any interference related to the wind farm. If there was a compromise in coverage identified, the public safety entity would have many options to improve its signal coverage to the area through optimization of a nearby base station or even adding a repeater site. Utility towers, meteorological towers or even the turbine towers within the Facility Site can potentially serve as the platform for a base station or repeater site. The Project Sponsor would work with those entities to develop a mitigation plan that addresses significant impacts that compromise this essential coverage, and will discuss these issues in the Application.

(7) Municipal/School District Services

Municipal and school district communication sources will be included in the Application's assessment of emergency services communication sources described above in (a)(6). As identified in the PIP, the local districts within the 5-mile Study Area include Windsor Central School District, Bainbridge-Guilford Central School District, Sidney Central School District, Harpursville Central School district, and Afton Central School District.

(8) Public Utility Services

The Article 10 Application will identify public utility communication sources within 2 miles of the proposed Facility and interconnection, to the extent known by the Project Sponsor.

(9) Doppler/Weather Radar

The Project Sponsor will send written notification of the proposed Facility to the National Telecommunications and Information Administration (NTIA) of the U.S. Department of Commerce. The NTIA will provide copies of the plans for the proposed Facility to the federal agencies represented in the Interdepartment Radio Advisory Committee (IRAC), which include the NOAA, FAA, and U.S. Air Force, among other agencies. The NTIA will review the proposed Facility and identify any concerns with Doppler weather radar interference or other federal communications systems.

The nearest NEXRAD Doppler facility is located in Binghamton, NY approximately 20 miles from the facility site. Potential impacts associated with the Facility will be addressed in the Article 10 Application.

(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 Project Sponsor will submit the proposed Facility layout to the FAA so that aeronautical studies of locations of each proposed turbine can be conducted under the provisions of Title 49 of the U.S. Code, Section 44718. See Exhibit 25(f) *Federal Aviation Administration Review* for more detail on correspondence and potential effect. These issues will be discussed in the Application.

(11) Armed Forces

As discussed above, the NTIA provides plans for the proposed Facility 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 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. The Project Sponsor will initiate FAA review of turbine locations and the DoD will formally be consulted with by the FAA through its review process.

(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 GPS ground facility located closest to the proposed Facility will be identified in the Article 10 Application. 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.

(13) LORAN

LORAN was a long range navigation system developed during World War II that has since been deemed obsolete. 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. Therefore, no further discussion of LORAN will be provided in the Article 10 Application.

(14) Amateur Radio Licenses

Database searches of all amateur radio licenses registered to users with zip codes overlapping a two-mile radius of the Facility will be conducted via the FCC License Data Search on the website of the American Radio Relay League (AARL, 2015) and via RadioQTH's database of call signs (Lewis, 2015).

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

Locations of underground fiber optic cable within two miles of the Facility Site will be identified in the Article 10 Application, to the extent known. This information will be obtained from a private firm, (i.e., GeoTel Communications or equivalent) which maintains a database of this information.

(c) Anticipated Effects on Communication Systems

Section (a) of Exhibit 26 of the Article 10 Application will provide a description of the communication systems in and around the Facility and any expected impacts to those systems. A more general discussion of the anticipated effects of the proposed Facility and the electric interconnection on the communication systems identified above in Sections (a) and (b), will be provided as Exhibit 26(c) of the Article 10 Application, organized as follows:

(1) Potential Structure Interference with Broadcast Patterns
(2) Potential for Structures to Block Lines-of-sight
(3) Physical Disturbance by Construction Activities
(4) Adverse Impacts to co-located Lines due to Unintended Bonding
(5) Other Potential for Interference

(d) Evaluation of Design Configuration

A map illustrating Facility components and relevant communication system constraints (e.g., Fresnel zones, radio station exclusion zones, etc.) will be provided in the Article 10 Application. The Facility will be designed to avoid impacts to communication systems to the extent practicable.

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

The Project Sponsor takes seriously any complaints that it receives from members of the public. As described in Section 2.12(d) of this PSS, the Project Sponsor will develop a Complaint Resolution Plan through which residents can issue a formal complaint should any issues, such as degraded television service, arise as a result of construction or operation of the Facility. This plan will be attached to the Article 10 Application

(f) Potential Interference with Radar

As described above, the Project Sponsor will send a written notification of the proposed Facility to the NTIA. The Article 10 Application will include a discussion on the potential effects to radar and Radar Operations Centers.

2.27 SOCIOECONOMIC EFFECTS

The Facility is located in rural Broome County. Information regarding population, educational attainment and race within the Towns of Windsor and Sanford is summarized in Table 7, below:

Table 7. Demographic Information

Population	*Windsor*	*Sanford*
2010 Total Population [1]	6,274	2,407
2015 ACS 5-Year Population Estimate	6,136	2,567
Median Age	42.5 yrs	45.2 yrs
Educational attainment		
% high school graduate or higher	92.5%	86.4%
Total housing units	2,941	1,739
Median household income	$60,181	$ 44,516
Foreign born population	47	120
Individuals below poverty level	7.4%	14.4%
Veterans	399	266
Race and Hispanic Origin		
White alone	6,100	2,365
Black or African American alone	27	12
American Indian and Alaska Native alone	9	3
Asian alone	22	2
Native Hawaiian & Other Pacific Islander	2	0
Some Other Race alone	30	9
Two or More Races	91	16
Hispanic or Latino (of any race)	98	38
White alone, Not Hispanic or Latino	63	32

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

Quantifying the economic impacts of the Facility is essential to understanding the benefits for the local economy. Wind power development, like other commercial development facilities, expands the local economy by direct and indirect means. Income generated from direct employment during the construction and operation phases drives additional community investments by workers and consultants, who 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 Facility will 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 will estimate the dollars spent on labor and professional services by the Project Sponsor, consultants, and construction contractors, as well as operations and maintenance (O&M) personnel. On-site labor impacts do not reflect material expenditures.
- Local revenue and supply chain impacts: These impacts are associated with the estimated increase in demand for goods and services in industry sectors such as local food and hotel industries, that supply or otherwise support the companies and workers engaged in construction and operation (also known as "backward-linked" industries).
- Induced impacts: Induced impacts will measure the estimated effect of increased household income resulting from the Facility via lease payment, tax/PILOT benefits, etc. 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 will 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 Facility. 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 proposed Facility, 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 Facility-specific data input (such as year of construction, size of Facility, 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 Facility-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 will allow impacts to be estimated for both the construction and operation phases of the proposed Facility. The Article 10 Application will present the results of the JEDI model.

(a) Construction Workforce

The Article 10 Application will identify the estimated workforce required for the construction of the Facility, as indicated above. The results of the JEDI model output will be evaluated by the Project Sponsor'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 Facility, as indicated above. The results of the JEDI model output will be evaluated by the Project Sponsor'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 Facility construction, as indicated above. The results of the JEDI model output will be included in the Application, along with a description of the economic multiplier factors or other assumption(s) used will be described in the analysis.

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

The Article 10 Application will identify the estimated number of jobs associated with Facility operation, as indicated above. The Article 10 Application will also provide an estimate of other expenditures likely to be made in the vicinity of the Facility during its operation.

In addition, Facility operation will also result in payment to local landowners pursuant to the lease agreements executed to host Facility 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 Facility operation, as indicated above.

(f) Incremental School District Operating and Infrastructure Costs

The Facility is not expected to result in any additional operating or infrastructure costs to the local school districts. The Article 10 Application will confirm this expectation.

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

The Facility is not expected to result in any additional operating or infrastructure costs to local municipalities, authorities, or utilities. However, potential road damage associated with the transportation of materials could occur during the construction of the Facility. As such, the Project Sponsor will work with the host communities and Broome County to establish application road use agreements as addressed in Section 2.25 (d) (4) of this PSS. As a result of these road use agreement, adverse impacts to operation/infrastructure costs are anticipated to be avoided.

(h) Jurisdictions that Will Collect Taxes or Benefits

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

- Broome County
- Town of Windsor
- Town of Sanford
- Deposit Central School District
- Windsor Central School District

(i) Incremental Amount of Annual Taxes or Payments

The Project Sponsor intends to negotiate 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 Project Sponsor also intends to enter into a Host Community Agreement (HCA).

The Article 10 Application will provide more detail regarding the anticipated PILOT agreement with local tax jurisdictions, including estimated annual payments to each of these jurisdictions.

(j) Comparison of Incremental Costs and Incremental Benefits

As indicated above, the Facility 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 and the potential increase in sales tax revenue. Additional detail will be provided in the Article 10 Application.

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

As indicated in Section 2.18 of this PSS, Exhibit 18 of the Article 10 Application (along with a Preliminary Emergency Action Plan to be appended to the Application) will provide specific detail on emergency equipment that the Project Sponsor will maintain for the Facility. 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 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 Project Sponsor has had initial conversations with all local fire departments regarding equipment necessary to respond to a potential fire, hazardous substance, or medical emergency at the Facility. The Project Sponsor 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 Project Sponsor or fire and emergency responders. Details and results of this consultation will be presented in the Article 10 Application.

(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. Per the New York State Smart Growth Public Infrastructure Policy Act 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 Sponsor does not intend to install infrastructure that will promote or facilitate secondary growth covered by this law, the Application will address the Facility's consistency with the criteria provided in ECL 6-0107(2).

2.28 ENVIRONMENTAL JUSTICE

Exhibit 28 of the Article 10 Application requires the Project Sponsor to provide sufficient information for the New York State Department of Environmental Conservation (NYSDEC) and others to assess the potential impact of the Facility 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 Facility 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 Project Sponsor has defined the "Impact Study Area" to consist of a 5-mile radius around each of the Facility 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), there are no Potential Environmental Justice Areas within the Facility Area or Study Area Boundaries. The nearest Potential Environmental Justice Areas are approximately 12.5 miles from the Facility Area Boundary in the City of Binghamton and 16.6 miles from the Facility Area Boundary in the Village of Sidney (Delaware County) (see Figure 11).

The Project Sponsor provided information on Potential Environmental Justice areas in the PIP and to date, no comments have been received regarding potential impacts to Environmental Justice Areas. Because of the distance between the proposed Facility and the Potential Environmental Justice Area described above, the Facility is not expected to have an impact on any Environmental Justice Areas and the full Environmental Justice Analysis outlined in 6 NYCRR 487.6 is not required, and will not be provided in the Article 10 Application.

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 decommissioning of the Facility. It is currently anticipated to include an acceptable form of security, in the form of a decommissioning bond, taking into account the independently estimated salvage value and/or resale value of the Facility components for the decommissioning of the Facility at the end of its useful life (approximately 25 years) including site restoration. The Article 10 Application will include a discussion of the suitability of decommissioning bonds as an appropriate form of financial assurance.

(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 existing equipment with newer, more efficient turbines. Performance criteria applicable to decommissioning would also be applicable to re-powering (please see discussion of performance criteria above in (a)).

However, if not upgraded or if the turbines are not expected to return to operation, they will be decommissioned, in accordance with a Decommissioning Plan. This plan will be included in the Article 10 Application and will generally address the following provisions:

- Decommissioning would be triggered if a wind turbine is non-operational for not less than two years, unless otherwise agreed to by the Towns and DPS staff.
- All above-ground structures, including turbines, blades, nacelles, towers, transformers, above-ground electric lines, permanent meteorological towers, and the collection substation, will be removed. The POI substation will not be removed during decommissioning, because it will be owned and operated by NYSEG following its construction.
- Foundations and collection lines buried above a depth of 36 inches will be removed, unless required by lease agreement and/or other state/local laws. Components buried lower than 36 inches will remain in place.
- Ground disturbance during decommissioning will be minimized to the extent practicable and the site will be restored to its original ground contours to the extent practicable. Areas outside of active agricultural will be revegetated with a native seed mix. Areas within active agricultural will be replanted in accordance with the farmer's desired seed mix.
- The Project Sponsor will provide written notification to the Towns two weeks prior to the commencement of site restoration following decommissioning activities.
- The types of financial assurance, as needed, 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. The decommissioning estimate will be prepared on a per-turbine basis and submitted for DPS Staff and Town review to ensure consistency with the methodology approved in the Certificate. The per-turbine decommissioning estimate will include any restoration or removal of access roads and collection lines, where applicable.
- The first decommissioning estimate shall be provided prior to Facility construction, the second estimate after one year of Facility operation, and subsequent estimates every fifth year thereafter.

- The Project Sponsor plans to enter into Road Use Agreements with the Towns in which it plans to use Town roads for delivery of turbine components. *See* Section 2.25. The provisions of the Road Use Agreements will also apply to the decommissioning of the Facility in order to ensure that roads are adequately restored to their condition preceding decommissioning following decommissioning activities.
- The time when the Project Sponsor will post and maintain financial assurance in the amount of the net decommissioning costs.
- When the Project Sponsor posts the financial assurance, it will provide the Towns with clear instructions as to how they can access the financial assurance should the Project Sponsor violate the provisions of the Decommissioning Plan.
- The Decommissioning Plan will be binding upon the Project Sponsor, or any of its successors, assigns, or heirs.
- The Towns in which decommissioning activities have occurred will have access to the Facility, pursuant to reasonable notice to the Project Sponsor, to inspect the completed decommissioning activities.

Additional detail will be provided in the Article 10 Application.

(c) Description of Decommissioning/Restoration Agreements Between Project Sponsor and Landowners

All Facility components will be located on private land under lease agreement with the landowners, and all leases with private landowners contain a provision on decommissioning. Decommissioning will involve the removal of all above and below ground Facility components to a depth of at least three feet. Information on the method and schedule for updating the cost of decommissioning and restoration, the method of ensuring funds will be available for decommissioning and restoration, and the method by which the Facility will be decommissioned and the site restored will be provided in Exhibit 29(b) of the Application.

(d) Nuclear Power Facilities

This section is not applicable and therefore is not addressed in this Article 10 Application.

2.30 NUCLEAR FACILITIES

The proposed Facility is not a nuclear facility, and as such, the requirements of 1001.30 are not applicable and will not be included in the Article 10 Application.

2.31 LOCAL LAWS AND ORDINANCES

The Facility is proposed within the Towns of Windsor and Sanford, Broome County, New York.

During preparation of the Article 10 Application, the Project Sponsor will continue its consultation with the municipalities whose requirements are the subject of Exhibit 31 to determine whether all such requirements have been correctly identified, and to determine whether any potential request by the Project Sponsor that the Board elect not to apply any such local requirement could be obviated by design changes to the proposed Facility or potential modifications to local laws.

(a) List of Applicable Local Ordinances and Laws of a Procedural Nature

The Project Sponsor 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:

Town of Windsor (Windsor Town Code)

- Chapter 51, Flood Damage Prevention[9]
    - Article III, § 51-6 Applicability and 51-10 Penalties
    - Article IV, § 51-13 Development Permit
    - Article VI, Variance Procedures
- Chapter 68, Noise Control
    - § 68-8(F) Special Permit requirement
    - § 68-9(11) Special Permit or Temporary License to allow Exceptions
    - § 68-10 Enforcement and Administration
    - § 68-11 Temporary License
    - § 68-12 Special Permit
- Chapter 93, Zoning
    - § 92-21, -21.1 and -21.2 Commercial Site Plan Review
    - § 92-29, -29.1 and -29.2 Industrial Site Plan Review
    - § 93-44 Building Permits
    - § 93-45 Certificate of Occupancy/Compliance
    - § 93-47(B) and (C) Variances and Special Permits
    - § 93-48 Procedures
    - Article XI Special Use Permits
    - § 93-53 Special Permit Uses in Flood Hazard Districts

[9] It is not known at this time whether any components of the Bluestone Wind Project will be proposed in designated special flood zones in the Town of Windsor, which would trigger these regulations. They are included here as potentially applicable, in order to provide a comprehensive overview of potentially applicable local laws.

- § 93-54 Special Permits for Uses within Flood Fringe
- § 93-55 Special Permits for Uses within Floodway
- § 93-56 Development Plan
- § 93-61 Penalties

Town of Sanford (Sanford Land Use Management Laws, Local Law Number 1 of 1992, as amended, up to and including Local Laws 1 and 2 of 2017 on renewable energy systems)

- Article XIV, Section 1402.2(B) Site Plan Approval and Special Use Permit Required
- Article XIV, Section 1402.3 Special Permits
- Article XIV, Section 1402.4 Application Requirements
- Article XIV, Section 1402.5(F)(1) Viewshed Studies
- Article VIX, Section 1402.5(F)(4) Bird/Bat Migration Studies
- Article XIV, Section 1402.5(G)(2) Ownership Changes
- Article XIV, Section 1402.5(G)(3) Modifications
- Article XIV, Section 1402.5(H) Certifications
- Article XIV, Section 1402.5(I) Public Hearing
- Article XIV, Section 1402.6 Abandonment of Use
- Article XIV, Section 1402.7 Wind Measurement Towers [post-Certification]
- Article XIV, Section 1406 Additional Requirements for Special Permits

These local procedural requirements are supplanted by PSL Article 10, as a matter of law, unless the Board expressly authorizes the exercise of the procedural requirement by the local municipality or agency.

(b) Local Procedural Requirements Requiring Board Authorization

To the extent that the Towns require permits or other approvals for work performed on Town roads or within the Towns' right of way, at this time, it is the Project Sponsor's intent to request that the Board expressly authorize the Towns to issue such permits or alternatively enter into road use agreements with the Project Sponsor.

The Project Sponsor will work with the Towns to follow their procedural and substantive requirements for the permitting of highway work permits. Highway work and similar road permits are primarily an issue of local concern and ministerial in nature provided the Project Sponsor meets the applicable standards.

(c) Identification of Municipal Agency Qualified to Review and Approve Building Permits

The Town of Windsor and the Town of Sanford are responsible for reviewing and approving building plans, inspecting construction work, and certifying compliance with the New York State Uniform Fire Prevention and Building Code, and the Energy Conservation Code of New York State to the extent that a municipal official is a qualified individual.

Due to the complex nature of the Facility, there is the potential that the Project Sponsor will arrange with the Towns to pay for consultant services for the review, approval, inspection and compliance certification for work required to comply with the New York State Uniform Fire Prevention and Building Code, and the Energy Conservation Code of New York State, if necessary. For a wind powered electric generating facility, typically, this work is limited to turbine foundations and operations and maintenance buildings.[10] The Project Sponsor will work with the Towns prior to submission of the Article 10 Application to identify the appropriate individuals to conduct this review and the Article 10 Application will include a description of any preliminary arrangements between the Project Sponsor and the Towns and the process for review.

(d) List of Applicable Local Ordinances and Laws of Substantive Nature

The Project Sponsor 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:

Town of Windsor (Windsor Town Code)

- Chapter 51, Flood Damage Prevention
  - Article V, § 51-15 General Standards
  - Article V, § 51-16 (B) Specific Standards, nonresidential construction
  - Article V, § 51-17 Floodways
- Chapter 68, Noise Control
  - § 68-7 Unreasonable Noise Prohibited
  - § 68-8 Maximum Permissible Continuous Sound Levels
  - § 68-9(11) Exception for noise where authorized by Town
- Chapter 93, Zoning
  - § 93-5 (A) Application of Regulations
  - Permitted Principal and Accessory Uses in Zoning Districts: §§ 93-10 and -11 (R-14 Residential); 93-17 and -18 (A Agricultural); 93-22 and -23 (C Commercial); 93-30 and -31 (I Industrial)
  - Height Regulations in Zoning Districts: §§ 93-12 (R-14); 93-25 (C); and 93-33 (I)
  - Lot Size and Area Restrictions in Zoning Districts: §§ 93-13 through 93-15 (R-14); 93-19 through 93-20 (A); 93-26 through 93-27 (C); 93-32, -34 and -35 (I)
  - Off-Street Parking in Certain Zones: §§ 93-28 (C) and 93-36 (I)
  - § 93-52 Permitted Uses in Flood Hazard District
  - § 93-54 Flood-Fringe Provisions

[10] The NYS DOS has stated that the Building Code of New York State does not regulate wind generators or free standing communication towers. See NYSDOS, Division of Code Enforcement and Administration, Technical Bulletin January 1, 2003, Communication Towers, Cellular Towers and Wind Generators.

- § 93-55 Floodway Provisions

Town of Sanford (Sanford Land Use Management Laws, Local Law Number 1 of 1992, as amended, up to and including Local Laws 1 and 2 of 2017 on renewable energy systems)

- Article IV Use Schedules
- Article XIV, Section 1402.2(B) Commercial WECS Permitted as indicated in Schedule of Regulations in Section 403
- Article XIV, Section 1402.5 Standards for Design
- Article XIV, Section 1402.7(C)(1)-(4) Standards for Wind Measurement Towers

The location of the proposed Facility will conform to all such local substantive requirements, except any that the Project Sponsor requests that the Board elect to not apply. Copies of zoning, floodplain, 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 Project Sponsor Requests the Board Not Apply

The Project Sponsor intends to design the Facility to comply with substantive requirements of the local laws, to the extent practicable. Where compliance with those substantive requirements would be unreasonably burdensome, in view of the existing technology, or the needs of, or costs to ratepayers, the Project Sponsor will request a waiver of those standards from the Siting Board. In the event waivers are requested, the Project Sponsor will provide, in the Application, the information required under 16 NYCRR § 1001.31(e) to support the request.

The Project Sponsor will continue to consult with the local municipalities and will provide more detail in the Article 10 Application, including a statement justifying why any identified local law is unreasonably burdensome as applied to the Facility.

(f) List of Procedural Local Ordinances/Laws Related to Use of Water, Sewer, or Telecommunication Lines

The Project Sponsor does not anticipate connecting to any water, sewer, or steam lines in public rights of ways. Therefore, the Project Sponsor has not identified any local ordinances, laws, resolutions, regulations, standards or other requirements applicable to the interconnection related to the use of water, sewer, and steam lines in public rights of way that are of a procedural nature. It is not known at this time whether interconnection to telecommunications lines will be required. However, the Project Sponsor did not identify local laws related to the use of telecommunications lines that would be applicable to the Facility. The Article 10 Application will confirm that the Facility will not be connecting to any water, sewer, telecommunication, or steam lines in public rights of ways.

(g) List of Substantive Local Ordinances/Laws Related to Use of Water, Sewer, or Telecommunication Lines

The Project Sponsor does not anticipate connecting to any water, sewer, telecommunication, or steam lines in public rights of ways. Therefore, the Project Sponsor has not identified any local ordinances, laws, resolutions, regulations, standards or other requirements applicable to the interconnection related to the use of water, sewer, telecommunication and steam lines in public rights of way that are of a substantive nature. The Article 10 Application will confirm that the Facility will not be connecting to any water, sewer, telecommunication, or steam lines in public rights of ways.

(h) Local Ordinances/Laws Related to Use of Water/Sewer that the Project Sponsor Requests the Board Not Apply

At this time the Project Sponsor has not identified any local substantive ordinances or laws related to the use of water/sewer that are applicable to the proposed Facility and that they anticipate requesting the Board not apply; however, the Project Sponsor will continue to consult with the local municipalities and will provide more detail in the article 10 Application.

(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 Facility and the second containing a description of how the Project Sponsor plans to meet compliance.

(j) Zoning Designation

Zoning regulations within the Facility Site are described within the applicable Town Zoning Laws. The Article 10 Application will outline where the turbine locations and other Facility components (i.e., O&M Building) within the Facility Site will be located and how they will comply with zoning districts to allow for the construction of wind energy generation facilities by special permit or otherwise.

2.32 STATE LAWS AND REGULATIONS

During preparation of the Article 10 Application, the Project Sponsor will consult with the state agencies and authorities whose requirements are the subject of Exhibit 32, to determine whether all such requirements have been correctly identified. To the extent that the requirements below are applicable, the Project Sponsor intends to comply with such requirements unless the Project Sponsor specifically requests relief from the Siting Board.

(a) List of State Approvals, Consents, Permits, Certificates, or Other Conditions of a Procedural Nature

The Project Sponsor 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, as summarized in the Table 8.

Table 8. List of All State Approvals for the Construction and Operation of the Facility that are Procedural in Nature and supplanted by PSL Article 10

State Agency	Requirement	Discussion
New York State Board on Electric Generation Siting and the Environment	Water Quality Certification (WQC), Section 404 of the Clean Water Act	The Project Sponsor anticipates submitting a permit application to the U.S. Army Corps of Engineers under section 404 of the CWA upon filing the Article 10 Application, so that the wetland permit review process can run in parallel with the Article 10 Certification process.
New York State Office of Parks, Recreation, and Historic Preservation (OPRHP)	Consultation Pursuant to §14.09 of the New York State Historic Preservation Act	The Project Sponsor will initiate consultation with the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) to ensure compliance with §14.09 of the New York State Historic Preservation Act (as well as NHPA §106 review, to be initiated per submission of federal permit applications).
New York State Department of Environmental Conservation	Endangered and Threatened Species Incidental Take Permit Article 11, 6 NYCRR Part 182	The NYSDEC may issue a license or permit to "take" any species listed as endangered or threatened. This permit may be required if, in consultation with state agencies, it is determined that the project could result in incidental take of any state-listed endangered or threatened fish or wildlife species from occupied habitat. If this permit is required, the procedural requirements are supplanted by Article 10.
New York State Department of Environmental Conservation	Permit for Protection of Waters Article 15, 6 NYCRR Part 608	This permit would be required for the crossing of protected streams by Facility components. Protected streams are particular portions of streams 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.
New York State Department of Environmental Conservation	Permit for Freshwater Wetlands Article 24, 6 NYCRR Part 663	This permit would be required for the crossing of regulated freshwater wetlands or adjacent areas by Facility components. 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
New York State Department of Environmental Conservation	SPDES General Permit for Construction Activity	This permit is required for construction projects that disturb one or more acres of soil. In accordance with 16 NYCRR 1001.32(a) this is identified as a state procedural requirement issued by the NYSDEC pursuant to federal recognition of state authority. This approval is subject to review by the NYSDEC independent of the Article 10 process.
Department of Transportation	Special Use Permit for Oversize/Overweight Vehicles (New York State Vehicle and Traffic Law Section 385)	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 Project Sponsor will request that the Siting Board authorize the NYSDOT 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.
New York State Public Service Commission	Certificate of Public Convenience and Necessity NY PSL §68	No electric corporation shall begin construction of an electric plant, having a generating capacity of at least 80 MW, without first having obtained the permission and approval of the commission. The procedural requirements of Section 68 are supplanted by Article 10.

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.

(b) List of Procedural State Approvals/Permits/Etc. that the Project Sponsor Requests the Board Not Apply

As indicated in the chart above, the Project Sponsor anticipates requesting that the Siting Board authorize the NYSDOT to issue the applicable over-sized vehicle permits, highway work permits and other ministerial permits associated with road work in State highways or rights-of-way. 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 Project Sponsor 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 Project Sponsor will construct and operate the Facility in a manner that conforms to all State substantive requirements for those approvals, consents, permits, certificates, or other conditions. The following is a list of all substantive state requirements:

- Water Quality Certification (WQC), Section 401 of the Clean Water Act 6 NYCRR Part 621.4e (Water Quality Certifications in Accordance with Section 401 of the Clean Water Act)
- Consultation Pursuant to Section14.09 of the New York State Historic Preservation Act
- Permit for Protection of Waters, Article 15, 6 NYCRR Part 608.7b (Permit Application Review) and 608.8 (Standards)
- Permit for Freshwater Wetlands, Article 24, 6 NYCRR Part 663.5 (Standards for Issuance of Permits and Letters of Permission)
- SPDES General Permit for Construction Activity (GP-0-15002), Article 3, 6 NYCRR Part 750-1.11 (Application of Standards, Limitations, and other Requirements)

(d) Summary Table of Substantive State Requirements

The substantive state requirements preliminarily identified above in (c) will be presented in a table in the Article 10 Application, and formatted per the associated requirements.

(e) State Approvals/Permits/Etc. for Offsite Features Not Encompassed by Major Electric Generating Facility

To the extent that offsite ancillary features, which are not considered part of the Major Electric Generating Facility, are needed, a list of all state approvals, consents, permits, certificates, or other conditions for the construction or operation of said offsite ancillary features will be listed in the Article 10 Application.

2.33 OTHER APPLICATIONS AND FILINGS

(a) Other Applications or Filings Concerning the Subject Matter of the Proceeding

Besides the list of approvals identified in Section 2.32 and below in subparagraph (B) the Project Sponsor does not have, and is not aware of, any other application or filing before any governmental agency, department or court, which concerns the subject matter of this proceeding (i.e., Bluestone Wind Project).

(b) Federal Permits, Consents, Approvals, or Licenses Required for Construction or Operation

Table 9 summarizes any anticipated federal permit, consent, approval, or license needed for the proposed Facility. This information will be confirmed and/or updated in the Article 10 Application.

Table 9. Federal Permits and Approvals for the Facility

Agency	Anticipated Application Date[1]	Description of Permit or Approval Required
U.S. Army Corps of Engineers	TBD	Section 10 of the Rivers and Harbors Act of 1898 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 & Wildlife Service	TBD	Consultation Pursuant to Section 7 of the Endangered Species Act, associated with the aforementioned 404 Permit.

[1] The anticipated application submittal date will be identified in the Article 10 Application.

2.34 ELECTRIC INTERCONNECTION

Interconnection of the Facility to the electric transmission system will be achieved using multiple systems. The wind turbines themselves produce power at a low voltage, which is stepped up to a medium voltage (e.g. 34.5 kV) at the output of each turbine. A medium voltage collection system comprised of underground and overhead wires transmits the power to a collection substation. The collection substation steps the voltage up to a high voltage (e.g. 115kV) and a high voltage transmission line carries the power to a POI substation. The POI substation connects the Facility to the NYSEG's existing Afton to Stilesville 115 kV transmission line.

(a) Design Voltage and Voltage of Initial Operation

A pad mount transformer located near the base of each wind turbine tower, or internally within the tower, will raise the voltage of electricity produced by the turbine generator from approximately 650 volts up to 34.5 kilovolts (kV); the

voltage level of the collection system. The length and anticipated number of circuits for the electrical collection system will be described in the Article 10 Application.

(b) Type, Size, Number, and Materials of Conductors

The length of the collection system, broken down by anticipated length of overhead and underground lines, will be described in the Article 10 Application. The underground system will be comprised of numerous cable sections in parallel, connecting each of the wind turbines to the collection substation. Each section is anticipated to be comprised of 3 type URD aluminum conductors, each surrounded by electrical insulation (typically tree-retardant cross linked polyethylene, TRXLPE) and an overall jacket (typically linear low density polyethylene, LLDPE). The size of each conductor will depend on how many turbines are producing power into that conductor, but will typically range from 4/0 to 1500 kcmil AWG.

The overhead system is similar in concept to the underground section. Each section is anticipated to be comprised of 3 ACSR (aluminum conductor, steel reinforced) conductors. The size will range from 336.4 to 795 kcmil. Determination of specular or non-specular material construction will be made during final design.

(c) Insulator Design

Typical utility-grade ceramic/porcelain or composite/polymer insulators, designed and constructed in accordance with ANSI C29, are anticipated to be used. Insulators in the POI substation are anticipated to be porcelain.

(d) Length of the Transmission Line

The plans for the overhead transmission line is still being developed. The transmission line will either be directly adjacent to the NYSEG line or run approximately 2-4 miles between the collector substation and the POI substation. Further information will be included in the Article 10 Application.

(e) Typical Dimensions and Construction Materials of the Towers

It is anticipated that the majority of the collection lines would be buried. However, if needed to avoid sensitive sites like wetlands, steep slopes, or areas where the topography makes burial impracticable (such as shallow bedrock), the overhead lines would be carried on standard industry materials (typically wood or metal), and anticipated pole heights will be presented in the Article 10 Application.

(f) Design Standards for Each Type of Tower and Tower Foundation

It is anticipated that the poles used for the overhead collection line would be carried on standard industry materials. The design standards for the overhead collection line wooden poles will be described in the Article 10 Application.

The foundation for each pole would be granular fill that is installed into the voids around the pole in the hole drilled for embedment. The fill would then be compacted in small lifts to ensure a solid, compacted base for each pole.

(g) Type of Cable System and Design Standards for Underground Construction

From the transformer within each wind turbine, power cables and fiber optic communication cables which 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 nonhazardous 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 an excavator or bulldozer. All areas will be returned to approximate pre-construction grades and restored.

Horizontal direction drilling (HDD) may be utilized to installed underground collection lines in or near areas of sensitive areas (i.e., wetlands, streams, etc.) or as needed (i.e., to cross roadways, etc.). Typical constructions details regarding the use of HDD will be included in the Article 10 Application.

(h) Profile of Underground Lines

A typical drawing of the underground collection cable and associated material will be provided in the Article 10 Application.

(i) Equipment to be Installed in Substations or Switching Stations

The POI substation and collection substation equipment will be described in the Article 10 Application. The Article 10 Application will include a plan/overview of the POI substation and the collection substation.

(j) Any Terminal Facility

The only terminal facilities expected are the POI substation and the collection substation and will be described/shown above in section (i).

(k) Need for Cathodic Protection Measures

There are no cathodic protection measures expected to be required for installation of the underground systems, as no metallic pipelines are anticipated to be used. Therefore, cathodic protection measures will not be discussed further in the Article 10 Application.

2.35 ELECTRIC AND MAGNETIC FIELDS

The information presented in Exhibit 35 of the Article 10 Application will be derived from an electric and magnetic field (EMF) study to be prepared for the Bluestone Wind Project, and will be addressed by the requirements of 16NYCRR 1001.35.

(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. The Article 10 Application will identify each ROW segments with unique EMF characteristics, which will be evaluated in the EMF study. The strength and location of EMFs will be modeled on representative areas of these segments. Modeling calculations will identify existing EMFs and future EMFs that would result from construction and operation of the Facility. The Article 10 Application will identify the name and calculation number of each segments.

(b) For Each Right-of-way Segment, Base Case and Proposed Cross Sections Showing:

For each of the unique ROW segments, the EMF study will provide both base case (where existing facilities are present) and proposed cross sections that will show, to scale, the following features:

- any known overhead electric transmission, sub-transmission, and distribution facilities showing structural details and dimensions and identifying phase spacing, phasing, and any other characteristics affecting EMF emissions;
- any known underground electric transmission, sub-transmission (i.e., 34.5 kV collection system), and distribution facilities;
- ROW boundaries; and

- structural details and dimensions for all structures (dimensions, phase spacing, phasing, and similar categories) and an overview map showing locations of structures.

The station numbers associated with each of the unique ROW segments will be included in the Article 10 Application.

(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 unique ROW segment and each cross-section, and any residences or occupied buildings within the ROW segments. If no residence or occupied building is within the ROW segments, the measurement of the distance between the edge of the ROW segment and the nearest residence or occupied building will be provided.

(d) Electric and Magnetic Field Study

(1) Licensed Professional Engineer

The EMF study 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 software to be used in the EMF study will be identified in the Article 10 Application.

(3) Electric Field Calculation Tables and Field Strength Graphs

The EMF study will model the strength and locations of electric fields to be generated by the Facility. Modeling will be conducted at rated voltage, and the measurement location and interval will be described in the Application. Electric field strength graphs depicting electric fields along the width of the entire ROW and out to the property boundary of the Facility will be included in the EMF study. Digital copies of all input assumptions and outputs for the calculations will be provided under separate cover.

(4) Magnetic Field Calculation Tables and Field Strength Graphs

The EMF study will model the strength and locations of magnetic fields to be generated by the Facility. Modeling will be conducted at rated voltage, and the measurement location and interval will be described in the Application. There is no expected change in amperage under any of the following conditions: summer normal, summer short

term emergency, winter normal, winter short term emergency. Therefore, the magnetic field modeling to be performed will be applicable to any of these conditions. Magnetic field strength graphs depicting magnetic fields along the width of the entire ROW and out to the property boundary of the Facility will be included in the EMF study. Digital copies of all input assumptions and outputs for the calculations are being provided under separate cover.

(5) Magnetic Field Calculation Tables and Field Strength Graphs for Maximum Annual Load within 10 Years

There is no expected change in amperage in maximum average load initially versus for 10 years after initiation of operation. Therefore, the modeling of magnetic fields described above in 1001.35(d)(4) (including both the graphs and tables included in the EMF study) will be applicable to both initial operation and operation after 10 years.

(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 Facility; there are no existing power lines within this ROW. Consequently, this requirement does not apply to the proposed Facility and will not be addressed in the EMF study or the Article 10 Application.

2.36 GAS INTERCONNECTION

The proposed Facility will not require gas interconnection facilities, and as such, the requirements of 1001.36 are not applicable and will not be included in the Article 10 Application.

2.37 BACK-UP FUEL

The proposed Facility will not require back-up fuel, and as such, the requirements of 1001.37 are not applicable and will not be included in the Article 10 Application.

2.38 WATER INTERCONNECTION

The proposed Facility is not expected to require water interconnection facilities, and as such, the requirements of this exhibit are not applicable. If a new O&M building is constructed, it is anticipated that water supply needs will be satisfied through use of a private water well, which would be drilled by a NYSDEC-approved water well driller. The Project Sponsor will work with the Broome County Department of Health during this process. If an existing building is used for

O&M purposes, the Project Sponsor will evaluate the adequacy of existing water supply, and include a discussion of those issues in the Application, if applicable.

2.39 WASTEWATER INTERCONNECTION

The proposed Facility is not expected to require interconnection to a municipal wastewater system, and as such, the requirements of this exhibit are not applicable. Specific to the O&M building, wastewater needs will be satisfied through use of an individual on-site wastewater treatment system (e.g., septic system), if a new building is constructed. The Project Sponsor will work with the respective Town's permitting and installation requirements and Broome County Department of Health throughout this process. If an existing building is used for O&M purposes, the Project Sponsor will evaluate the adequacy of existing wastewater treatment systems, and will include a discussion of those issues in the Application, if applicable.

2.40 TELECOMMUNICATIONS INTERCONNECTION

Generally, it is not anticipated that the Facility will require telecommunication interconnections as defined by Article 10, 16 NYCRR 1000.40, in that new off-site telecommunication lines are not anticipated at this time. It is likely that data will be transmitted to NYSEG and others using existing telecommunications facilities, as the area is generally served by existing cellular and/or broadband services. In addition, Facility communications will be installed on-site as part of substation and O&M building construction.

(a) Operational Data Transmitted to NYISO

The Facility's operational data will be transmitted to NYISO/NYSEG through a fiber-optic shield wire from the collection substation to the POI, and will include generation data (MW output, MVAR, and any curtailment) and meteorological data (wind speed, wind direction, barometric pressure, ambient temperature, dew point, and humidity). The Article 10 Application will provide additional information on the Facility's meter location, the means of providing the operational data to NYSEG, and the secure communications network for this operational data.

(b) Facility Operations Communications Methods

The Article 10 Application will provide information regarding a high-speed internet connection (assumed to be T-1 or other provider) to be established, and the means of transmitting the necessary data and other information to the appropriate parties for monitoring and reporting purposes.

The Article 10 Application will also discuss a telecommunications network to be set up at the O&M building, allowing for telecommunications to the public and first responders/emergency responders if necessary, and communications to the Project Sponsor's corporate offices for monitoring and access to the Facility.

(c) Status of Negotiations

The Article 10 regulations require a description of the status of negotiations, or a copy of agreements that have been executed, with companies or individuals for providing the communications interconnection, including any restrictions or conditions of approval placed on the Facility imposed by the provider, if applicable. Such negotiations have not yet been initiated for the Facility because at this time, the need for these agreements has not been identified. Although not anticipated, any changes in status will be discussed in the Article 10 Application.

2.41 APPLICATIONS TO MODIFY OR BUILD ADJACENT

The Project Sponsor is not proposing to modify or build adjacent to an existing facility, and as such, the requirements of this exhibit are not applicable and will not be included in the Article 10 Application.

3.0 SUMMARY AND CONCLUSIONS

This Preliminary Scoping Statement has been prepared for Bluestone Wind, LLC in effort to construct a major electric generating facility. The proposed facility includes up to 40 turbines and generate up to 124 MW of renewable energy with no emissions of pollutants or greenhouse gases to the atmosphere and without the need for significant water use. Additional components will include: access roads, above and underground collection lines, collection substation, overhead transmission line point of interconnection substation, up to 2 permanent meteorological (met) towers, up to 3 staging/laydown yards, and an Operations and Maintenance (O&M) building. This document has been prepared to facilitate an understanding of the proposed Facility, 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 Broome County, New York in the towns of Windsor and Sanford. The proposed Facility Area boundary (see Figure 2) consists of approximately 38,000 acres of private land, and the general landscape is a mix of agricultural and forest land which is sited primarily on upland areas between the Village of Windsor and Deposit. The footprint of the Facility will be substantially smaller than the Facility Area displayed in this PSS.

The Article 10 Application will provide a range of turbine models that may ultimately be selected. In no case will the Facility consist of more than 40 turbines or be greater than 124 MW.

The Project Sponsor 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 October 4, 2016, comments on the PIP were received from the New York State Department of Public Service (DPS) on November 3, 2016, and the PIP was updated, finalized and filed by the Project Sponsor on December 2, 2016. The PIP can be accessed, viewed and downloaded on the online case record maintained by the Siting Board and on the Facility-specific website maintained by the Project Sponsor:

- http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=16-F-0559&submit=Search
- www.bluestonewind.com

In addition to the websites identified above, the Project Sponsor has established a toll free number (1-866-681-3312) to call with any questions and comments on the Facility. Outreach efforts completed to date are summarized in Section 2.2 of this PSS report.

During the time before the submission of the Article 10 Application, the Project Sponsor intends to continue stakeholder outreach. The Project Sponsor will provide notices to the members of the Stakeholder list at the time of submission of the PSS to provide an update on the Facility, invite comments, and remind the stakeholders of the comment period timeframe. Finally, the Project Sponsor 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 Facility-specific support studies that will be conducted and included in the Article 10 Application, including:

- Preliminary Emergency Response 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
- Draft Decommissioning Plan
- AM and FM Radio Analysis
- Off-Air Television Analysis
- Microwave Analysis
- Electric and Magnetic Field Study

Finally, as previously indicated, the Project Sponsor 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 10.

Table 10. PSS Content Matrix

PSL 1000.5(l) Section	Requirement	Corresponding Section of the Bluestone 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 Project Sponsor 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 Bluestone 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 Project Sponsor 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 Project Sponsor 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 Bluestone 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 Project Sponsor may limit its description and evaluation of alternative locations to parcels owned by, or under option to, such private facility Project Sponsor 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 Project Sponsor and therefore the description and evaluation of alternative locations will be limited to parcels owned by, or under option to, such private facility Project Sponsor 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 Bluestone 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 Project Sponsor may limit its description and evaluation of alternative locations to parcels owned by, or under option to, such private facility Project Sponsor 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 Project Sponsor and therefore the description and evaluation of alternative locations will be limited to parcels owned by, or under option to, such private facility Project Sponsor 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 Bluestone 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 Project Sponsor to those issues.	Appendix D	As of the date of filing this PSS, no material issues have been raised by the public or affected agencies. However, Appendix D of the PSS includes the most recently filed Meeting Log, which outlines all consultation activities conducted by the Project Sponsor 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 Project Sponsor 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 Bluestone Wind PSS	Notes
PSL 1000.5 (l)(6)	a description of the Project Sponsor, 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 Project Sponsor, including the type of business and its formation. The Project Sponsor does not plan to seek to obtain the power of eminent domain.
PSL 1000.5 (l)(7)	a description of the Project Sponsor'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 Project Sponsor's property rights and interests.
PSL 1000.5 (l)(8)	any other information that the Project Sponsor may deem to be relevant.	Entire PSS	Any other information deemed relevant by the Project Sponsor has been included in the PSS.

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