



Simulated view of the Deer River Wind Farm from Liberty Road in Montague

Preliminary Scoping Statement

Deer River Wind Farm (Case Number 16-F-0267)

Towns of Pinckney, Harrisburg, Montague, and Rodman, Lewis and Jefferson Counties, New York

<http://www.avangridrenewables.us/deerriver/index.html>

Respectfully submitted to the:

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

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Applicant:

Atlantic Wind LLC, a subsidiary of
Avangrid Renewables LLC
2 Radnor Corp. Center, Suite 200
100 Matsonford Road
Radnor, PA 19087

Prepared by:

Stantec Consulting Services Inc.
61 Commercial Street, Suite 100
Rochester, NY 14614-1009



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Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ALIS	Accident Location Information System
ANSI	American National Standards Institute
Applicant or Atlantic Wind	Atlantic Wind LLC
APE	Area of Potential Effect
Avangrid Renewables	Avangrid Renewables LLC
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
APLIC	Avian Power Line Interaction Committee
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers

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ASTM	American Society for Testing and Materials
AWS	American Welding Society
BBA	NYS Breeding Bird Atlas
BBS	USGS Breeding Bird Survey
BMPs	Best Management Practices
BOP	Balance of Plant
CCM	Certified Consulting Meteorologist
CEDS	County Comprehensive Economic Development Strategy
CES	Clean Energy Standard
CIPC	Critical Infrastructure Protection Committee
CONCAWE	Conservation of Clean Air and Water Europe
CRIS	Cultural Resources Information System

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CRSI	Concrete Reinforcing Steel Institute
DEC	New York State Department of Environmental Conservation
DEM	Digital Elevation Model
DoD	Department of Defense
DOH	New York State Department of Health
DOT	New York State Department of Transportation
DPS	Department of Public Service
EEI-AEICA	Edison Electric Institute Publications
EJ	Environmental Justice
EMF	Electric and Magnetic Field
FAA	Federal Aviation Administration

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Facility	Consists of all generating facility components; ancillary features located within the Project Area, including but not limited to an Operations & Maintenance building, meteorological towers, substation(s), and access roads; and interconnections.
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FGEIS	Final Generic Environmental Impact Statements
FSEIS	Final Supplemental Environmental Impact Statement
FHWA	Federal Highway Administration
GIS	Geographic Information System
GHG	Greenhouse Gas
GPS	Global Positioning System
HCA	Host Community Agreement
Herp Atlas	NYS Amphibian & Reptile Atlas Project

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Hz	Hertz
ICEA	Insulated Cable Engineers Association
IEC	International Electro-technical Commission
IEEE	Institute of Electrical and Electronics Engineers
INCE	Institute of Noise Control Engineering
IPaC	USFWS Information for Planning and Conservation
IRAC	Interdepartment Radio Advisory Committee
ISCP	Invasive Species Control Plan
JCCC	Jefferson County Community College
JEDI	Job and Economic Development Impact model
JLUS	Joint Land Use Study
kV	Kilovolt

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LiDAR	Light Detection and Ranging
LSR	Large-scale Renewables
LSZ	Landscape Similarity Zones
MAPS	Multi-Area Production Simulation
MASS	Mesoscale
Met Towers	Meteorological Towers
MSHA	Mine Safety and Health Administration
MW	Megawatt
MWh	Megawatt-hours
NAIP	National Agriculture Imagery Program
NARUC	National Association of Regulatory Utility Commissioners
NASA	National Aeronautics and Space Administration

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NBS	National Bureau of Standards
NCF	Net Capacity Factor
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Protection Act
NERC	North American Electric Reliability Corporations
NESC	National Electric Safety Code
NETA	National Electrical Testing Association
NFPA	National Fire Prevention Association
NHP	New York Natural Heritage Program
NHPA	National Historic Preservation Act
NIA	Noise Impact Assessment

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NIST	National Institute of Standards and Technology
NLCD	National Land Cover Database
NOAA	National Oceanic and Atmospheric Administration
NPCC	Northeast Power Coordinating Council, Inc
NRCS	Natural Resource Conservation Service
NTIA	National Telecommunications and Information Administration
NYAC	New York Archaeological Council
NYS	New York State
NYSCAC	New York State Climate Action Council
NYSDAM	New York State Department of Agriculture & Markets
NYISO	New York Independent System Operator
NYSRC	New York State Reliability Council

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NRMCA	National Ready Mixed Concrete Association
NSPS	New Source Performance Standards
NWI	National Wetland Inventory
O&M	Operations and Maintenance
OPRHP	New York State Office of Parks, Recreation, and Historic Preservation
OSHA	Occupational Safety and Health Association
PCA	Portland Cement Association
PILOT	Payment in lieu of taxes
PIP	Public Involvement Program
POI	Point of Interconnection
Project	Deer River Wind Farm

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Project Area	Land area being evaluated for the proposed location of all Facility components, as depicted on various figures included in this Preliminary Scoping Statement, the Public Involvement Program Plan, and other publicly circulated documents.
PSL	Public Service Law
PSS	Preliminary Scoping Statement
QA/QC	Quality Assurance and Control Plan
RCNM	Roadway Construction Noise Model
REV	Reforming the Energy Vision
REA	Rural Electrification Administration
ROW	Right-of-way
RPS	Renewable Portfolio Standard
SAE	Society of Automotive Engineers
SCADA	Supervisory Control and Data Acquisition

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SGCN	Species of Greatest Conservation Need
SGPIPA	New York State Smart Growth Public Infrastructure Policy Act
SHPO OPRHP	Wind Guidelines; New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work
OPSB	Ohio Power Siting Board
Siting Board	New York State Board on Electric Generation Siting and the Environment
SRIS	System Reliability Impact Study
SPCC	Spill Prevention, Containment and Countermeasure Plan
SPDES	State Pollutant Discharge Elimination System
SPDES General Permit	SPDES General Permit for Stormwater Discharges from Construction Activity
SSPC	Society for Protective Coatings
SSURGO	NRCS Soil Survey Geographic digital data

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STATSGO	NRCS State Soil Geographic digital data
STARS	New York State Transmission Assessment and Reliability Study
Study Area	The area that will be evaluated for specific resource identification and/or resource impact assessment. The size of this area will be appropriate for the target resource and will take into account the project setting, the significance of resource or impact being identified or evaluated, and the specific survey distances included in Part 1001. As appropriate, the Study Area for each type of survey or resource impact assessment will be provided in their respective sections within the PSS.
SWPPP	Stormwater Pollution Prevention Plan
UBC	Uniform Building Code
UL	Underwriter's Laboratories, Inc.
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey

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USFWS	U.S. Fish and Wildlife Service
VIA	Visual Impact Assessment
WHO	World Health Organization
WindBolt	Windows Bridge On Line Transaction System
WQC	Water Quality Certification
WWP	Water Withdrawal Permit

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1.0 INTRODUCTION

Atlantic Wind LLC ("Atlantic Wind" or "the Applicant"), a wholly-owned subsidiary of Avangrid Renewables, LLC ("Avangrid Renewables"), is proposing to submit an Application to construct a major electric generating facility under Article 10 of the Public Service Law ("PSL"). Pursuant to the rules of the New York State Board on Electric Generation Siting and the Environment ("Siting Board"), applicants proposing to submit an Application to construct a major electric generating facility under Article 10 must submit a Preliminary Scoping Statement ("PSS").

This document is the PSS for the Deer River Wind Farm ("the Project") and 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 Applicant and filing a copy with the Secretary. Further details for filing comments on this PSS are provided in the Notice, which is included in Appendix A to this PSS.

1.1 PROJECT DESCRIPTION

The Project is a proposed 100-megawatt ("MW") wind powered electric generating facility (the "Facility") located within the towns of Pinckney, Harrisburg, and Montague, in Lewis County, New York. The proposed Point of Interconnection ("POI") is located in the Town of Rodman in Jefferson County (Figure 1); no wind turbines are proposed in the Town of Rodman. For the purposes of this PSS, the Facility consists of all electrical generating components, and ancillary features including, but not limited to, an Operations and Maintenance ("O&M") building, substation, meteorological towers ("met towers"), access roads, collection lines, and interconnections. The Project Area, the land area being evaluated for the proposed location of the Facility, is approximately 44.24 square miles in size. Once the Facility is constructed, the proposed permanent improvements would utilize less than 100 acres, where turbines, collection lines, roads and Facility components would be constructed and buffers around those features would be maintained. At that point, much of the previously leased land would be released from lease agreements, and the vast majority of the mapped "Project Area" would not be included in the Facility once constructed.

The landscape is dominated by forested lands, both upland and wetland, with a lesser amount of land in agricultural use and a small portion that is developed. Route 177 bisects the Project Area from west to east, and Route 194 crosses through the Project Area from southwest to northeast. State forests occur throughout the Project Area both to the north and south of Route 177. Agricultural lands are located primarily adjacent to roadways and the limited development occurs primarily along Route 177, Route 194, and Whitesville Road. The Facility will be located on leased private land and easements that are otherwise used primarily for farming and forestry. The footprint of the proposed Facility within the leased land will be sited in such a way to allow continued farming operations or other existing land uses.

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The Facility will consist of up to 40 wind turbines, associated electrical collection lines (buried and overhead), access roads, 3 permanent met towers, an O&M building, a substation, and a POI switchyard and is anticipated to include 3 temporary laydown yards for use during construction. The Applicant will deliver electricity to the New York State power grid by constructing a new collector substation adjacent to a National Grid interconnection switching station that will interconnect with National Grid's Lighthouse Hill to Black River 115 kilovolt ("kV") transmission line in the Town of Rodman. It is anticipated that a 34.5 kV collection line will extend several miles from the generation site to the POI.

The Project will have a nameplate capacity of 100 MW, and is expected to operate at an annual net capacity factor ("NCF") of approximately 32%. Over the course of a calendar year, the Project would generate up to 280,000 MW-hours ("MWh") of energy (i.e., 100 MW x 24 hrs/day x 365 days x 32%). This would provide electricity to meet the average annual consumption of approximately 39,000 New York households, based on the average New Yorker's annual electricity consumption¹.

1.2 FACILITY BENEFITS

The proposed Project will have positive impacts on socioeconomics in the area through employment opportunities, specifically by generating temporary construction employment, much of which is expected to be drawn from the Jefferson/Lewis County labor market. Local construction employment will primarily benefit those in the construction trades, including equipment operators, truck drivers, laborers, electricians, carpenters, and ironworkers, and would create approximately 125 temporary positions over 12 to 18 months of construction. In addition, the Project operation will generate approximately six permanent full-time jobs, including a Plant Manager, Wind Technicians, and a Plant Administrator. The Project will also result in approximately \$750,000 in increased annual revenues to county and local municipality tax bases, as well as approximately \$500,000 per year in direct lease and easement payments to landowners. Over the anticipated life of the Project, this would yield more than \$23 million in direct payments to municipalities, over \$15 million in direct payments to local landowners, and significant additional indirect socioeconomic benefits to the local economy.

Project construction and operation activities will also yield additional indirect economic benefits for the community, such as increased revenues for the hospitality industry and local commercial enterprises, through the purchase of local supplies and goods, use of local hotels and amenities, and patronage of local restaurants and eateries by the Project's temporary and permanent labor force. Construction activity and investment is expected to result in over \$3 million in local expenditures on goods and services during development and construction phases. The benefits of the Project will be further summarized below in Section 2.27 and described in detail in Exhibit 27 of the Application in the discussion of the socioeconomic impacts of the Project.

¹ Energy Information Administration (EIA) Frequently Asked Questions: How Much Electricity Does an American Home Use? Available at: <http://www.eia.gov/tools/faqs/faq.cfm?id=97&t=3> (last updated October 21, 2015; Accessed April 18, 2016).

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More broadly, large scale renewable projects, such as the Facility, offer a wide variety of benefits including economic development and job creation in related industries throughout the region, as well as cleaner air, improved energy infrastructure, and progress toward achievement of State clean energy goals. The 2015 New York State Energy Plan and its coordinating energy initiative, the Reforming the Energy Vision ("REV"), sets significant state targets and goals to be reached by 2030. These include a goal for greenhouse gas ("GHG") reduction of 40% below 1990 levels by 2030 and reducing total carbon emissions by 80% by 2050. On August 1, 2016, the Public Service 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. 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. As noted in the recent Final Supplemental Environmental Impact Statement ("FSEIS") for the REV and the CES, the clean energy economy provides clean, reliable, and affordable power while creating jobs and producing numerous other economic and environmental benefits.

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 (FSEIS at 5-24 to 5-25). To reach the nearer-term and long-term CES goals, the FSEIS assumes that at least half of the incremental renewable generation needed will come from land-based wind (FSEIS at 4-3 and 4-4). The total amount of energy needed for the State to meet its CES targets by 2030 is 33,700,000 MWh of additional renewable generation (CES Order at 36).

The proposed Project fully advances the objectives of the State Energy Plan and the CES, and assists the State in achieving the 50% renewable energy generation objective. Importantly, the Project 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.

1.3 POTENTIAL FACILITY IMPACTS AND AVOIDANCE MEASURES

As noted above, the Project will produce up to 100 MW of electricity without the emission of greenhouse gases or other pollutants. However, construction and operation of the Facility will have impacts to other environmental resources. With careful planning and design, many of the potential impacts associated with wind facilities can be avoided or minimized to be compatible with the surrounding areas. Because the studies characterizing these impacts have not yet been completed, it is difficult to identify specific avoidance, minimization, and mitigation measures at this time. However, the studies conducted for this Project and described in this PSS will identify measures the Applicant has taken to avoid potential impacts as well as minimization and mitigation measures that will reduce impacts to the extent practicable.

Generally, construction and installation of Facility components including turbines, O&M building, substation roads, electrical lines, and met towers will involve some level of soil disturbance

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through clearing and excavation activities. Soil disturbance can result in erosion and sediment deposition in surrounding areas including surface waters, although this effect can be minimized through the employment of Best Management Practices ("BMPs") including installation of appropriate erosion control devices. Such measures will be discussed in the Application at Exhibit 21.

Project construction also will result in changes to existing vegetation communities and habitats. Vegetation within these communities will be cut and removed for the installation of Project components. Some changes in the vegetation communities and habitats will be permanent for the life of the Project, while other areas will be allowed to revert to either their pre-construction state (e.g., laydown yards) or to an earlier successional state (e.g., electrical corridors). These types of temporary or permanent impacts would be expected in both upland habitats as well as wetlands. Project development also could result in the establishment or spread of invasive plant species. Invasive plants can change the composition of existing plant communities thereby affecting the habitat these communities provide. Plant community and habitat impacts can be minimized through proper siting, use of BMPs and project planning that involves implementation of management plans such as an Invasive Species Control Plan. These issues will be more fully addressed in the Application at Exhibit 22; the scope and methodology for wetlands delineations and other investigations necessary to characterize these habitats, resources and potential impacts are discussed further below.

Potential effects on wildlife populations would include habitat loss or changes described above as well as habitat fragmentation, disruption of travel corridors, displacement of individuals and direct mortality. Some of these effects can be minimized through site selection as well as micro-siting project components to avoid rare or particularly productive habitats. In addition, plans and programs such as Bird and Bat Conservation Strategies can help limit species mortality. Other potential operational impacts include visibility from some locations as well as shadow flicker and sound at some receptor locations. Additional information related to Project impacts and wildlife-related studies are presented below in Section 2 below.

Potential Project impacts will be managed to the extent practicable through field surveys to identify rare, high value, and vulnerable resources, allowing the Applicant to avoid and minimize impacts in design, and through careful planning and monitoring during construction and operation. Further consultation with local, state and federal agencies and other stakeholders through the Public Involvement Program ("PIP") process will help identify potential impacts and means to avoid or reduce unavoidable impacts. Unavoidable impacts will be addressed through state and federal permitting processes that are intended to protect public welfare and the health of environmental resources. These avoidance, minimization, and mitigation measures will be discussed more fully in conjunction with each relevant resource type, in the Application Exhibit(s) dedicated to those resources and impacts. Section 2, below, outlines these discussions in more detail. Some of these measures include:

- Siting turbines to minimize noise, shadow flicker, and public safety concerns.
- Using existing farm roads or logging roads for turbine access, whenever possible, to minimize impacts to soils, ecological, and agricultural resources.

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- Minimizing the number of stream and wetland crossings.
- Siting turbines (where feasible) in open field areas to minimize forest clearing and impacts to habitat.
- Minimizing the linear distance of overhead electrical lines and designing any such lines in accordance with Avian Power Line Interaction Committee ("APLIC") guidelines to minimize impacts on birds.
- Limiting turbine lighting to the levels specified by the Federal Aviation Administration ("FAA") to reduce nighttime visual impacts.
- Utilizing the New York State Department of Agriculture and Markets ("NYSDAM") guidelines to minimize impacts on agricultural land and farming practices.

Facility development, construction, and operation will also include the development of plans and programs to mitigate potential impacts, which are anticipated to generally include:

- Spill Prevention, Control, and Countermeasure ("SPCC") plan
- Road Agreements with local municipalities to repair local roads potentially impacted by construction and maintenance of the Facility
- Invasive Species Control Plan
- Complaint Resolution Plan
- Historic resource mitigation program
- Compensatory wetland mitigation plan (if required)
- Payment in lieu of taxes ("PILOT") agreement with the local taxing jurisdictions
- Preliminary Operations and Maintenance Plan
- Preliminary Health and Safety Plan
- Preliminary Site Security Plan
- Emergency and Fire Response Plan with local first responders
- Decommissioning Plan

1.4 SUMMARY OF PRE-APPLICATION ACTIVITIES TO DATE

Pursuant to the rules of the New York State Board on Electric Generation Siting and the Environment ("Siting Board"), applicants proposing to submit an application to construct a major electric generating facility under Article 10 must first submit a PIP plan. Under 16 NYCRR § 1000.4, the PIP must be submitted to the Department of Public Service ("DPS") for review at least 150 days prior to filing a Preliminary Scoping Statement ("PSS"), which also precedes the filing of the Application. Under 16 NYCRR § 1000.4, the Application cannot be filed sooner than 90 days following the submission of the PSS.

The Project's PIP was filed with the Siting Board and the Project was assigned Case Number 16-F-0267. The initial draft of the PIP was submitted to the Siting Board on May 9, 2016, and revised, finalized, and filed by the Applicant on July 11, 2016, and again on September 2, 2016.

The Project's PIP can be accessed, viewed, and downloaded from the online case record maintained by DPS and on the Project website maintained by the Applicant:

- Siting Board Case Record:
<http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=16-F-0267>



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- Project website: <http://www.avangridrenewables.us/deerriver/index.html>

According to 16 NYCRR § 1000.4(c), a PIP must include:

- Consultation with the affected agencies and other stakeholders;
- Pre-application activities to encourage stakeholders to participate at the earliest opportunity;
- 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;
- The establishment of a website to disseminate information to the public;
- Notifications; and
- Activities designed to encourage participation by stakeholders in the certification and compliance process.

To facilitate the goals of the PIP, the following elements have been established and will carry through the duration of the Project:

Project Representative:

Jenny Briot
Deer River Wind Farm
2 Radnor Corp. Ctr., Ste 200
100 Matsonford Rd.
Radnor, PA 19087
Office Number: 610-654-9800
DeerRiverWind@avangrid.com

Local Project Office and Contact Information:

7650 North State Street, Suite 1
Lowville, NY 13367
Phone: 315-874-4231
Toll Free: 1-844-308-4616
The Office will be open Tuesdays and Thursdays from 10 a.m. to 2 p.m., and by appointment.

Local Document Repositories:

PINCKNEY TOWN HALL
587 County Route 194
Copenhagen, NY 13626
Phone: 315-408-5032
Fax: 315-688-2051

LOWVILLE FREE LIBRARY
5387 Dayan Street
Lowville, NY 13367
Phone: 315-376-2131
Fax: 315-376-2131



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RODMAN PUBLIC LIBRARY
12509 School Street PO Box B
Rodman, NY 13682
Phone: 315-232-2522
Fax: 315-232-3853

Through meetings with various federal, state, and local agencies, the Applicant has been engaging in pre-application discussions with various stakeholders to provide information regarding early stage development efforts, such as reaching out to potential landowners and determining potential locations for temporary met towers. The Applicant has attended meetings with the Town of Pinckney Planning Board, including a public hearing for approval of a temporary met tower, which included some initial discussion of the Project generally. The Applicant also has met with the Town of Harrisburg Planning Board regarding the approval of a temporary met tower. In addition, the Applicant continues to communicate with local officials, and will participate in future town board meetings. For example, on September 12, 2016, the Applicant attended the Town of Pinckney Town Board meeting to discuss the Project, proposed scope of studies, and consultation on applicable local zoning laws. Throughout early 2017, the Applicant attended meetings with the towns of Pinckney and Harrisburg to provide project updates and to discuss local zoning review.

The Applicant held its first public information meeting on June 16, 2016, at 6:30 p.m. in the Harrisburg Town Hall. There, the Project team presented information on the current proposal and the Article 10 process, answered questions from members of the public, and gained some insights into public outreach options for the community. There was a short introduction from one of the Applicant's representatives, as well as one-on-one discussions with attendees around posters displaying Project information. Additional public meetings with a similar format were held at the Pinckney Town Hall on March 9, 2017, with both afternoon and evening sessions.

Public engagement activities the Applicant has conducted since late 2015 include:

- Meetings with Tug Hull Commission, DPS and New York State Department of Environmental Conservation ("DEC");
- Contact with Town Supervisors and Boards (Pinckney, Montague, Harrisburg);
- Participation in the Fort Drum Joint Land Use Study ("JLUS") process, which covers the broader North Country region within a 30- to 60-mile radius of Fort Drum;
- Working to secure a local office space for the Project, which is open to the public and staffed with company representatives to address questions. Office hours are established and posted on the Project website.

In addition to the engagement activities that have already taken place, the Applicant will continue pre-application activities to encourage stakeholder participation as set forth in the Agency/Municipality Consultations included in the Project's PIP. This information will be continuously updated in the Project's PIP Tracking Logs, which will be filed with the Secretary of the Siting Board and posted on the Siting Board's and Company's website as consultations and stakeholder participation activities take place, and additional means of engagement are

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identified. The Applicant also will routinely monitor the Project contact numbers provided above, which are available for interested persons to leave their Project comments in voicemail messages. Voicemail messages are also logged in the PIP Tracking Logs. Local document repositories will be updated with additional pertinent information as it becomes available.

1.5 ORGANIZATION OF PSS

The requirements for a PSS are found at 16 NYCRR § 1000.5(l). This PSS is structured to mirror the organization of an Article 10 Application (16 NYCRR § 1001, Content of an Application). Each subsection number in Section 2.0 corresponds to the appropriate Article 10 Application Exhibit number. Appendix B provides a guide to locate the PSS requirements within the organization and text of Section 2.0.

2.0 CONTENT OF APPLICATION

2.1 GENERAL INFORMATION [EXHIBIT 1]

2.1.1 Applicant Information

The Applicant, Atlantic Wind LLC ("Atlantic Wind"), is a wholly-owned subsidiary of Avangrid Renewables LLC ("Avangrid Renewables"). Avangrid Renewables is one of the largest producers of wind energy in the United States. Avangrid Renewables is headquartered in Portland, Oregon, and has more than \$10 billion of operating assets totaling more than 6,000 MW of owned and controlled wind and solar generation in the United States. Avangrid Renewables has developed over 50 wind farms in the United States alone, including the Maple Ridge and Hardscrabble wind projects in New York. Maple Ridge Wind Farm produces enough electricity to power up to 160,000 average New York homes. Hardscrabble Wind Power Project features 37 American-made Gamesa wind turbines, which produce enough electricity to power over 25,000 typical New York homes each year.

2.1.2 Project Website

The Project website is <http://www.avangridrenewables.us/deerriver/index.html>.

2.1.3 Public Contact

The Project's public contact is Jenny Briot. Her contact information is:

2 Radnor Corp. Ctr., Ste 200
100 Matsonford Rd.
Radnor, PA 19087
Office Number: 610-654-9800
DeerRiverWind@avangrid.com



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2.1.4 Principal Officer

Atlantic Wind is a wholly owned subsidiary of Avangrid Renewables and does not have a Principal Officer.

2.1.5 Applicant Agent

Documents including comments to this PSS should be addressed to the Applicant's public contact listed above.

2.1.6 Type of Business

Atlantic Wind is a privately owned limited liability company. Atlantic Wind was formed in the state of Oregon on August 12, 2005. Avangrid Renewables LLC is the sole member of Atlantic Wind, which has a business address of 2 Radnor Corporate Center, Suite 200, 100 Mastonford Road, Radnor, PA 19087.

2.1.7 Documentation of Formation

The certification of formation for Atlantic Wind is included as Appendix C.

2.2 PROJECT OVERVIEW AND PUBLIC INVOLVEMENT [EXHIBIT 2]

2.2.1 Brief Description of Proposed Facility

The proposed Project is a utility scale wind development with the electric generating Facility located in the towns of Pinckney, Harrisburg, and Montague in Lewis County, New York, with a proposed POI located in the Town of Rodman in Jefferson County. The Project Area is depicted on Figure 1. During the development phase of the Project, Atlantic Wind will lease approximately 8,000 acres of land within this Project Area. However, once the Project is constructed the area occupied by the Facility components including turbines, electrical collection lines, substation, met towers, and access roads, and the maintained buffers around these components would occupy less than 100 acres. Much of the land under lease agreements in the development phase will be released and will not be included in the operational Facility.

The proposed Project will consist of up to 40 utility scale wind turbines with an expected nameplate capacity of 100 MW. In addition to the wind turbines, the Facility will include overhead and underground electrical collection lines, access roads, three permanent met towers, an O&M building, three anticipated temporary laydown yards for use during construction that will be located in Lewis County, and a substation and POI in Jefferson County. A map illustrating the conceptual wind turbine layout under consideration at this time is provided in Figure 1. The Application will include more detailed illustrations of the locations of wind turbines and other Facility components.

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The Applicant currently is reviewing various turbine models that will achieve the Project's 100 MW capacity, and the Article 10 Application will provide a range of potential turbine models to account for potential changes in technology and product availability. The turbine model selected for the Project will have a maximum blade tip height of 150 meters. Regardless of the turbine model that is selected, the Project will include no more than 40 wind turbines. If a turbine model with a higher power rating is selected, then fewer turbines would be built. Analyses presented in the Article 10 Application, including viewshed, sound, and shadow flicker, will be based on a full build-out of 40 turbines to address maximum potential impacts. Analyses also will take into account other aspects of the turbine models including tower height, blade length, sound emissions, and safety features to fully capture potential impacts.

The Project Area includes several existing public roads that will be used to transport Facility components during construction. In addition, new access roads will be constructed on leased private land to reach component locations throughout the Facility. Individual turbine locations will be electrically connected via underground and aboveground collection lines. An approximately 6-mile electrical interconnection line will extend to a substation at the POI. The Article 10 Application will provide the locations of turbines, the location and length of access roads, as well as the location of other Facility components and will include further detail on these components.

2.2.2 Brief Summary of Contents of Application

The Article 10 Application will contain each exhibit required under 16 NYCRR § 1001, Content of an Application, except the following that are not anticipated to apply to this proposed Project:

1. Exhibit 7: Natural Gas Power Facilities;
2. Exhibit 16: Pollution Control Facilities;
3. Exhibit 30: Nuclear Facilities;
4. Exhibit 36: Gas Interconnection;
5. Exhibit 37: Back-up Fuel;
6. Exhibit 38 Water Interconnection;²
7. Exhibit 39: Wastewater Interconnection; and
8. Exhibit 41: Application to Modify or Build Adjacent

2.2.3 Brief Description of the Public Involvement Program before Submission of Application

The Applicant filed a PIP on May 9, 2016 (finalized September 2, 2016), a plan that will be updated as necessary based on information received during PIP activities. These updates will be provided to DPS along with the PIP tracking submissions.

² The Facility will not require a water or wastewater interconnection and, as such, Exhibits 38 and 39 will not be included in the Application. The Application will describe the anticipated water and wastewater needs of the O&M building and any other ancillary facilities in Exhibits 3 and 11, as appropriate.

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One primary goal of the PIP is to identify and engage with affected stakeholders. The PIP presented this information in Exhibit A – Master List of Stakeholders. Pre-application activities to date have included meetings with various Federal, State and local agencies. The Applicant held its first public information meeting on June 16, 2016, and additional public meetings on March 9, 2017. Since the PIP's final submission, that master list has been updated based on the Applicant's consultations and meetings with stakeholders. An updated Master List of Stakeholders is presented in Appendix D of this PSS.

The Applicant has begun summarizing, and will continue to file, regular accountings of these meetings/consultations in the PIP Tracking Log, which is presented in Appendix E of this PSS and was included as Exhibit C of the PIP. The Meeting Log will continue to be updated and filed on the DPS website through the entire PSS and Application process.

The Applicant has a Project specific website as well as a toll-free number for interested parties to call with questions and comments on the Project. In addition, the Applicant has provided copies of documents presented at the open houses on the Project website.

During the time before the submission of the Article 10 Application, the Applicant intends to continue stakeholder outreach. The Applicant will also provide notifications and updates on the Facility, as outlined in the PIP, as well as invite comments and remind the stakeholders of the PSS comment period timeframe in conjunction with this filing. The Applicant will continue to attend municipal meetings and will hold one additional open house prior to submitting the Article 10 Application. Finally, the Applicant will also attempt to identify additional community events in which it would participate. All outreach efforts will be tracked in the meeting logs.

2.2.4 Brief Description of the Public Involvement Program after Submission of Application

After submission of the Article 10 Application, the Applicant will continue to engage stakeholders through attendance of local town board meetings, meetings with other local stakeholders such as emergency service groups and local highway departments, as needed, and through other outreach activities. The Applicant will also continue communication with non-public entities as identified in the PIP and through PIP activities. The Applicant will engage with any snowmobile or all-terrain vehicle (ATV), and other trail use groups active within the Facility area regarding recreational uses of lands in the Project Area. The Applicant plans to continue conversations with these organizations following submission of the Application to identify and avoid potential conflicts between use of the trails and the Facility.

2.2.5 Brief Overall Analysis

This section of the Article 10 Application will provide a summary analysis of the application sections to follow to provide the Siting Board with the information necessary to make its decision to grant a Certificate for the proposed Project under PSL 168, including the nature of the probable environmental impacts of the construction and operation of the Facility on ecology, air, ground and surface water, wildlife, and habitat; public health and safety; cultural, historic,

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and recreational resources; and transportation, communications, utilities, and other infrastructure, as required by Article 10.

In addition, this section will summarize the facts in the Application that will provide the Siting Board with the information needed to determine that:

- a) 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) 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 where the Facility would be located, that the Applicant will avoid, offset or minimize these impacts upon the local community for the duration of certificate to the maximum extent practicable using verifiable measures.
- e) 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.

2.3 LOCATION OF FACILITIES [EXHIBIT 3]

2.3.1 Topographic Maps

2.3.1.1 Proposed Major Electric Generating Facility Locations

As defined above in Section 1.0, the Facility consists of all electrical generating components, and ancillary features, including, but not limited to, an O&M building, roads, and interconnections. The Project Area includes the land area being evaluated for the proposed location of the Facility as shown on Figure 1. Figure 1 includes a preliminary wind turbine layout for this Project. Alternatives for the project location will be discussed in Section 9 of the Application, and, consistent with the regulations, will be limited to parcels where Atlantic Wind has control or ownership.

Maps for the Article 10 Application will be developed using, among other sources, the U.S. Geological Survey ("USGS") USGSTopo (MapServer), which provides data in a Geographic Information System ("GIS") accessible format. The USGSTopo depicts information consistent with the USGS 7.5-minute (1:24,000) quadrangle topographic maps at large scales. Maps of the Facility that will be provided in the Article 10 Application will include the locations of the following:

- 1. Turbines;
- 2. Permanent met towers;
- 3. Access roads;
- 4. Overhead and buried electrical collection lines;
- 5. Collection substation;
- 6. O&M building;



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7. Laydown/staging areas;
8. Alternative turbine locations; and
9. POI.

The Article 10 Application will provide the latitude and longitude coordinates for each proposed Facility wind turbine, along with the approximate ground surface elevation as derived from 2-foot survey data that has been collected for the Facility. The Article 10 Application also will include Facility shapefiles that show the proposed turbine locations, access roads, collection lines, collection substation, POI substation, construction lay down, and temporary concrete batch plant areas, and the O&M building.

2.3.1.2 Interconnection Location

The POI will be located within the Project Area and mapped as required by Article 10.

2.3.1.3 Location of Ancillary Features

At this time, it is not anticipated that this Project will have ancillary features that are not located on the Project Area and not subject to the Siting Board's jurisdiction. If ancillary features beyond the Project Area (e.g., road widening or other temporary road improvements) are identified, they will be described in this section.

2.3.1.4 Location of Article VII Transmission Lines Not Subject to Article 10

It is not anticipated that this Project will include transmission facilities subject to review under Article VII of the Public Service Law.

2.3.1.5 Study Area

In 16 NYCRR § 1000.2, the 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 5 miles from all generating facility components, interconnections and related facilities and alternative location sites." For this PSS, the Study Area is the area that will be evaluated for specific resource identification and/or resource impact assessment. The size of this area will be appropriate for the target resource and will take into account the project setting, the significance of resource being identified or evaluated, and the specific survey distances included in Part 1001. Where applicable, the Study Area for each type of survey or resource impact assessment will be described in the substantive sections of this PSS.

2.3.2 Municipal Boundary Maps

A map of the Project Area showing municipal boundaries, taxing jurisdictions, and designated neighborhoods or community districts will be generated using data from publicly available

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databases such as the United States Census Bureau (TIGER/line® files), the New York State (NYS) GIS Clearing House, and from ESRI ARCGIS Online.

2.3.3 Description of Proposed Facility Locations

The Facility will be located within the Project Area, on leased private lands in the towns of Pinckney, Montague, and Harrisburg in Lewis County with a substation and POI in Rodman in Jefferson County. It is anticipated that the proposed Project will include up to 40 wind turbines, associated electrical collection lines (buried and overhead), access roads, 3 permanent met towers, an O&M building, collector substation, and 3 temporary laydown yards for use during construction.

2.4 LAND USE [EXHIBIT 4]

2.4.1 Map of Existing Land Uses

A map of existing land uses within the Project Area will be prepared using the National Land Cover Database ("NLCD") (USGS 2011). The NLCD database includes eight general class categories, most of which are subdivided into two to four descriptive subcategories. The eight general class categories are: Water; Developed; Barren; Forest; Shrubland; Herbaceous; Planted/Cultivated; and Wetlands. All of the general class categories except the Barren Class have descriptive subcategories that provide additional details regarding the land use or cover type. For example, the Forest Class is further subdivided into Deciduous Forest, Evergreen Forest, and Mixed Forest based upon the dominant type of trees present.

Results of Project field surveys will be used to provide further details on the existing land uses.

2.4.2 Transmission Facilities Map

A map of any existing overhead and underground major facilities for electric, gas, or telecommunications transmission within the Project Area will be obtained from public and private utility location data sources. Data on natural gas and oil wells near the Facility were obtained from the DEC and DPS.

2.4.3 Tax Parcel Map

A map showing the properties where the Facility will be located and those properties within 2,000 feet of properties with Facility will be generated using parcel data available from the Lewis County GIS Cloud Mapping Web Application and Jefferson Real Property Department. This map will include current 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.

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2.4.4 Zoning District Map

A map showing existing and proposed zoning districts within the Project Area will be generated using information and data available from county and town governments. This will include a description of permitted and prohibited uses within each zone.

2.4.5 Comprehensive Plan

The Article 10 Application will include a summary of applicable details from the comprehensive and related land use plans adopted by Jefferson and Lewis counties, including a discussion of the proposed Project's consistency with these plans.

The Lewis County Comprehensive Plan was adopted by the Lewis County Board of Legislators on October 6, 2009, and is available at: <http://lewiscountyny.org/content/Generic/View/20>. Lewis County has also adopted a Comprehensive Economic Development Strategy ("CEDS") (2012), which is available at: <http://lewiscountyny.org/content/Generic/View/68:field=documents;/content/Documents/File/1949.pdf>.

The Jefferson County CEDS (adopted 2012, updated 2014) is available at: <http://www.co.jefferson.ny.us/Modules/ShowDocument.aspx?documentid=13682>. Jefferson County also has an Agricultural and Farmland Protection Plan (2016), which is available at: <http://www.co.jefferson.ny.us/index.aspx?page=811>.

The towns of Pinckney, Harrisburg, and Montague in Lewis County and the town of Rodman in Jefferson County do not have local comprehensive plans. All four towns are covered by the New York State Tug Hill Commission, which aids these municipalities in land use planning and economic development matters. The Applicant will review Tug Hill Commission planning and land use documents, such as the Commissions' Strategic Plan (2015–2019), and will include discussion of project consistency with relevant plans adopted for the broader Tug Hill region.

2.4.6 Map of Proposed Land Uses

The Article 10 Application will include a map of publicly known proposed land uses within the Project Area based upon information the Applicant is able to attain from PIP outreach, interviews with county planning officials, publicly available information, and other sources. This map also will include information for other publicly proposed land development projects, including proposed or existing wind energy generating facilities located within the Project and Study Areas.

Maps of the Project Area will be produced showing the locations of specially designated areas, as required by 6 NYCRR 1001.4(g) including, where applicable:

1. Designated Coastal Areas
2. Inland Waterways and Local Waterfront Revitalization Program Areas
3. Groundwater Management Zones

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4. Designated Agricultural Districts designated under NYSDAM Law
5. Flood Prone Areas
6. Critical Environmental Areas
7. Properties that are participating in New York's section 480-A Forest Tax Law
8. Lands under a conservation program

Specially designated areas will be mapped based upon digital and spatial data acquired from the NYS GIS Clearinghouse, NYS Department of State, DEC, and the National Conservation Easement database, or other appropriate sources.

2.4.7 Map of Recreational Areas and Other Sensitive Land Uses

Maps of the Project Area will be produced showing the locations of recreational and other land uses that might be affected by construction and/or operation of the Project. These resources are identified in Table 2.1.

Table 2.1. Recreational and Other Land Use and Data Source

Land Use	Data Source
Wild, Scenic and Recreational River Corridors	National Wild and Scenic Rivers System
Open Space	NYS GIS Clearinghouse; Local governments as available
Areas Identified in the Adirondack Park State Land Master Plan	NYS GIS Clearinghouse; NYS Adirondack Park Agency
Conservation Easement Lands	NYS GIS Clearinghouse; National Conservation Easement Database
State and Federal Scenic Byways	NYS GIS Clearinghouse
Nature Preserves	NYS GIS Clearinghouse
Designated Trails	NYS GIS Clearinghouse; Local governments and recreational organizations as available
Public-Access Fishing Areas	NYS GIS Clearinghouse, DEC
Major Communication and Utility Uses and Infrastructure	Comsearch
Institutional, Community and Municipal Uses and Facilities	NYS GIS Clearinghouse; United States Census Bureau TIGER/line® files; ESRI ARCGIS Online

2.4.8 Compatibility of the Facility with Existing and Proposed Land Uses

Based upon the USGS NLCD (USGS 2011) the Project Area as shown on Figure 1 consists primarily of forested lands, agricultural lands, and wetlands with small areas of grasslands, shrub/scrub lands, and developed lands.

Forested lands (deciduous, mixed, and evergreen) comprise approximately 59% of the Project Area. They occur throughout the Project Area and include several State forests.

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Agriculture lands (pasture/hay, cultivated crops) comprise approximately 12% of the Project Area. These areas are used primarily for pastureland and hay fields with less area in cultivated crops. Agricultural lands within the Project Area occur primarily adjacent to roads with more extensive agricultural blocks along Route 194, Cronk Road, Route 175 and Route 177 east of the Deer River. To help minimize and/or mitigate impacts to active agricultural land and farming operation, the Applicant will consult with NYSDAM personnel and, to the extent practicable, will comply with *Guidelines for Agricultural Mitigation for Wind Power Projects* (NYSDAM 2013), which includes siting goals, construction requirements, restoration requirements, and post-construction monitoring and remediation requirements for wind power developments.

Wetlands (woody, emergent herbaceous and open water) represent approximately 24% of the Projects Area. These resources are distributed throughout the Project Area and are primarily forested/scrub-shrub communities with smaller emergent and open water components.

Grasslands and shrub/scrub lands comprise very minor components of the Project Area representing approximately 4% of the area.

Approximately 1% of the Project Area is currently developed, primarily along Route 177, Route 194, and Whitesville Road. This small percentage of developed land is primarily developed open space and low intensity residential development with much smaller amounts of medium and high intensity development.

Although towns where the Project Area is located do not have comprehensive plans, the Project does appear to be compatible with the Lewis County Comprehensive Plan and the Jefferson County CEDS. In addition, the Project would support the goals of the North Country Regional Sustainability Plan (2013). Although the Project's consistency with these land use plans will be discussed in more detail in the Application, a brief summary of statements from the Lewis and Jefferson County plans regarding renewable energy supportive of this conclusion are provided below:

Lewis County Comprehensive Plan:

With regard to renewable energy, the Lewis County Comprehensive Plan states "Additionally, we will place a particular emphasis on growing the renewable and sustainable energy sector, which will have positive impacts both locally and regionally." Two of the action items of this comprehensive plan involve renewable energy components including a Renewable Energy Summit to support continued renewable energy use in the region and the development of other industries supported by low cost energy provided by wind and other renewable energy sources. The Plan also notes that wind energy development is also compatible with existing forestry and agricultural land uses, which are currently the two primary economic industries in the region.

Jefferson County CEDS:

The Jefferson County CEDS identifies high energy costs and the lack of investment in biomass and other alternative energy as two of the county's economic weaknesses and the available of

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natural resource assets for energy including wind, water and biomass as one of the county's strengths. The proposed Project could help bridge the gap between these weaknesses and this strength and an analysis of renewable energy is one of the recommendations of this CEDS.

North Country Regional Sustainability Plan:

According to the North Country Regional Sustainability Plan, “[c]reating a robust economy in the North Country will be highly dependent upon the availability of affordable, reliable, and renewable energy” (Consortium of North Country Municipalities 2013). In 2012, this region of NYS held more than 37% (approximately 700 MW) of the state's installed wind generation capacity (Consortium of North Country Municipalities 2013) and by 2016 the installed capacity had increased to 984 MW (North Country Regional Economic Development Council 2016). Two of the stated goals of the North Country Regional Sustainability Plan are to increase the local generation and distribution of renewable energy and to support the development of agricultural and forestry industries. The proposed Project would help meet the goal of increased renewable energy generation and is a compatible land use with both forestry and agriculture. In addition to supporting these industries, each 80 MW of installed wind energy can provide an estimated 6 to 8 skilled job opportunities (North Country Regional Economic Development Council 2016).

The Application will also discuss the Project's consistency with other relevant land use planning documents, such as the New York State Open Space Plan; the New York State Energy Plan (to be discussed in depth at Exhibit 10); 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 other planning documents, where relevant.

2.4.9 Compatibility of Above-Ground Interconnection with Existing and Proposed Land Uses

The electrical collector lines and POI are included in the Project Area. The Project's Article 10 Application will include a qualitative assessment of the compatibility of other above-ground interconnections with other existing, proposed or potential land uses within the Study Area. It is expected that above-ground interconnection lines will be used in some locations and details of the interconnection system will be included in the compatibility assessment.

2.4.10 Compatibility of Underground Interconnections with Existing and Proposed Land Uses

The electrical collector lines and POI are included in the Project Area. The Project's Article 10 Application will include a qualitative assessment of the compatibility of other underground interconnections with existing, potential, and proposed land uses within 300 feet these interconnections. To minimize potential effects, underground lines will be co-located with existing or proposed roads where practicable and in agricultural areas the *Guidelines for Agricultural Mitigation for Wind Power Projects* will be followed including depth for line installation, protection of surrounding land and site restoration (NYSDAM 2013).

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2.4.11 Conformance with the Coastal Zone Management Act

The Project Area is outside the landward coastal boundary and, therefore, is not within a designated coastal area. In addition, the Project is not in direct proximity of a designated inland waterway. Therefore, the Coastal Zone Management Act is not applicable.

2.4.12 Aerial Photographs

The Article 10 Application will include aerial photographs of the Project Area and a 1-mile buffer around the Project Area at a sufficient scale and resolution to allow natural and cultural features to be identified. Aerial photographs will be provided as a series of maps on either 8.5" x 11" or 11" x 17" sheets, as appropriate. Sources for aerial photographs are provided below in Section 2.4.14.

2.4.13 Aerial Photograph Overlays

The Facility, including the electrical generating facility, interconnection route, access roads, limits of proposed disturbance and limits of proposed clearing, will be overlain on aerial photographs. These maps will be created using ArcGIS software and the Facility will be clearly symbolized as either lines, points or polygons to allow the reader to readily identify each type and each individual component.

2.4.14 Source of Aerial Photographs

The aerial photographs to be used will be either the orthoimagery available from the U.S. Department of Agriculture's ("USDA") National Agriculture Imagery Program ("NAIP") or those available on the NYS GIS Clearinghouse website, unless more recent photographs of suitable quality are publicly available. The most recent aerial photographs for Lewis County that are available from the NYS GIS Clearinghouse are the Statewide Digital Orthoimagery 2014 of Lewis County, New York State Plane, NAD 83 (2011) and for Jefferson County the most recent aerial photographs are the Statewide Digital Orthoimagery 2015 of Jefferson County, New York State Plane, NAD 83. The NAIP and the NYS GIS Clearinghouse orthoimagery both use 1-meter resolution natural color orthoimagery.

2.4.15 Community Character

The Project is located in the Tug Hill Plateau area of Lewis County, which is generally rural in character and consists primarily of forest land and agricultural land. This portion of Lewis County includes several State Forests with farms occurring principally adjacent to existing roadways. According to the 2012 Census of Agriculture for Lewis County, there were 634 farms on 181,741 acres with an average farm size of 287 acres. In adjacent Jefferson County, there were 876 farms on 290,811 acres with an average farm size of 332 acres. The surrounding landscape also includes existing major wind energy generating facilities, specifically the Maple Ridge Wind Farm located in towns of Lowville, Martinsburg, Harrisburg and Watson as well as the proposed Copenhagen, Number Three Wind Farm, Roaring Brook, and Mad River projects. The

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Copenhagen Wind Farm Project is proposed in the Town of Denmark, Lewis County, and will have a transmission feeder line that interconnects with the New York State electric grid in the Town of Rutland, Jefferson County. The Number Three Wind Farm Project is proposed to be located in the towns of Lowville and Harrisburg in Lewis County and proposed to interconnect to the New York State electric grid in Lowville. The Roaring Brook Wind Power Project would be located in the Town of Martinsburg, Lewis County with interconnection to the New York State electric grid in Martinsburg. The Mad River Wind Farm would be located in the Town of Worth, Jefferson County, and the Town of Redfield, Oswego County with the interconnection location still be determined.

The Article 10 Application will include a description of the existing community character. It also will describe how the construction and operation of the proposed Facility potentially may impact the community character, and how these potential impacts will be avoided or minimized and what mitigation measures will be implemented for unavoidable impacts. Due to the rural nature of the area, potential impacts to community character will likely include visual impacts, noise and land use. The Article 10 Application will include a Visual Impact Assessment ("VIA") (Exhibit 24) to assess visual impacts, a Shadow Flicker Assessment (Exhibit 24) as well as a Noise Impact Assessment (Exhibit 19). Potential impacts to land uses including how the Project will avoid impacts to State Forest Lands and minimize impacts to existing agricultural and forest land uses will be addressed principally in the discussion on Terrestrial and Wetland Ecology (Exhibit 22). Finally, the Application will include a discussion of potential impacts to Fort Drum, via consultations with the FAA and the U.S. Department of Defense ("DOD"), as well as nearby airports, helipads, and communications resources, will be included in the discussions on Effects on Transportation (Exhibit 25) and Effects on Communications (Exhibit 26).

2.5 ELECTRICAL SYSTEM EFFECTS [EXHIBIT 5]

2.5.1 System Reliability Impact Study

A System Reliability Impact Study ("SRIS") will be prepared and submitted for the Project on behalf of the New York Independent System Operator ("NYISO"). The SRIS will be provided as an Appendix to the Article 10 Application.

2.5.2 Potential Transmission System 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 North (Zone D) and Mohawk Valley (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.

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2.5.3 Benefits and Detriments of the Facility on Ancillary Services and Electric Transmission System

The Article 10 Application will discuss the benefits and detriments of the Facility based upon the results of the SRIS.

2.5.4 Reasonable Alternatives to Mitigate Adverse Reliability Impacts

Based upon the results of the SRIS, the Article 10 Application will discuss the reasonable alternatives to mitigate potentially adverse impacts on system reliability.

2.5.5 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 this reduction.

2.5.6 Criteria, Plans, and Protocols for Generation Facilities

2.5.6.1 Applicable Engineering Codes, Standards, Guidelines, and Practices

The generation facilities will be designed in accordance with applicable standards, codes, and guidelines. For portions owned by the Applicant (e.g., collection system), best industry practices will be used, along with any standards/preferences set by the companies designing the Facility. For the POI, National Grid requirements will be followed. The Article 10 Application will describe those codes and standards that are applicable to each component of the Facility including interconnection. These codes and standards include, but are not limited to:

- ANSI - American National Standards Institute;
- IEEE - Institute of Electrical and Electronic Engineers;
- ASTM - American Society for Testing and Materials;
- OSHA - Occupational Safety and Health Administration;
- NESC - National Electrical Safety Code;
- ASCE – American Society of Civil Engineers;
- NEC – National Electric Code;
- NERC – North American Electric Reliability Council;
- NPCC - Northeast Power Coordinating Council, Inc.;
- NYSRC - New York State Reliability Council;
- Building Code of New York State;
- DNV GL; and
- Underwriters Laboratories.

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2.5.6.2 Generation Facility Type Certification

The Article 10 Application will provide the type certification for the wind turbine models under consideration for use in the Project, which will include supporting documents issued by the certifying organization, to the extent that information is available when the Article 10 Application is submitted. Once a turbine model is selected, the Applicant will provide the certification for the selected model, potentially as a Certificate condition.

2.5.6.3 Procedures and Controls for Inspection, Testing, and Commissioning

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

Wind 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 and turbine foundations. Turbine foundation testing and inspection will be conducted in accordance with guidance presented in the *Recommended Practice for Compliance of Large Land-based Wind Turbine Support Structures* (ASCE and American Wind Energy Association ("AWEA") 2011).

Testing and commissioning of the 34.5 kV Overhead Collection System, the 34.5 kV Underground Collection System, and the collection substation will be conducted, as appropriate, in accordance various requirements as presented in Section 2.5.6.1. Material received for construction of each of these Facility components will be visually inspected for defects, and for compatibility with the design/specifications. For the collection substation, some testing will be conducted at the manufacturer, but additional testing will be required after some materials are installed at the Facility. The additional testing at the Facility will include, but not be 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; and
- Direct Current battery bank and charger.

These procedures will be described further in the Article 10 Application.

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2.5.6.4 Maintenance and Management Plans, Procedures, and Criteria

The Article 10 Application will include a preliminary Operations and Maintenance Plan for the Facility. This plan will be based on the turbine manufacturer's specifications, specific Project needs as well as the Applicant's experience operating similar facilities. Detailed operations and maintenance plans, procedures, and criteria related to the Facility's electrical components will be presented in the Application.

2.5.7 Heat Balance Diagrams

The Project does not include a thermal component; therefore, this requirement is not applicable.

2.5.8 Interconnection Substation Transfer Information

National Grid is the connecting transmission owner for this Facility. The interconnection of the Project will be accomplished via a step-up substation and a new 115 kV three breaker ring bus POI on the National Grid Black River – Lighthouse Hill Line #5. The Article 10 Application will include a General Arrangement Plan View drawing of the POI.

2.5.8.1 Substation Facilities to be Transferred and Timetable for Transfer

The exact future transaction and timetable to transfer the POI to National Grid will not be known until the Facilities Study is complete.

2.5.8.2 Transmission Owner's Requirements

The POI will be designed by National Grid (i.e., the transmission owner) and, therefore, the POI interconnection will be designed in accordance with their requirements. The description of the design, and the party responsible for performing design and construction (Applicant or National Grid), will not be known until the Facilities Study is complete.

2.5.8.3 Operational and Maintenance Responsibilities

National Grid, as the transmission owner, will define and perform the operation and maintenance responsibilities for the POI.

2.5.9 Facility Maintenance and Management Plans

The Article 10 Application will include a preliminary Operations and Maintenance Plan for the Facility. This plan will be based upon the specific Project needs as well as the Applicant's experience operating similar facilities, and updated as necessary subsequent to construction in order to reflect as-built conditions.

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2.5.9.1 Turbine Maintenance and Safety Inspections and Tower Integrity

Turbine maintenance and safety inspections will be conducted according to manufacturer's specifications and the Operations and Maintenance Plan for the Facility, which will be finalized once the Project becomes operational. Turbines will be regularly inspected and will undergo regular operational maintenance such as applying greases (lubricants) to gearboxes and hydraulic systems and changing oil filters, as needed. Similarly, when inspections identify needed repairs such as replacing switches, fans, or sensors, this work will be completed according to manufacturer specifications and the Facility Operations and Maintenance Plan.

Generally, the Applicant 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 maintenance and safety inspection; scheduled inspection and maintenance; and unscheduled maintenance and repairs. Each of these is briefly described below.

Maintenance and Safety Inspections

Maintenance and repair activities will be conducted 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. For example, if widening of an access road is necessary within or adjacent to a wetland, this work 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 annually and 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 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 and Repairs

Modern wind turbines are very reliable and the major components are designed to operate for up to 30 years. However, wind turbines are large and complex electromechanical devices with rotating equipment and many components. As a result, at times, turbines will require repair, most

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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.

2.5.9.2 Electric Transmission and Collection Line Inspections

Vegetation Clearing Requirements

The safe operation of the 34.5 kV electrical collection line will require regular inspections to prevent the encroachment of vegetation that could come into contact with the lines and affect operations. This will include the identification of woody vegetation capable of growing to a height that would place it within 15 feet of a conductor within a period of approximately 3 to 4 years and identification of "danger trees", which are dead or dying trees that could fall onto the wires. Woody vegetation within the collector line corridor capable of such encroachment would need to be removed during regular maintenance as well as danger trees located outside of the corridor but capable of encountering lines if they should fall.

Vegetation Management Plans and Procedures

During construction of the electrical collection lines, vegetation that is larger than approximately 2-inches diameter-at-breast-height within the clearing corridor would be cut at ground level, and all other vegetation would be cut or trimmed to an appropriate height to allow regular inspections and access for maintenance. The limbs of vegetation located outside the established corridor also would be trimmed if they encroach upon the corridor. Maintenance during operation of the Project would follow similar parameters to those used during construction. The vegetation management practices for the collection lines will be included in the Project's Vegetation Management Plan that will be submitted as part of the Article 10 Application.

Inspection and Maintenance Schedules

Inspections and maintenance of electrical lines will be conducted according to the Operations and Maintenance Plan for the Facility, which will be finalized once the Project becomes operational.

Notifications and Public Relations for Work in Public Right-of-Ways

If work is required within public rights-of-ways, the appropriate owner/operator will be notified prior to the start of work.

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Minimization of Interference with Distribution Systems

The Article 10 Application will discuss the methods to minimize interference with existing distribution systems.

2.5.10 Vegetation Management Practices for Substation Yard

The Article 10 Application will describe vegetation management practices for the Project substation yard, including specifications for clearances, inspection and treatment schedules, and environmental controls to avoid off-site effects. The vegetation management practices for the substation yard will be included in the Project's Vegetation Management Plan that will be submitted as part of the Article 10 Application.

2.5.11 Criteria and Procedures for Sharing Aboveground Facilities with Other Utilities

The Article 10 Application will describe the criteria and procedures by which the Applicant will review proposals for sharing aboveground facilities with other utilities.

2.5.12 Availability and Expected Delivery Dates for Major Project 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. The Applicant currently plans to start commercial operations by the end of 2020.

2.5.13 Blackstart Capabilities

According to National Grid (2016), blackstart is the procedure to recover from a total or partial shutdown of the transmission system. Not all generators have or need blackstart capability (National Grid 2016). Wind energy facilities, such as the proposed Project, are not suitable for blackstart because there is no guarantee that wind would be blowing at sufficient speed to enable power generation. Therefore, the Facility will not have blackstart capabilities.

2.5.14 Compliance with Applicable Reliability Criteria

Reliability criteria will be identified in the SRIS, which includes input from the NYISO and National Grid. In addition, the Applicant 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 [EXHIBIT 6]

2.6.1 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 also minimizing environmental impacts, meeting turbine vendor

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site suitability requirements, taking local laws into consideration, and minimizing impacts at residential receptors related to sound or shadow flicker. It is an iterative process with the final Facility design reflecting a balance of these factors.

As indicated previously, the Facility is located in an area with a rural and low-density residential character. The Facility has been preliminarily sited to avoid and/or minimize interaction with sensitive natural and cultural resources (e.g., 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 the respective sections of the Article 10 Application.

With respect to setbacks, the Article 10 Application will describe how setbacks will ultimately be applied to Facility turbines for the protection of public safety and neighboring properties, to minimize impacts at residential and other sensitive structures/resources, and for consistency with the intent of applicable land use/zoning regulations. The Article 10 Application will also present representative turbine models that would be suitable for the Facility, and their respective dimensions.

2.6.1.1 Manufacturer's Specifications

The Article 10 Application will outline how the Applicant plans to meet the manufacturer's setback specifications, if any. This will include a review of manufacturer setback specifications (to the extent available) for the range of potential turbines presented in the Application.

2.6.1.2 Applicants Setback Standards

When identifying appropriate setbacks for a given project, the Applicant generally considers the following: protection of public safety 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; minimizing impacts at residential or other sensitive structures related to sound or shadow flicker; and adhering to applicable land use/zoning setback regulations to the maximum extent practicable. These setbacks are intended to protect public safety, and to minimize potential impacts to surrounding communities.

2.6.1.3 Setbacks Required by Local Law or Ordinance

The Towns of Pinckney, Harrisburg, and Montague have adopted laws specific to major and minor wind energy generating facilities. Table 2.2 provides a summary of the required setbacks for major wind energy generating facilities in each town.

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Table 2.2. Local Setback Requirements.

Setback Requirement	Town of Pinckney	Town of Harrisburg	Town of Montague
Lot Lines	300 feet minimum	At least the height of the tower plus the blade when fully vertical.	A minimum, 10 feet plus the height of the structure.
Road centerlines	A minimum, 100 feet plus the height of the structure including rotor radius.	At least the height of the tower plus the blade when fully vertical.	A minimum, 50 feet plus the height of the structure
Existing residential structures	A minimum 1,000 feet. Individual wind turbines must be located so that the level of noise produced by wind turbine operation does not exceed 50 decibels as measured at the boundaries of all non-participating parcels.	Not stated	A minimum, 1,500 feet or through an agreement with owner of the residence a setback of 300 feet plus the height of the structure.

2.6.2 Degree the Facility Layout Accommodates Turbine Setbacks/Recommendations

The Article 10 Application will describe to degree to which the Facility layout accommodates the required and/or recommended turbine setbacks set forth in the zoning regulations for the towns of Pinckney, Harrisburg, and Montague. It is anticipated that all turbines will be located at least 1.5 times the maximum blade tip height from any 115-kV transmission right-of-way ("ROW").

2.6.3 Third-party Review and Certification of Wind Turbines

All turbine models are required to obtain independent certification. Turbine models are independently certified as meeting international design standards by independent product safety certification organizations such as DNV GL 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 Applicant will provide an example of a type certification for one of the turbines under consideration at the time the Application is submitted, to the extent that information is available. However, Applicant may ultimately select a turbine model different from those presented in the application, within the range of potential impacts evaluated and assessed therein, based on availability and needs at that time.

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

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2.6.4 Wind Meteorological Analyses

Wind resource analysis will be completed using a proprietary coupled mesoscale ("MASS") and microscale (SiteWind) model, and the Openwind Enterprise software package to develop the energy yield analysis for the Facility layout. To collect the site-specific data necessary for modeling purposes, five temporary met towers were erected in the Town of Pinckney. One met tower was installed in the spring of 2014, and the remaining in the fall of 2016. A Light Detection and Ranging ("LiDAR") remote sensing unit also was installed in the fall of 2016. It is anticipated that two to three additional temporary met towers will be constructed in the spring or early summer 2017, in locations yet to be determined. The turbine layout to be presented in the Article 10 Application will be determined by correlating the most energetic layouts with the most constructible and logistically economical designs, while accounting for siting constraints and impact avoidance measures. The Application will include a discussion of the suitability of the wind resource at the Facility based on publicly available wind resource maps.

The detailed results of these analyses are proprietary and retained as trade secrets. Therefore, a copy of the wind meteorological analyses will not be provided with the Article 10 Application, but rather will be provided under a separate cover. The Applicant will seek the requisite trade secret protection for this information pursuant to NY Public Officer's Law Section 87(2)(d) and 16 NYCRR 6-1.3.

2.7 NATURAL GAS POWER FACILITIES [EXHIBIT 7]

The proposed Project is not a natural gas power facility; therefore, this requirement is not applicable.

2.8 ELECTRICAL SYSTEM PRODUCTION MODELING [EXHIBIT 8]

2.8.1 Computer-based Modeling

The analyses presented in this section of the Article 10 Application will be developed using GE's Multi-Area Production Simulation ("MAPS"), PowerWorld Corp, or a similar computer-based modeling tool. Prior to preparing this exhibit, the Applicant will consult with DPS and DEC to develop an acceptable input data set to be used in the simulation analyses, including modeling for the Applicant's proposed facility and inputs for the emissions analysis. Portions of the data to be provided are proprietary and/or are considered sensitive Critical Energy Infrastructure Information (CEII), and will be filed with a request seeking a protective agreement. The data that is proprietary, which are typically retained as trade secrets, will be provided to DPS under a separate cover. The Applicant will seek the requisite trade secret protection for this information pursuant to NY Public Officer's Law Section 87(2)(d) and 16 NYCRR 6-1.3 and 6-1.4.

2.8.1.1 Estimated Statewide Levels of Greenhouse Gas Emissions

Wind turbines generate electricity without combusting fuel or releasing pollutants into the atmosphere. The operation of this Project is anticipated to have a positive impact on air quality

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by producing electricity with zero emissions (except for very small emissions from vehicles servicing the facility). The Article 10 Application will estimate the statewide levels of SO₂, NO_x, and CO₂ emissions both with and without the proposed Project.

2.8.1.2 Estimated Prices Representative of all NYISO Zones

The Article 10 Application will estimate the minimum, maximum, and average annual spot prices representative of all NYISO Zones within the New York Control Area, both with and without the proposed Project for the year 2020.

2.8.1.3 Estimated Capacity Factor

The current estimate of capacity factor is 32%. The Article 10 Application will provide more information about the estimated capacity factor for the proposed Project.

To calculate this, an 8,760 hourly generation profile will be developed using the measurements from the multi-year and in-progress wind resource assessment campaign currently comprised of five meteorological towers and two remote sensing LIDAR units. Tower measurement parameters include multi-level 10-minute averages of wind speed, wind direction, and ambient temperature and pressure to approximately 58 meters above ground level. The LiDAR measurement parameters include multi-level 10-minute averages of wind speed and wind direction data from approximately 30 meters through the proposed 150-meter turbine blade tip height. Validated datasets will be created for each tower by removing all suspect and erroneous data. Data from each mast will be adjusted to be representative of the long-term wind climates at those locations using suitable long-term reference stations and reanalysis datasets to create long-term wind speed and direction distributions. Wind speed measurements from at least two mast and LiDAR monitoring heights will be used to extrapolate the mast long-term wind speeds to the proposed wind turbine hub height. Mesoscale and microscale computer models will use these mast datasets to estimate the hub height wind speed and direction distributions across the project area. 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 loss 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.

2.8.1.4 Estimated Annual and Monthly MW Output Capability Factors

The Article 10 Application will provide the estimated annual and monthly, on peak, shoulder, and off-peak MW output capability factors for the proposed Project. The gross average energy yield for each month will be determined from the validated 10-minute data described in 2.8.1.3 above with each monthly dataset adjusted to the monthly long-term. From this, the monthly gross energy distribution for the year will be determined. The net long-term energy yield for each month will be estimated by applying monthly specific loss assumptions to include availability, environmental and curtailment. The monthly net capacity factor is calculated based on the

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number of days in each month, and overall annual net capacity factor from the sum of all monthly net energy yields and the total per year.

2.8.1.5 Estimated Annual and Monthly MWh Production Output

The Article 10 Application will provide the estimated average annual and monthly production output for the Project in MWh. Monthly energy yield averages will be determined from the observed wind production profile data in each specific month and long-term adjustments will be made to the monthly data set. 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 will be taken from the gross monthly production distribution to yield the 12 estimated monthly productions in MWh. An annual production output will be determined from the sum of all monthly net energy yields in MWh.

2.8.1.6 Estimated Production Curve over an Average Year

The Article 10 Application will provide an estimated production curve for the Project over an average year. Hourly production of the Facility will be calculated using GEMAPS and 8,760 hours of wind production profile data provided by the Applicant. Estimates of hourly production and scheduled hourly production will be provided in tabular and graphical formats (based on one turbine model).

2.8.1.7 Estimated Production Duration Curve over an Average Year

The Article 10 Application will provide an estimated production duration curve for the Project over an average year, the hours count for milestones production (production duration only), and a graph that shows the production duration curve for the Facility (based on one turbine model).

2.8.1.8 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 Project on the energy dispatch of existing must-run resources, to include existing wind, hydroelectric, and nuclear facilities, as well as co-generation facilities to the extent they are obligated to output their available energy because of their steam hosts.

To assess the estimated effects of the proposed Facility on the energy dispatch of existing must-run resources (which includes existing wind, hydroelectric, and nuclear facilities, as well as co-generation facilities to the extent they are obligated to output their available energy because of their steam hosts), a Generation Dispatch Forecasting Analysis will be prepared based on one turbine model. However, this analysis will be filed separately under confidential cover.

To conduct the analysis, the NYISO 2020 system will be modeled to the extent that information is available, with and without the proposed Facility, and compared the generation dispatch of

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must run resources with the NYISO service territory between the two scenarios. The first step in the analysis will be to complete a power-flow study to identify critical constraints near the proposed Facility, followed by conducting a generation and transmission nodal market study based on 8,760 hours-per-year simulation for the 2020 study year, while taking into consideration system constraints including the critical constraints identified in the power-flow calculations. The analysis will simulate the effect of energy schedules from energy resources on must run resources re-dispatching to reliably serve the grid and avoid curtailment.

2.8.2 Digital Copies of Inputs Used in the Above Simulations

The Article 10 Application will provide digital copies of all inputs used in the above referenced simulations.

2.9 ALTERNATIVES [EXHIBIT 9]

2.9.1 Reasonable and Available Alternative Location Sites

Selection of a viable wind energy project size and location is based on a multitude of factors, including quality of wind resource, suitable geography, proximity to transmission infrastructure, landowner acceptance, low residential population density, sensitivity of natural resources, avoidance of especially sensitive areas such as the Adirondack Park, and compatibility with existing land uses. The Applicant is a private entity, without the power to exercise eminent domain, so alternatives are limited to sites owned by or providing necessary easement rights by landowner agreement is a critical factor in any site selection, as stated in 16 NYCRR § 1001.9(a). The size of a facility is determined by both project economics and interconnection capacity. Section 2.9.2 provides a discussion of the factors that the Applicant will analyze in the Article 10 application when considering the project size and location and the practicable alternatives as these relate to properties owned by or under option to the Applicant. The Applicant's objective is to develop and operate a commercially viable wind energy generating facility of 100 MW nameplate capacity that will interconnect to the New York State power grid at the identified POI, and the alternatives reviewed will be limited to those which advance this objective.

2.9.2 Comparison of Advantages and Disadvantages of Proposed and Alternative Locations

As previously stated, selection of a viable wind energy project size and location is based on a multitude of complex factors, including but not limited to willing landowner participants, host communities, and sufficient access to available transmission systems. Because it would be impractical to have multiple "Alternative Locations" for which the Application has secured land control, entered into agreements or discussions with host communities, and completed the interconnection study process, the Article 10 Application will not include a comprehensive analysis of "Alternative Locations". The Article 10 Application will instead demonstrate that the location selected for the Facility is suitable for large scale wind energy production, and will provide information regarding the site selection and evaluation process for the Facility.

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2.9.2.1 Environmental Setting

The Article 10 Application will include a description of the suitability of the soils, natural resources and other natural features in the Project Area. Terrain features exhibiting considerable topographic relief compared to the surrounding landscape such as ridgelines, hills, and plateaus without substantial natural resources are traditionally attractive places for siting turbines. The Project Area is characterized by such desirable topography.

2.9.2.2 Recreational, Cultural, and Other Concurrent Uses of the Site

The Article 10 Application will include a discussion of recreational, cultural, and other concurrent uses that the Project Area may provide, including, but not limited to, trails (hiking, snowmobile, biking, etc.), state and local parks, and state forests. The Applicant will perform an analysis of motorized and non-motorized recreational use of the Project Area, as well as a Phase 1 Historic Resources Assessment for pre-contact, Euro-American and architectural resources within the defined Study Areas as provided in Section 2.20.

2.9.2.3 Engineering Feasibility

The Article 10 Application will discuss engineering feasibility of the Project including wind availability and electrical interconnection. Avoidance of steep slopes and suitable surface/subsurface soils characteristics for foundations are important factors for evaluating alternatives. The chosen Project Area does not have steep topographic limitations, and the Article 10 Application will evaluate the soil suitability to verify that it is appropriate for foundations and roadways.

Further, as discussed above, the Applicant is conducting a rigorous wind resource analysis for this Facility, which is intended to optimize the turbine layout and to maximize energy production within the context of the existing site-specific constraints.

2.9.2.4 Reliability and Electric System Effects

The Article 10 Application will discuss the reliability and electric system effects of the proposed Project. This will include a SRIS to determine how the Project will affect overall reliability of the New York Transmission System and how it will be designed to eliminate identified adverse impacts.

2.9.2.5 Environmental Impacts

The preliminary Facility layout has been designed to avoid or minimize impacts to known environmental and other resources. The Article 10 Application will detail potential qualitative and quantitative environmental impacts of the proposed Project. Typical impacts include the loss of habitat, temporary habitat disruption, wetland impacts during construction, and post-construction avian mortality during operation. This will include the results of pre-construction terrestrial, botanical and biological surveys of the project location to determine what natural

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resources are present. The results of pre-construction surveys will be factored into Project designs to evaluate design impacts and arrive at an alternative that meets the Project purpose while avoiding and minimizing environmental impacts to the extent practicable.

2.9.2.6 Economic Considerations

The Applicant will provide an estimated cost of the Project and a discussion of how cost affects viability of potential alternatives in the Article 10 Application. The purpose of the Project is the development and operation of a commercially viable wind energy generation facility of 100 MW nameplate capacity that will interconnect to the New York State power grid at the identified POI. To fulfill these goals, adequate wind resource and access to the existing transmission system are some of the most important considerations in selecting the Facility location. The Facility location has ample wind resources, and is located in 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, and Exhibit 34 will provide information about the electric interconnection.

2.9.2.7 Environmental Justice Considerations

The Project is not expected to impact any Environmental Justice ("EJ") areas. The closest Potential EJ Areas, as shown on DEC's Geospatial Information System Tools for Environmental Justice (www.dec.ny.gov/public/911.html), are located in the Village of Lowville, portions of the Town of Martinsburg, and the City of Watertown, all of which are located outside the Project Area.

2.9.2.8 Security, Public Safety, and Emergency Planning Consideration

The construction and operational phases of the Project each have distinctly different security, public safety risk and emergency planning required. Both of those phases will be analyzed and project specific plans developed. The Article 10 Application will include appropriate plans developed in consultation with affected municipalities and local emergency service providers.

2.9.2.9 Public Health Consideration

The Article 10 Application will include a discussion of potential public health considerations related to the construction and operation of the proposed Project at Exhibit 15.

2.9.2.10 Vulnerability to Seismic Disturbances and Climate Change Impacts

The subsurface investigation included in the Article 10 Application will include an evaluation of seismic vulnerability, consulting the New York State Hazard Map and the USGS Earthquake Hazards Program. Turbine locations and other infrastructure will be sited in consideration of the effects that potential changes in rainfall amounts, frequency and duration might have on infrastructure integrity.

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2.9.2.11 Objectives and Capabilities of the Applicant

The objective of the Applicant is to develop and operate a commercially viable wind energy generation facility of 100 MW in nameplate capacity that will interconnect to the New York state power grid at the POI identified. The Applicant, Atlantic Wind LLC, is a wholly-owned subsidiary of Avangrid Renewables LLC. Avangrid Renewables is one of the largest producers of wind energy in the United States. Avangrid Renewables is headquartered in Portland, Oregon, and has more than \$10 billion of operating assets totaling more than 6,000 MW of owned and controlled wind and solar generation in the United States. Avangrid Renewables has developed over 50 wind farms in the United States alone, including two operating in New York, Maple Ridge and Hardscrabble.

More broadly, the Applicant's objectives include:

- helping New York meet its energy needs in an efficient and environmentally sound manner;
- supplementing and offsetting fossil fuel electricity generation in the region with emissions-free, wind-generated energy;
- reducing electricity imports into NYS;
- harnessing the wind resources available in Lewis County;
- providing energy that is not susceptible to fluctuations in commodity prices;
- producing electricity without emitting carbon dioxide or GHGs that contribute to climate change;
- promoting the long-term economic viability of rural areas in New York; and
- assisting NYS in meeting its proposed State Energy Plan and Clean Energy Standard goals for renewable energy production and consumption in New York.

2.9.2.12 General Arrangement and Design

As noted above, arriving at a final design for this approximately 100 MW Project is an iterative process that combines analyses of wind resources, human/cultural resources, landowner agreements, and environmental and other resource impacts. As a private developer, the Applicant can only site the Facility on private property where the landowner(s) has agreed to allow the construction and operation of the proposed facility. Once a general area has been identified that is suitable for a commercial scale wind energy generating facility, the iterative process begins to determine the final layout for the facility components. Since 2016, the Facility layout has been revised several times to account for these needs, requirements, and considerations. These revisions have involved changing the size and shape of the Facility, and reducing the number of proposed turbines. The final Facility design will incorporate the results of on-site engineering and environmental studies, regulatory requirements, and landowner agreements. The approach towards general arrangement and design and alternative project designs will be discussed in the Application.

2.9.2.13 Technology

The Article 10 Application will discuss the technology for the Project—appropriate wind turbine height, rotor diameter and generation capacity—and how it was determined to be appropriate

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based on economics and nature of the wind resource. Private landowner agreements strictly limit the use of land to a wind power project, and as such, do not allow for the siting of other alternative energy production facilities (e.g., solar, hydro, biomass, or fossil fuel). Accordingly, other power generation technologies are not reasonable alternatives and do not warrant consideration in the Article 10 Application.

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

2.9.2.14 Scale or Magnitude

As with the discussion of appropriate technology, scale of the Project—height and number of turbines—will be evaluated based on the type of turbine and the purpose to develop and operate a commercially viable wind energy generating facility of 100 MW of nameplate capacity that will interconnect to the New York State power grid at the identified POI. The Application will discuss alternate scale and magnitude in the context of this purpose. Generally, a larger scale project will produce energy that is less costly. However, siting constraints such as landowner agreements, engineering considerations, and regulatory requirements influence the size and layout of wind power projects. These constraints would make it unlikely that the Project could include significantly more turbines than are currently proposed.

2.9.2.15 Alternative Turbine Layouts

The Article 10 Application will include a discussion of alternative layouts of the turbines within the Project Area.

Generally, factors considered during the layout design process include available wind resources; avoidance and minimization of environmental impacts including impacts to wetlands, waterbodies, and wildlife; avoidance and minimization of impacts to cultural resources; and adherence to setback requirements/recommendations.

The Facility's turbine layout is also a function of the turbine model that will ultimately be used. As previously mentioned, the Facility to be evaluated in the Article 10 Application consists of up to 40 wind turbine sites. The actual number of turbines constructed will depend on the capacity of the turbine model selected that will reach a total generating capacity of 100 MW. That is, if a 2.5 MW turbine is ultimately selected, then 40 turbines will be constructed to reach the 100 MW goal. If a larger capacity turbine is selected, fewer turbine locations will be required to generate 100 MW. The turbine model ultimately selected for this Facility will be based upon numerous factors, such as site suitability (certain turbine models are not suitable for certain sites or site conditions), 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 present a maximum impact evaluation, the Article 10 Application will assess the impacts associated with up to 40 turbine locations, even though fewer turbines ultimately may be built.

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In addition, this section of the Article 10 Application will address why turbines of certain heights and dimensions are best suited for this Facility, including an analysis of compliance with existing local height restrictions. Additionally, this section of the Application will address the environmental impacts associated with the use of turbines of different heights placed on the same properties as the proposed layout with increased setbacks from residences, property lines, and public roads such that turbine fall-down distances are wholly within the participating land parcel. Finally, the Application will discuss the environmental impacts associated with an alternative layout within the Project Area.

2.9.2.16 Timing of In-service Date in Relation to Other Capacity Changes to the Electric System

The Article 10 Application will include details on the timing of the proposed in-service date for the Project in relation to other planned additions, withdrawals, or other capacity, transmission, or demand reduction changes to the electric system.

2.9.3 Why the Proposed Location Best Promotes Public Health and Welfare

The Article 10 Application will discuss why the proposed location promotes public health and welfare by evaluating how it fits into the existing uses of the area, how it compliments those uses, how it furthers local comprehensive plans, and how it can contribute to the general health and welfare of those communities.

2.9.4 Why the Proposed Facility Best Promotes Public Health and Welfare

This alternative energy Project promotes healthier air quality and sustainable ecosystems by reducing the need for carbon generation, and provides local socioeconomic benefits to the local communities. It will have little ongoing impact on local infrastructure but will provide substantial tax benefits. Appropriate setbacks and other protective measures will be employed to assure public health and safety during construction and operation of the Facility. Additional discussion of the value of the facility to public health and welfare will be provided in the Article 10 Application.

2.9.5 No Action/No Build Alternative

If the proposed Project were not constructed, the existing socioeconomic and environmental conditions would remain unchanged, and the public health and welfare improvements offered by the Project would not be realized. Further, the overall objective of constructing a 100 MW renewable energy facility to tie into the existing transmission grid system at the identified POI also would not be realized. The Article 10 Application will discuss further why the No Action/No Build alternative is not the preferred alternative.

With no carbon emissions and the potential to replace carbon based generation, the Project will have an incremental positive impact on climate change. As stated above, electricity generated from zero-emission wind energy can displace the electricity generated from

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conventional power plants, thereby reducing the emissions of conventional air pollutants, such as sulfur and nitrogen oxides (acid rain precursors), mercury, and carbon dioxide (linked to global climate change). Displaced emissions occur because renewable electric generation sources have low marginal operating costs (i.e., fuel). Therefore, renewable energy sources become first option sources, displacing generation at fossil fuel plants that have higher marginal operating costs. The proposed Facility is anticipated to have significant, long-term beneficial effects on the use and conservation of energy resources. The operating Facility will generate up to 100 MW of electricity without consuming cooling water or emitting pollutants. Under the No Build Alternative, these benefits would not be realized.

Further Exhibit 27 of the Article 10 Application will provide detailed information on the socioeconomic effects of the proposed Facility. The proposed Facility will have a positive impact on the local economy. Construction and operation will generate jobs, and the Facility will have a direct economic benefit from the purchase of goods from local sources (such as fuel), the spending of income earned by workers, annual labor revenues, and the income effect of taxes (including income taxes, sales tax, and real property taxes). These direct effects will result in additional induced economic benefits in other sectors. The Facility will result in payment to local landowners in association with the landowner agreements, which will be in addition to any income generated from the existing land use (e.g., agricultural production). These payments will have a positive impact on the region, to the extent that landowners will spend their revenue locally. The proposed Facility will also have a significant positive impact on the local tax base, including local school districts and other taxing districts that service the area where the proposed Facility is to be located. Again, under the No Build Alternative, such benefits would not be realized.

2.9.6 Alternative Energy Supply Sources

The Article 10 Application will discuss why these alternatives such as coal, nuclear, or natural gas are not preferred for this location, and will include a general discussion of the potential impacts of providing comparably sized clean energy options (i.e., solar and hydroelectric).

2.9.7 Comparison of Advantages and Disadvantages of Proposed and Alternative Energy Sources

Because the Project is a wind energy facility, alternative energy sources and demand-reducing alternatives will not be evaluated in the Article 10 Application.

2.9.8 Why the Proposed Project Best Promotes Public Health and Welfare

As discussed in Sections 2.94 and 2.95, the Article 10 Application will describe why the proposed Project is best suited to promote local and statewide public health and welfare.

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2.10 CONSISTENCY WITH ENERGY PLANNING OBJECTIVES [EXHIBIT 10]

2.10.1 Consistency with State Energy Plan

The 2015 New York State Energy Plan and its coordinating energy initiative, the REV, sets significant state targets and goals to be reached by 2030. These include a goal for GHG reduction of 40% below 1990 levels by 2030 and reducing total carbon emissions by 80% by 2050. On August 1, 2016, the Public Service Commission issued approval of the State's CES, which represents the most comprehensive and ambitious clean energy mandate in the state's history. 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. This 100-MW wind energy Project substantially advances these goals.

The Application will describe how the Project will be consistent with the goals and objectives of the State Energy Plan and the CES. It also will describe how the Project will further the State in achieving renewable energy objectives, and will provide a statement of the Facility's degree of consistency with the State Energy Plan. In addition, the Application will discuss how the Facility supports the five "Guiding Principles" and the seven goals listed in the "Initiatives and Goals" of the State Energy Plan, and how the Facility supports the New York 2030 Targets of the State Energy Plan.

2.10.2 Impact on Reliability

The Project will complete a SRIS to determine how the Project load will fit with the existing transmission systems under multiple load/demand scenarios to identify and required upgrades and assure the Project load does not cause disruption to the existing system. A number of power flow base cases will be evaluated both with and without the proposed Facility in service, including summer peak, winter peak, and light load. The Article 10 Application will describe the impact of the proposed Facility on electrical system reliability in greater detail using analyses conducted as part of the SRIS. The results of that study will be included in the Article 10 Application.

2.10.3 Impact on Fuel Diversity

Consistent with the State Energy Plan, this Project will provide additional wind energy production, improving the fuel diversity within the State, which relies very heavily on natural gas for power. A multiplicity of generating sources provides greater assurance of uninterrupted power, reliability, and protection from the oscillation of fuel prices. Maintaining and improving fuel diversity in New York will lead to less volatile electric prices, improved reliability, and positive environmental impacts. The Article 10 Application will include data on the diversity of generation sources to put this Project into context.

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2.10.4 Impact on Regional Requirements for Capacity

Unlike carbon based generation, the location of wind generation facilities is limited to areas where the wind resource is favorable, which often does not coincide with the areas of greatest demand. 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% 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 generating plants in upstate regions. The proposed Facility falls into the latter category, with siting driven by available wind resource.

The impact of this Project on regional requirements for capacity will be discussed in more depth in the Article 10 Application. The Article 10 Application will identify the NYISO Zone where the Project will be located, and how the Project relates to regional electricity demands, and reliable and viable electricity generation.

2.10.5 Impact on Electric Transmission Constraints

In addition to the SRIS, the Article 10 Application will use the New York State Transmission Assessment and Reliability Study ("STARS"): Phase II (2012) and other data available from the New York Independent System Operator to evaluate the impact of the Project on existing transmission constraints.

Generally, 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. These transmission enhancements will help move energy from upstate regions with a surplus of generating capacity to more populous areas with higher power demands, such as the Hudson Valley, New York City, and Long Island. 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.

2.10.6 Impact on Fuel Delivery Constraints

This Project needs no fuel delivery, and to the extent it decreases the demand for firing fuel generating plants, it will have the effect of alleviating fuel delivery constraints. By producing electricity that does not require fuel, the Project reduces overall demand for fuel, eases fuel delivery constraints, and contributes to the State's Energy Plan goals.

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2.10.7 Impact on Other Energy Policy

The New York State Energy Plan contains significant policy objectives and, collaboratively with REV and CES strategies, will increase the use of energy sources that significantly reduce GHG emissions and stabilize energy costs. Through the State Energy Plan, New York has committed to achieving a 40% reduction in GHG emissions from 1990 levels by 2030 and an 80% reduction in reducing total carbon emissions by 2050. The State Energy Plan calls for 50% of generation of electricity from renewable energy sources by 2030. This Project advances the objectives of the State Energy Plan and assists the State in achieving these generation targets.

Large-scale renewables ("LSR") (utility-scale renewable energy project developments) are a key component of REV and CES. The REV specifically acknowledges that large-scale renewables require more capital and take more planning than other facilities, but will be critically important to meeting greenhouse gas emissions reduction goals. The immediate benefits of utility scale renewable energy projects, such as the Facility, include economic development and jobs for the host community, greater stability in customer bills, cleaner air, and new energy infrastructure.

As the recent Final Generic Environmental Impact Statements ("FGEIS") for REV and the CES state, 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 receives from the State's hydroelectricity facilities: stable pricing due to avoidance of inflationary influence on fuel costs, and a healthier environment. The FGSEIS recognizes the vital role that renewable resources such as wind play in helping the state meet its goals under the State Energy Plan. Projects such as the Facility are pivotal in helping the State reach its energy goals. The Article 10 Application will provide a discussion of how this 100 MW Project promotes both state and federal energy policy goals to promote renewable energy.

2.10.8 Comparison of Advantages and Disadvantages of Proposed and Alternative Locations

Exhibit 9 (Alternatives) of the Article 10 Application will provide an evaluation of the alternative siting options considered for the Project. Given the unique nature and constraints associated with the siting of wind-powered electric generation facilities such as adequate wind resource, willing land lease participants and host communities, and adequate access to the bulk power transmission system, the Applicant has not developed a full comparison between the proposed Facility location and alternative locations. Rather, the Article 10 Application will focus on comparing alternative facility configurations within the proposed Project Area. Such alternatives may include alternative project layouts, alternative project size, alternative turbine generating capacity/heights, and a no action alternative and as identified in Section 2.9.

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2.10.9 Why the Proposed Location and Source Best Promotes Public Health and Welfare

Exhibit 9 (Alternatives) of the Article 10 Application will provide an evaluation of the positive effects on public health and welfare considered during the evaluation of alternatives for the Project.

Energy generation through the combustion of carbon-based fuels is a substantial source of air pollutants, and these pollutants can have serious impacts on human health. Electricity produced by renewable energy sources including wind, solar, and hydroelectric power can help reduce the air pollutants associated with electricity production and thereby decrease public health risks.

2.11 PRELIMINARY DESIGN DRAWINGS [EXHIBIT 11]

2.11.1 Site Plan

The Applicant anticipates that the Article 10 Application will include 60% site plan drawings stamped “not for construction,” prepared by a registered New York engineer or architect using computer software (i.e., AutoCAD or similar). The Preliminary Design Drawings likely will be prepared at a scale of 1" = 100'. This set of drawings will be drawn to scale and will depict all Facility components including turbines, access roads, buried and above-ground collection lines, permanent met towers, O&M building, collection substation, and POI. Typical details and/or general information for the O&M building and an on-site concrete batch plant (if proposed) will be included in the Article 10 Application.

2.11.2 Construction Operations Plan

Construction of a wind project must be carefully planned and sequenced to assure there are no unpermitted resource impacts or unanticipated delays in progress. Resource flagging, erosion control installation, clearing, earth moving, foundation construction, turbine delivery, turbine erection and final site stabilization will be thoroughly orchestrated. The Article 10 Application will include a construction plan that describes how the phases of Project construction will knit together. The Preliminary Design Drawings will depict the location of all anticipated construction staging/material laydown yards, which is where the contractor trailers/offices and parking areas will be located during construction. Excess soil will be stockpiled along the construction corridors and used in site restoration.

2.11.3 Grading and Erosion Control Plans

The Article 10 Application will include a preliminary grading plan and a preliminary evaluation of cut and fill requirements based on existing contours, soils, and bedrock, from publicly available data from Lewis County. The Application will also provide typical erosion control plans and approaches towards managing site stormwater during construction.

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Unlike a conventional energy generating facility in which a large tract of contiguous acreage must be graded to properly site the facility, the footprint of a wind power project is relatively small, is more spread out, and is designed to fit within the existing land form. Thus, 2-foot contour data collected by the Applicant will be utilized for engineering and design purposes. 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 summary of test borings to be conducted at a sub-set of turbine locations and substation locations.

2.11.4 Landscaping Plan

The Article 10 Application will not have landscaping for the turbine foundations and pads, but may have landscaping at the O&M building and the collector substation, depending on the need for visual screening of those facilities as determined in consultation with local municipalities. The need for a landscaping plan will be evaluated in the Article 10 Application.

2.11.5 Lighting Plan

Turbine lighting requirements will be determined via consultation with the FAA. Lighting at the O&M building and substation will be placed as needed for safe operation, and will be described in the Article 10 Application.

2.11.6 Architectural Drawings

The Article 10 Application will provide conceptual/typical design drawings for the O&M building. Specifically, the typical O&M drawing elevations will be based on the Applicant'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.

2.11.7 Typical Design Detail Drawings

Typical designs for stormwater, ditch grades, water crossings, erosion controls, above and below ground structures and other details that are required by the 60% plan will be provided in the Article 10 Application. Prior to construction, the Applicant will submit a Notice of Intent for Stormwater Discharge from Construction Activity to DEC for coverage under the NYSDEC State Pollution Discharge Elimination System ("SPDES") General Permit (http://www.dec.ny.gov/docs/water_pdf/gp015002.pdf). This authorization is subject to review by DEC and is independent of the Article 10 process.

2.11.8 Interconnection Facility Plans and Drawings

For the interconnection facilities, the Article 10 Application will provide a construction operations plan, a grading and erosion control plan, a lighting plan, and a conceptual landscaping plan, if needed. As applicable, the Application also will include a profile of the centerline of the

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interconnection facilities at exaggerated vertical scale. A single line drawing of the POI substation will be included in the SRIS, which will be included in the Article 10 Application.

2.11.9 Engineering Codes, Standards, Guidelines, and Practices

Provided below is a preliminary list of sources for codes, standards, guidelines, and practices that might apply to the Project. This list will be updated in the Article 10 Application.

- American Association of State Highway and Transportation Officials ("AASHTO");
- American Concrete Institute ("ACI");
- American Institute of Steel Construction ("AISC");
- American Society of Civil Engineers ("ASCE");
- American Society of Mechanical Engineers ("ASME");
- American Society for Testing and Materials ("ASTM");
- American Welding Society ("AWS");
- Concrete Reinforcing Steel Institute ("CRSI");
- Edison Electric Institute Publications ("EEI-AEIC");
- Federal Energy Regulatory Commission ("FERC");
- Insulated Cable Engineers Association ("ICEA");
- International Electro-technical Commission ("IEC");
- Institute of Electrical and Electronics Engineers ("IEEE");
- Mine Safety and Health Administration ("MSHA");
- National Bureau of Standards ("NBS");
- National Electrical Manufacturers Association ("NEMA");
- National Electric Safety Code ("NESC");
- National Electrical Testing Association ("NETA");
- National Fire Protection Association ("NFPA");
- National Institute of Standards and Technology ("NIST");
- National Ready Mixed Concrete Association ("NRMCA");
- Occupational Safety and Health Administration ("OSHA");
- Portland Cement Association ("PCA");
- Rural Electrification Administration ("REA");
- Society of Automotive Engineers ("SAE");
- Society for Protective Coatings ("SSPC");
- Uniform Building Code ("UBC"); and
- Underwriter's Laboratories, Inc. ("UL").

2.12 CONSTRUCTION [EXHIBIT 12]

2.12.1 Preliminary Quality Assurance and Control Plan

The Article 10 Application will include a Preliminary Quality Assurance and Control ("QA/QC") Plan for compliance with design, engineering and installation standards based on the Applicant's extensive experience with wind project construction. Typically, the QA/QC Plan is developed and implemented by the Balance of Plant ("BOP") contractor, who is responsible for the construction of the wind farm. The Electrical Contractor, who is responsible for the construction and installation of the electrical components of the Facility, typically develops and implements a separate QA/QC Plan. The Applicant will require the BOP and Electrical

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Contractors to provide final QA/QC Plans prior to starting construction, and all sub-contractors will be required to follow these QA/QC Plans. The QA/QC Plans are site specific and therefore are not developed until the BOP and Electrical Contractor have been selected, and the Facility is proceeding with construction. The Final QA/QC Plans would be developed in coordination with the contractor(s) selected for the construction of the Facility, and submitted as a post-Certification compliance filing.

2.12.2 Conformance with Public Service Requirements

2.12.2.1 Protection of Underground Facilities

The Applicant and its contractors will comply with the underground facilities protection requirements of Public Service Law §119-b, as implemented by 16 NYCRR Part 753, and the Applicant will become a member of Dig Safely New York.

2.12.2.2 Pole Number and Marking Requirements

The Applicant and its contractors will comply with the pole marking and numbering requirements of 16 NYCRR Part 217.

2.12.3 Plans to Avoid Interference with Existing Utility Systems

Based on available public and private information, the Article 10 Application will identify all potential locations and separations of existing utility infrastructure that intersect with the Project Area. This information will be used to generate a map of the existing utility systems known at the time of Application, which will be a general overview subject to updates and changes by the utilities who own these resources. The Project design will minimize interferences where practicable, discuss setback distances from certain identified utilities, and describe resolution where avoidance cannot be reasonably achieved.

2.12.4 Procedures for Addressing Public Complaints and Dispute Resolution

The Article 10 Application will provide a Compliant Resolution Plan for accepting, documenting, investigating and resolving public complaints during construction and operation.

Atlantic Wind will publish a contact phone number for the construction manager (construction phase) and operations manager (operational phase) in the local directory and on the Deer River Wind Farm website. Atlantic Wind also will provide the Town Supervisor for each town within the Project Area the contact name and phone number of the construction manager and then the operations manager. This will include the Town Supervisor from the towns of Pinckney, Harrisburg, Montague, and Rodman. Finally, community members will be able to stop at the Atlantic Wind office on North State Street in Lowville to raise a concern if they are unable to reach the construction manager or the operations manager.

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2.13 REAL PROPERTY [EXHIBIT 13]

2.13.1 Real Property Map of Generating Site

The Article 10 Application will include a map of the Facility showing:

- property boundaries with tax map sheet, block and lot numbers;
- the owner of record of all parcels included within the Facility and for all adjacent properties;
- easements, grants and related encumbrances on the site parcels;
- public and private roads on or adjoining or planned for use as access to the site;
- zoning and related designations applicable to the site and adjoining properties

This map will be generated using information obtained from County GIS, the United States Census Bureau (TIGER/line files), and the NYS GIS Clearinghouse.

2.13.2 Real Property Map of Interconnection Facilities

The Article 10 Application will include a property ROW map showing all proposed interconnection facilities and off-property/ROW access drives and construction lay-down areas for these interconnections. This map will be generated using information sources identified in the above sections.

2.13.3 Demonstration that the Applicant Has Obtained Title or Lease Interest in Facility Site

The Applicant is in the process of obtaining the needed leases, options and easement agreements for all facilities associated with the Project. The Article 10 Application will summarize the progress in obtaining those property interests. The Applicant will also provide a statement that the Applicant has or will obtain the necessary real property rights for all parcels needed for the Facility. The Applicant will work with landowners and verify that that land uses and existing property rights will not interfere or prevent future wind power production.

2.13.4 Demonstration that the Applicant Has Obtained Property Rights to Interconnection Site

The Applicant is in the process of obtaining the needed leases, options, and easement agreements for the substation interconnection site. The Article 10 Application will provide a description of the property interests associated with the Facility.

2.13.5 Improvement District Extensions

The Applicant will engage local municipal representatives to determine if the Facility will need any improvement district extensions; however, they are not anticipated at this time. If they are needed, they will be identified in the Article 10 Application.

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2.14 COST OF FACILITIES [EXHIBIT 14]

2.14.1 Total Capital Costs

In the Article 10 Application, the Applicant will provide an estimate of the total capital costs of the Project in a range, which will include development costs, construction design and planning, equipment costs, and construction costs. Portions of the data to be provided are proprietary and must be filed under a protective agreement. The data that is proprietary, which are typically retained as trade secrets, will be provided to DPS under a separate cover. The Applicant will seek the requisite trade secret protection for this information pursuant to NY Public Officer's Law Section 87(2)(d) and 16 NYCRR 6-1.3.

Because turbines for the Facility will not be ordered until after Certification, costs presented in the Article 10 Application will be estimated based on the Applicant's knowledge of market prices and historical experience. The costs will represent the estimated upper and lower bounds of turbine model costs associated with the range of turbines presented in the Application. 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 selected turbine model due a variety of factors such as differing foundation specifications, the number of turbine locations constructed, and access road specifications.

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

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

2.14.2 Source of Cost Estimates

Cost estimates will be provided in 2016 and 2017 dollars and will be based on the prevailing commodity prices, the Applicant's experience with cost associated with other recent projects, wind industry standards, and other reliable sources that will be described in the Article 10 Application.

2.14.3 Work Papers for Cost Estimates

The Applicant will have internal, proprietary cost calculations, which are typically retained as trade secrets, and will be provided to DPS under a separate cover. The Applicant will seek the requisite trade secret protection for this information pursuant to NY Public Officer's Law Section 87(2)(d) and 16 NYCRR 6-1.3.

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2.15 PUBLIC HEALTH AND SAFETY [EXHIBIT 15]

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 have an adverse effect on 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 involves reducing GHG emissions from the energy sector, because this is critical to protecting the health and welfare of New Yorkers. Clean air is essential to New Yorkers' health and quality of life. New York's energy system is the source of many benefits for New Yorkers. However, it is also the cause of significant impacts on the State's natural resources and public health, principally because of emissions of a variety of substances, some of which find their way into the air, water, and other resources. Air pollutants emitted when carbon-based fuels are burned are associated with serious health conditions and contribute to the climate change that threatens New York's residents and natural resources. Combustion of fossil fuels is the dominant source of energy-related emissions. The kinds of health risks associated with the combustion of carbon-based fuels are not associated with wind, solar energy, and hydroelectric power. While the use of these means of producing electric power is not risk-free, increasing the fraction of New York's electricity needs met by wind, solar, and water will, in general, decrease health risks associated with electricity production. The recognition of the benefits of renewable energy has significantly contributed to New York's nation-leading commitment to renewable energy development through the CES and is in part a leading reason for New York establishing the 50% by 2030 goal set forth in the New York State Energy Plan.

The Article 10 regulations require the assessment of potential risks associated with the operation of a generating facility, which, in the case of the Facility 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. To the best of the Applicant's knowledge, there are no known instances where a member of the general public was injured at an operating wind farm in the United States. The Application will demonstrate that the Facility will be sited in such a manner that setbacks from dwellings, roads, and other existing facilities minimize the potential risks from these types of incidents.

2.15.1 Production of Gaseous, Liquid, and Solid Wastes

One of the advantage of producing electricity from wind is that it does not produce gaseous wastes, and a minimal amount of liquid and solid wastes, during operation. During construction, there will be relatively minor solid waste construction debris, which would be collected from turbine sites and work areas and disposed of in appropriate containers/areas, as well as waste associated with temporary toilet facilities, which will be handled and disposed of by private waste haulers. In addition, there will be organic debris associated with tree clearing. Cleared trees may be kept by the landowner or removed from the site for proper disposal according to local regulations. During operation, liquid wastewater will be disposed of in an approved

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disposal system. Office waste generated during operation will be transported to an appropriate offsite facility for recycling or disposal, and oil waste will be disposed of at an appropriate offsite facility according to applicable regulations.

2.15.2 Anticipated Volumes of Wastes to be Released to the Environment

The small volume of wastewater disposal from the O&M building will be determined by the planned occupancy and the subsurface disposal permit issued by the Lewis County Department of Health. Otherwise, the Facility does not anticipate releasing wastes to the environment.

2.15.3 Treatment Processes to Minimize Wastes Released to the Environment

The Project will not release wastes to the environment and as such related minimization efforts will not be addressed in the Article 10 Application.

2.15.4 Procedures for Collection, Handling, Storage, Transport, and Disposal of Wastes

The Article 10 Application will describe how construction wastes will be collected, handled, transported, and disposed. Aside from minor waste materials, such as turbine lubricants, the Facility is not anticipated to generate wastes during operation.

2.15.5 Wind Power Facility Impacts

The Article 10 Application will evaluate and describe setbacks associated with ice/blade throw and tower collapse; evaluate audible and low frequency sound emissions; and potential flicker impacts.

Blade Throw/Tower Collapse

Blade throw is the release of rotor blade fragments from failed wind turbine blades, and tower collapse is the failure of the tower supporting the rotor blades and nacelle. Available literature does not identify either of these events as common. In fact, these events are extremely rare and, to the Applicant's knowledge, there has been no documented case where a member of the public has been injured as a result of such an incident. 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 (Garra Hassan Canada Inc. 2007). Technological improvements and mandatory safety standards during turbine design, manufacturing, and installation have significantly reduced the instances of blade throw (Garra Hassan Canada Inc. 2007).

The Article 10 Application will provide information related to potential safety concerns due to these occurrences based upon available peer-reviewed articles, and the Applicant's experience operating other wind energy projects. Furthermore, appropriate setbacks will be

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selected for the Facility to protect area homes and public roads from the unlikely possibility of turbine failure.

Audible and Low-Frequency Noise

There has been a considerable amount of research that has been conducted around the world on the potential for audible frequency and low frequency noise associated with wind turbines to adversely impact health. Based on the findings of the over 80 available peer-reviewed scientific studies, the weight of evidence indicates that properly sited wind turbines do not cause adverse health effects.

The 2015 FGEIS for the REV and the CES recognized data from multiple studies, which indicate that the sound levels created by wind turbines are not sufficient to damage hearing or cause other adverse health effects. The 2016 FSEIS for the REV and the CES further recognized that the degree of annoyance with wind turbine noise was often correlated with a receptors' support or opposition to wind power projects.

In 2012, the Massachusetts Departments of Environmental Protection and Public Health published a report (Ellenbogen et al. 2012) from a panel of independent experts with backgrounds in human health, neuroscience, and mechanical engineering commissioned to analyze "the biological plausibility or basis for health effects of turbines (noise, vibration, and flicker)." The review of existing studies included both peer-reviewed and non-peer reviewed literature.

Among the key findings of the panel were:

- The panel concluded that there is not a specific set of health effects (e.g., Wind Turbine Syndrome) resulting from exposure to wind turbine.
- The panel concluded based upon the strongest epidemiological study that they reviewed that there is no association between noise from wind turbines and measures of psychological distress or mental health.
- The limited epidemiological evidence reviewed by the panel did not indicate that there is an association between noise from wind turbines and pain and stiffness, diabetes, high blood pressure, tinnitus, hearing impairment, cardiovascular disease, and headache/migraine.

Audible sound for humans is generally considered to be at frequencies ranging from 20 to 20,000 Hz. Low frequency sound is typically considered to be at frequencies of 200 Hz and below, and infrasound has frequencies below 20 Hz. Infrasound is not generally considered audible to humans except at very high decibel levels. Although there have been concerns raised regarding infrasound from wind turbines, much of the research that has shown excessively high levels of low frequency and infrasound was conducted on older wind turbine designs (Leventhall 2013). Modern wind turbines like those proposed for this Facility produce lower levels of infrasound and low frequency sound than these early turbines. Research on modern turbines has shown that infrasound and low-frequency sound do not result in unique set of human health risks

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(McCunney et. al. 2014). The Facility is not expected to result in any public health and safety issues due to infrasound and audible frequency noise.

Exhibit 19 of the Article 10 Application will include a study of the noise impacts related to the construction and operation of the Project, which will involve noise modeling and an assessment of whether significant levels of low frequency noise or infrasound will be produced. See Section 2.19 for additional information on the proposed noise analysis. This exhibit will include a thorough literature review including government, scientific and professional studies and peer reviewed publications, 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.

Ice Throw

Ice throw results when ice accumulated on turbine blades is shed due to gravity and mechanical force of the rotating blades (Wahl 2006). Ice may fall directly below the turbines or be thrown a distance away from the turbines. The risk from ice throw can be reduce by siting turbines away from homes and other potential receptors; restricting access to turbine areas, particularly when icing conditions are likely; and employing operational controls when ice accumulation is detected. Based upon peer-reviewed literature and the Applicant's experience, the Article 10 Application will include a discussion of potential safety concern related to ice throw and operational measures to mitigate potential risk. Notably, no serious accidents caused by ice throw have been reported (Garrahd Hassan Canada Inc. 2007; Baring-Gould et al. 2012).

Shadow Flicker

Shadow flicker from wind turbines results from brief reductions in light intensities caused by the rotating turbine blades that cast shadows on potential receptors. Although shadow flicker is most noticeable during the winter months in northern latitudes when the sun is lower in the sky, it can occur briefly anywhere during daylight hours (U.S. Department of the Interior 2005). Obstacles such as terrain, trees, or buildings between the wind turbine and a potential receptor significantly reduce or eliminate shadow flicker effects.

The Article 10 Application will include a Facility-specific shadow flicker analysis in Exhibit 24. Specifically, a study of potential shadow flicker impacts on nearby residences will be conducted to determine predicted annual hours of shadow flicker at each receptor. A maximum distance of potential effect of 10-rotor diameters will be used for this analysis so that all potentially impacted structures are assessed. The 10-rotor diameter distance will be the Study Area for this assessment. The Applicant will use modeling software to develop an analysis and description of potential shadow flicker produced by the operational Project. This analysis will include the predicted extent, frequency, and duration of shadow flicker created by the operational turbines.

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The shadow flicker analysis will be performed with industry standard modeling software (e.g., WindPRO, AWS Openwind, WindFarmer, or equivalent). Specific data sets will be used to develop shadow flicker modeling including turbine coordinates, coordinates for residential structures in the Study Area, terrain data, turbine specifications, wind measurement data, and other weather data including sunshine averages in the Project Area. The Applicant also will work with the Towns to identify known planned developments, such as residential sites or community buildings within the 10-rotor diameter radius Study Area. Data obtained from these consultations will be used in the shadow flicker assessment.

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 turbine sites. The model calculations will include the cumulative sum of shadow hours generated by the maximum number of turbines proposed for the Facility. This omni-directional approach reports total shadow flicker results at a receptor regardless of the presence or orientation of windows at that particular receptor. This means that the results assume shadows from all directions can be perceived at a receptor, which may or may not be true. A receptor in the model will be defined as a 1-square-meter area located 1 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).

Some U.S. states and some countries have developed standards related to shadow flicker occurrence. The New Hampshire Office of Energy and Planning (2008) issued a model ordinance for small wind energy systems ($\leq 100\text{kW}$) that defines significant shadow flicker impacts as more than 30 hours per year on abutting occupied buildings. The *Model Wind Ordinance for Wind Energy Facilities in North Carolina* (North Carolina Wind Working Group 2008) states that shadow flicker at an occupied building on a non-participating landowner's property, which is located within 2,500 feet of the wind energy facility, should not exceed 30 hours per year. Under Wisconsin Public Commission 128.15, a limit of 30 hours per year at any non-participating residence or occupied community building (Wisconsin Public Service Commission 2012). The Ohio Power Siting Board ("OPSB") 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 also 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 (National Research Council 2007; Department of Energy and Climate Change 2011; Department of Planning and Community Development 2012). Based on these standards, a threshold of 30 shadow flicker hours per year will be applied to the to identify potentially significant impacts from the operation of this Facility.

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

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2.15.6 Public Health and Safety Maps

Maps showing the relationship of the Project to local risk factors will be included in the Article 10 Application. Expected sources for this data are expected to include the NYS GIS Clearinghouse data, Federal Emergency Management Agency ("FEMA") maps, USGS maps.

2.15.7 Significant Impacts on the Environment, Public Health, and Safety

As indicated above in subsections 2.15.1 through 2.15.4, the Facility is not expected to result in significant public health or safety concerns associated with gaseous, liquid, or solid wastes. In this regard, 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 2.15.5 above, such concerns include blade throw and tower collapse, audible frequency and low frequency noise, ice shedding and ice throw and shadow flicker. The Article 10 Application will include a summary of the potential significant impacts on environments, public health, and safety associated with the information identified in this section.

2.15.8 Unavoidable Adverse Impacts and Appropriate Monitoring Measures

The Article 10 Application will identify and discuss any unavoidable adverse impacts (e.g., visibility of turbines, sound emissions) and describe monitoring methods to evaluate those impacts.

2.15.9 Irreversible and Irretrievable Commitment of Resources

One of the benefits of wind power is that, while it requires the commitment of resources to construct and operate, once operational it does not require the continued, irretrievable commitment of fuel resources like gas, oil or coal. The resources tied up during operation—land, the raw materials to manufacture the turbines and other facilities—can largely be reclaimed and salvaged during decommissioning of the Project after its useful life. The Article 10 Application will provide detail regarding the Project's irreversible and irretrievable commitment of resources.

2.15.10 Impact Minimization Measures

The preliminary Facility layout has been designed to minimize impacts to known environmental and other resources. Further, the Applicant has taken into consideration all reasonable setbacks for the purposes of avoiding impacts to public health and safety. Siting the Project is and will continue to be an iterative process. As human and natural resources are identified, the Project will be modified to avoid and minimize impacts to those resources. Based on the Applicant's experience developing and operating wind power projects, any setbacks proposed for the Facility will adequately protect nearby residents and motorists from falling/thrown ice or blade failure/tower collapse. The Article 10 Application will provide examples of those changes and modifications to design, construction and operation intended to avoid and/or minimize impacts.

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2.15.11 Mitigation Measures

Mitigation measures for both construction and operational impacts will be identified in the Article 10 Application, both here and in the respective resource sections (i.e., safety, natural resources, human resources).

2.15.12 Proposed Monitoring

The Applicant 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 Applicant will provide funding for an independent, third party environmental monitor to oversee compliance with environmental commitments and permit requirements during Facility construction and operation. Monitoring plans for identified and any unanticipated impacts to public safety or the environment will be included in the Article 10 Application. Examples include the QA/QC plan for monitoring activities and impacts during construction, post construction monitoring of avian and bat impacts, and an operations and maintenance plan.

2.16 POLLUTION CONTROL FACILITIES [EXHIBIT 16]

The proposed Project is not expected to include pollution control facilities; therefore, this requirement is not applicable and will not be included in the Article 10 Application.

2.17 AIR EMISSIONS [EXHIBIT 17]

2.17.1 Compliance with Applicable Federal, State, and Local Regulatory Requirements

Global climate change has been recognized as one of the most important environmental challenges of our time (NYSCAC 2010; DEC 2009, 2010). There is scientific consensus that human activity is increasing the concentration of GHGs in the atmosphere, which is leading to serious climate change. By its nature, climate change will continue to impact the environment and natural resources of the State of New York (DEC 2009). Historically, New York State has proactively established goals to reduce GHG emissions. Through the State Energy Plan, New York has committed to achieving a 40% reduction in GHG emissions from 1990 levels by 2030 and an 80% reduction in reducing total carbon emissions by 2050. The State Energy Plan calls for 50% of generation of electricity from renewable energy sources by 2030. The Article 10 Application will demonstrate that the Project will be compliant with—and, in fact, will aid in advancing—applicable federal, state, and local regulatory air emissions requirements and goals by helping to reduce GHG emissions from fuel combustion.

The DEC Division of Air Resources administers an air permitting program as required by 42 U.S. Code § 7411—Standards of Performance for New Stationary Sources—of the Federal Clean Air Act and 6 CRR-NY Subpart 201. Because wind turbines generate electricity without releasing pollutants into the atmosphere, the proposed Project will not be subject to Standards of

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Performance for New Stationary Sources and will not require air pollution control permits under New York State law or regulation. In addition, because the Project will not release either sulfur dioxide or nitrogen oxides during operation, it will not be subject to the 1984 Acid Deposition Control Act, which requires the reduction of sulfur dioxide emissions and nitrogen oxides emission.

2.17.2 Assessment of Existing Ambient Air Quality Levels and Trends in the Region

The Article 10 Application will include a description of existing ambient air quality levels and air quality trends for pollutants in the region surrounding the Project, including air quality levels and trends, taken from regional air quality summaries and air quality trend reports.

The proposed Project is located in DEC Region 6 for air quality. There are three monitoring stations in Region 6. The Nick's Lake monitoring station located in Herkimer County monitors ozone and sulfur dioxide and the Perch River in St Lawrence County also monitors ozone. The Utica station in Oneida County monitors inhalable particulates. The Article 10 Application will provide a summary of air quality data for Region 6 as presented in the most recent air quality report published by the DEC Division of Air Resources.

2.17.3 Table of Emissions by Combustion Sources

Because wind turbines generate electricity without air pollution emissions, the Article 10 Application will not include a table summarizing Project emissions.

2.17.4 Potential Impacts to Ambient Air Quality

Although the Article 10 Application will discuss anticipated air quality impacts expected from the construction and operation of the Project, the discussion will not detail air emissions since the Project will generate electricity without air pollution emissions.

Because the Project will generate electricity without air pollution emissions, it is expected to positively affect local air quality. 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: carbon dioxide, nitrogen oxides, sulfur dioxide, mercury compounds, and lead compounds.

Construction activities may cause temporary effects on air quality in the form of exhaust from construction vehicles and dust from earth moving activities and travel on unpaved roads. These effects will be minimal due to the rural location of the Project and the limited duration of construction in any one location. Dust during construction would be the most likely form of air emission. Treatment for dust is generally applied where safety and visibility are problematic. Where dust may be a nuisance to nearby residents, areas may be treated with calcium chloride, water, or other approved dust control agents. This is generally expected to be on an

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as-needed basis. Other areas such as construction road entrances at public roads will have crushed stone pads to limit the generation of dust and the tracking of soil onto roadways. *The New York State Standards and Specifications for Erosion and Sediment Controls* (NYS Soil and Water Conservation Committee 2005) provides Standards and Specification for Dust Control that will be followed to minimize surface and air movement of dust.

If an on-site concrete batch plant is needed for the Project, the Article 10 Application will discuss potential impacts to ambient air quality and steps that will be taken to minimize and mitigate these impacts.

2.17.5 Offsite Consequence Analysis for Ammonia Stored Onsite

The Project will not require onsite storage of ammonia during construction or operation; therefore, the requirements of this section are not applicable and will not be included in the Article 10 Application.

2.18 SAFETY AND SECURITY [EXHIBIT 18]

2.18.1 Preliminary Plans for Site Security during Facility Construction

Following the issuance of the necessary permits for the Project, and prior to initiating the construction phase, the Applicant and their selected contractor(s) will establish a site security plan. The site security plan may include, but is not be limited to, the following security features:

- Access Controls;
- Electronic Security and Surveillance Facilities;
- Security Lighting; and
- Setback Considerations.

The Applicant will coordinate with the County emergency department, local first responders, and the New York State Division of Homeland Security and Emergency Services so that appropriate actions are taken in the event of an emergency.

2.18.2 Preliminary Plans for Site Security during Facility Operation

The Article 10 Application will include a preliminary site security plan to be implemented during the operational phase of the Project. This will include site plans and a description of the following site security features:

2.18.2.1 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 will be closed and locked, and substations will be fenced, gated, and locked at all times. In the Applicant's experience, door locks have proven to be sufficient to prevent access to the turbines by unauthorized personnel. However, if tower

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trespass and unauthorized access becomes a problem, monitoring and detection devices can be added as needed. Access controls for the O&M building will be discussed in the Application.

2.18.2.2 Electronic Security and Surveillance Facilities

The Article 10 Application will provide an overview of Electrical Security and Surveillance Facilities proposed for use at the Facility. It is anticipated that a combination of internal and external building security cameras will be installed to monitoring activity inside and in proximity to the Facility O&M and substation. These measures will be further described in the Article 10 Application.

2.18.2.3 Security Lighting

The Article 10 Application will include a discussion of security lighting for the Facility, which will be based upon the specific Facility design, and the Applicant's typical security standards used at similar developments.

Generally, 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 associated with the Facility, including additional considerations such as task lighting and full-cutoff fixtures.

2.18.2.4 Aircraft Safety Lighting

Lighting of the turbines will be completed in accordance with FAA regulations. The Article 10 Application will provide a turbine lighting plan based on results of the FAA aeronautical study determinations for recommended lighting/markings of individual turbines.

2.18.2.5 Setback Considerations

Exhibit 6 of the Article 10 Application will provide details related to setbacks.

2.18.2.6 Cyber Security Program

The Article 10 Application will describe the Facility's cyber security program that will protect the digital computer and communication systems, and networks that support the Facility. As appropriate, this program will demonstrate compliance with current standards issued by the federal Department of Commerce's National Institute of Standards and Technology, the NERC, or the International Organization for Standardization.

2.18.3 Preliminary Safety Response Plan

The Article 10 Application will include a preliminary safety response plan, which will be developed through consultation with local emergency service providers and updated as

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needed throughout the life of the Project. The plan will outline procedures to be followed in the event of an emergency and will include the following:

- Identification of contingencies that would constitute a safety or security emergency;
- Description of alarm and emergency evacuation procedures;
- Emergency response measures by contingency;
- Evacuation control measures by contingency;
- Community notification procedures by contingency; and
- Training guidelines for site personnel and, if warranted, local emergency departments, to support safe practices in the event of an emergency.

2.18.4 Provision of Security and Safety Plans to NYS Division of Homeland Security

The Article 10 Application will include documentation that the Applicant has submitted the preliminary site security plans for the construction and operational phases of the Project and the preliminary safety response plan to the New York State Division of Homeland Security and Emergency Services for review and comment.

2.18.5 Provision of Security and Safety Plans to Local Office of Emergency Management

Because the Project is not located within a city with a population over one million, the Article 10 Application will not include documentation that the site security and safety response plans have been submitted to the local office of emergency management for review. Prior to construction, the Applicant will coordinate with the Lewis County Fire & Emergency Management and the Jefferson County Fire & Emergency Management and provide these agencies with copies of the preliminary safety response plan.

2.18.6 Onsite Equipment and Systems to Respond to Fire Emergencies or Hazardous Substance Incidences

The preliminary safety response plan included in the Article 10 Application will provide a description of on-site equipment and systems for fire emergencies and hazardous substance incidents. In general, the Applicant will provide fire extinguishers, 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 an emergency such as a fire or serious injury.

2.18.7 Contingency Plans for Fire Emergencies or Hazardous Substance Incidences

The Article 10 Application will generally describe contingency plans to be implemented in response a fire emergency or a hazardous substance incident. A construction fire and emergency release plan will be developed in conjunction with the contractor prior to construction, and an operational fire and emergency release plan will be developed after

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construction. In addition, SPCC plans will be prepared, and implemented, for both the construction and operation phases of the Facility. The SPCC plans will provide an assessment of potential hazardous substances that could be utilized during the construction, operation, or maintenance of the Facility.

2.18.8 Provision of Security and Safety Plans to Local Emergency First Responders

The Article 10 Application will include documentation that the Applicant has submitted the preliminary safety response plan to local emergency responders for their review and comment.

2.19 NOISE AND VIBRATION [EXHIBIT 19]

A Noise Impact Assessment ("NIA") to evaluate the sound impacts associated with the construction and operation of the Facility, and related ancillary equipment will be prepared by Robert O'Neal of Epsilon Associates, Inc. (Epsilon). Mr. O'Neal has over 25 years of experience in the areas of community noise impacts, meteorological data collection, and analyses. His noise impact evaluation experience includes the design and implementation of sound level measurement programs, modeling of future impacts, conceptual mitigation analyses, and compliance testing. 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.

2.19.1 Sensitive Sound Receptor Map

In 2016, the Applicant conducted a structure survey of the Project Area and an associated 1-mile buffer around the Facility that represents the Study Area. Potential structures were first identified through aerial photograph interpretation, and then these potential structures were verified through field surveys. Verification via field surveys was limited to structures visible from public roads. Each structure was assigned to one of four types: Residential; Business/Commercial; Agricultural; Other; or Unverified. Residential structures also were assigned an occupancy status of Permanent; Seasonal; Abandoned; or Unoccupied. The results of this dwelling/structure survey will be refined to identify sensitive sound receptors. The final list of sensitive receptors for noise modeling will be those within 1 mile of the nearest wind 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).

The Article 10 Application will include map of the Study Area showing the location of sensitive sound receptors in relation to the Facility. The sensitive sound receptors shown on the map will include residences, outdoor public facilities and areas, hospitals, schools, libraries, places of worship, and other noise-sensitive receptors. Any hunting cabins in the study area will be identified as such and not considered sensitive noise receptors. The Applicant also will coordinate with local stakeholders, including Town Officials, to develop this map.

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2.19.2 Evaluation of Ambient Pre-construction Baseline Noise Conditions

On behalf of the Applicant, Epsilon completed winter (leaf off) and summer (leaf on) background sound level monitoring at six representative locations in and around the Project area (see ambient measurement locations, Figure 2):

- 997 Cronk Road, Pinckney, NY
- 8320 River Road, Harrisburg, NY
- State Route 177, Pinckney, NY
- 7935 Mile Square Road, Harrisburg, NY
- 7081 Liberty Road, Montague, NY
- 7215 Sears Pond Road, Harrisburg, NY

The sound levels were measured continuously (24 hours/day) using ANSI S1.4-1983 Type 1 Sound Level Analyzers (or equivalent). The sound level meters measured various broadband A-weighted (dBA) and one-third octave band sound levels for 14 consecutive days including the Leq, Lmax, L10, and L90 required by Article 10. The one-third octave band data will determine whether a prominent discrete (pure) tone currently exists in the baseline. The sound meters also measured low frequency and infrasound levels down to 6.3 Hz. One location was fitted with a special microphone to measure infrasound down to 0.5 Hz. Data were logged every 10 minutes with a one-second time history. The analyzers were calibrated before and after the measurement program using the appropriate manufacturer's sound calibrator. Temporal accuracy of the Leq and L90 will be calculated 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 Application as mean values as well as upper and lower limits for the 95% confidence interval. Since this is a wind turbine project, wind speed during the noise study has an important influence on the noise condition evaluation. The ground-level wind speed directly influences the ambient sound levels. Ground-level wind speed and direction data were continuously measured at two sound level monitoring locations for the duration of the noise study. A HOBO H21-002 micro-weather station with 2-meter tripod and data logger were used. In addition, wind speed and wind direction data from an on-site met tower will be provided by Atlantic Wind for the duration of the sound level measurement program.

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, excessive wind, and snow 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 have been chosen to capture a variety of existing sound level conditions.

2.19.3 Evaluation of Future Noise Levels 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

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and pouring of foundations, the installation of buried and above-ground electrical collection lines, 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 wooded areas 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 the Federal Highway Administration ("FHWA") Roadway Construction Noise Model ("RCNM"). The modeling will be done at locations expected to be closest to noise-sensitive receptors to construction using the RCNM software, or equivalent. The results will be presented in the Article 10 Application. In addition, a table of sound levels from various construction activities as a function of distance will be included in the Application.

2.19.4 Estimated Noise Levels Produced by Operation of the Facility

The Article 10 Application will provide an estimate of the sound levels at each noise-sensitive location identified in subsection 2.19.1 to be produced by operation of the proposed Facility assuming sound propagation under worst-case wind and atmospheric conditions using industry accepted computer noise modeling software, for example Cadna/A, under the ISO 9613-2 standard and Conservation of Clean Air and Water Europe ("CONCAWE") meteorological adjustments. Sound levels will be predicted at both specific noise-sensitive receptors and for a grid which will generate sound level contours within the project 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.

2.19.5 Evaluation of Future Noise Levels during Facility Operation

This section of the Article 10 Application will provide the following future noise levels evaluation.

2.19.5.1 Future Noise Levels During Operation

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

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2.19.5.2 Tonal Evaluation

A tonal evaluation based on the reported sound power of the wind turbines and substation transformers will be conducted in accordance with ANSI S12.9 Part 3, Annex B, section B.1. (informative). Tonal information as reported in the IEC 61400-11 standard for the turbines under evaluation will be provided if available from the manufacturer. For substation transformers, the modeled results at the closest most impacted 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 (L_{eq}) in the one-third-octave band of interest exceeds the arithmetic average of the time-average sound pressure level (L_{eq}) 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 transformers and wind turbines will use a spreadsheet approach since ISO 9613-2 does not accommodate one-third octave band data.

2.19.5.3 Turbine Model Selection

Noise modeling is to be performed for the turbine model with the highest sound power levels presented in the Application. The final turbine model selected may have a different (but lower) sound power level than the one presented in the Application.

2.19.5.4 Potential for Low Frequency and Infrasound

The application will include a discussion of the potential for low frequency and infrasound emissions using literature and manufacturer's data, extrapolated as applicable and appropriate, and manufacturer's low frequency and infrasound data if available.

2.19.5.5 Basis of Sound Power Levels Used

The Application will state the basis for the sound power levels used in the analysis.

2.19.5.6 Amplitude Modulation Generation Estimates

Amplitude modulation generation estimates will reference the methods outlined in the IEC 61400-11 Annexes B and D as applicable and appropriate. The potential for excessive amplitude modulation will be evaluated by determining whether the area has unusually high wind shear or turbulence that could contribute to the phenomenon. One year of meteorological data will be evaluated to substantiate these estimates.

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2.19.6 Predicted Sound Levels Table

The Article 10 Application will provide the A-weighted/dBA sound levels at the noise-sensitive receptors identified in subsection 2.19.1 for the operating Facility in tabular form. Predicted sound levels at property lines will be shown through graphical isolines of A-weighted decibels. 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 a.m. to 10 p.m.) 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 p.m. to 7 a.m.), 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 (10 p.m. to 7 a.m.), 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, to the modeled upper tenth percentile sound level (L10) of the Facility. The L10 statistical noise descriptor corresponds to estimates for 1 year of operation. Daytime will be 15 hours (7 a.m. to 10 p.m.).
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 receptor. The L10 statistical noise descriptor is proposed to be estimated for the summer nighttime period for 1 year of operation. Nighttime will be 9 hours (10 p.m. to 7 a.m.).
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 receptor. The L10 statistical noise descriptor is proposed to be estimated for the winter nighttime period for 1 year of operation. Nighttime will be 9 hours (10 p.m. to 7 a.m.).
7. The daytime ambient average noise level will be calculated by logarithmically averaging sound pressure levels (Leq) from the background sound level measurements over the daytime period at each monitoring location. These calculations will include both summer and winter data. Daytime will be 15 hours (7 a.m. to 10 p.m.).
8. Typical facility noise levels will be calculated as the median sound pressure level emitted by the Facility (L50). The median sound pressure level will be calculated by determining the frequency of site specific meteorological conditions and sound emissions of the Facility due to those conditions. The L50 statistical noise descriptor will correspond to the daytime in a year. Daytime will be 15 hours (7 a.m. to 10 p.m.).
9. Typical facility daytime noise levels will be calculated 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 receptor. The L50 statistical noise descriptor will correspond to the daytime in a year. Daytime will be 15 hours (7 a.m. to 10 p.m.).

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2.19.7 Applicable Noise Standards

Exhibit 19 will provide a complete description of the noise standards, guidelines, and goals that are applicable to the Facility and a discussion of the Facility's level of compliance with those standards, guidelines, and goals. These may include the WHO 1999 and 2009 Guidelines, as well as the National Association of Regulatory Utility Commissioners ("NARUC") October 2011 and January 2012 reports.

The 1999 WHO report recommends an 8-hour outdoor nighttime sound level of 45 dBA or less to prevent sleep disturbance with the windows open. The 2009 WHO report recommends a long-term average night noise guideline of 40 dBA over 365 8-hour nights per year (2,920 hours). This is equivalent to the lowest observed adverse effect level for night noise. The NARUC report recommends a long-term mean level of 45 dBA to minimize annoyance and complaints from wind turbines. Therefore, based on these references, this project will be designed to a goal of 45 dBA (8-hour) and 40 dBA (annual) in order to prevent sleep disturbance and minimize annoyance and complaints.

2.19.8 Noise Standards Comparison Table

Noise standards applicable to the Facility will be provided in the Article 10 Application in tabular form including municipal standards, WHO, and NARUC. In addition, the Applicant will include a summary of noise-modelling results from the Noise Impact Analysis for all evaluated sensitive noise 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, L10), weighting scales (e.g., A) and time frame of determination (e.g., minutes/hour, 1-hour, 1-year, etc.).

2.19.9 Noise Abatement Measures for Construction Activities

The Applicant takes seriously any complaints that it receives from members of the public. Therefore, a Complaint Resolution Plan for the Facility will be included in the Application. Complaints can be registered in person at the Facility's O&M building, via phone, or by writing, and the Applicant will contact the individual within 48 hours of receipt of the complaint. The Applicant will implement a comprehensive complaint response for all registered complaints, which will include community engagement, gathering information, response to the complaint, a follow up after the response has been issued, and further action if the complainant believes that the issue continues to exist.

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

- Implementing best management practices for sound abatement during construction, including use of appropriate mufflers and limiting hours of construction where practicable, and turning off construction vehicles when not in use.

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- Notifying potentially impacted landowners in advance of loud events, such as blasting or jackhammering.

2.19.10 Noise Abatement Measures for Facility Design and Operation

Due to the inherent size of wind turbines, physical noise control measures, such as noise barriers, active noise control, and tree plantings, would be impractical or ineffective. In spite of this, some mitigation measures for noise are available. Wind turbine noise can be abated using either factory-installed measures, siting methods implemented during final Facility design, or measures implemented after the Facility is constructed. These methods will be described in the Article 10 Application if necessary.

2.19.11 Evaluation of Community Noise Impacts

The Article 10 Application will include an evaluation of the following potential community noise impacts.

2.19.11.1 Potential for Hearing Damage

The potential for the Facility to result in hearing damage based on OSHA standards, the recommendations of the USEPA and the guidelines of the WHO.

2.19.11.2 Potential for Speech Interference

A discussion of the potential for indoor and outdoor speech interference based on guidelines from the USEPA and the WHO.

2.19.11.3 Potential for Annoyance/Complaints

A review of peer reviewed, government, scientific and professional publications, specific to the relationship between wind turbine noise and annoyance/complaints will be included. Community complaint potential will be evaluated based upon identified factors, thresholds, and guidelines.

2.19.11.4 Potential for Sound-Induced Vibration and Annoyance

The potential for sound-induced vibration and annoyance at the low frequency bands of 16, 31.5 and 63 Hz will be assessed using outdoor criteria established in Annex D, section D.1 of ANSI Standard S12.9 -2005/Part 4. Applicable portions of ANSI 12.2 (2008) may be used for the evaluation of frequency bands as appropriate.

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

The Article 10 Application will discuss the potential for structural damage; and the potential for interference with technological, industrial, or medical activities that are sensitive to vibration or infrasound within 50 miles of a wind turbine.

2.19.12 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.

2.19.13 Operational Controls and Mitigation Measures to Address

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 including a description of a complaint resolution procedure that will be applied during periods of Facility construction and operation. The procedure will include an assessment of reasonable noise abatement measures during construction (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.

2.19.14 Input Parameters, Assumptions, and Data Used for Modeling

Specific modeling input parameters will be included with the 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 under a separate cover in digital format.

2.20 CULTURAL RESOURCES [EXHIBIT 20]

In accordance with 16 NYCRR § 1001.20 and the New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work (the SHPO Wind Guidelines; OPRHP, 2006), the Applicant has initiated consultation with the New York State Office of Parks, Recreation, and Historic Preservation ("OPRHP") to develop the scope and methodology for cultural resources studies for the Project. This process will include formal consultation with OPRHP through OPRHP's Cultural Resources Information System ("CRIS") website (<http://www.nysparks.com/shpo/online-tools/>).

2.20.1 Archaeological Resources

2.20.1.1 Summary of Impacts and Avoidance Measures

The Article 10 Application will include an analysis of the Project's potential impact on archaeological resources, and how these impacts will be avoided or minimized.

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2.20.1.2 Phase 1A Archaeological/Cultural Resources Study

A Phase 1A archeological/cultural resources study for the Project's Area of Potential Effect ("APE") has been completed by Panamerican Consultants; the report is attached as Appendix F. The APE for archaeological resources includes areas within the limits of disturbance for proposed construction activities. The purpose of the Phase 1A investigation was to determine if any previously recorded cultural resources are present within the APE for the Project and to assess its general sensitivity for archaeological and historic cultural resources.

The conclusion of the report is that the Project Area has moderate to low sensitivity for prehistoric/contact period cultural resources, and a Phase 1B work plan can be determined once project components are established. The Phase 1A archaeological work was conducted by qualified individuals who meet the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation under 36 CFR Part 61, and in accordance with the New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work (OPRHP 2006).

2.20.1.3 Phase 1B Archaeological/Cultural Resources Study

If required, the Article 10 Application will include a Phase 1B study, as determined in consultation with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) based on the results of the Phase 1A study. Typically, a Phase 1B Archaeological Study would be conducted to determine whether archaeological sites are located in areas of proposed ground disturbance. This study would be conducted in accordance with the New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work (OPRHP 2006).

2.20.1.4 Phase 2 Archaeological Field Investigations Study

If required, based on consultation with OPRHP of the Phase I study results, a Phase II study will be conducted to assess the boundaries, integrity, and significance of cultural resources identified during the Phase 1B archaeological survey. The Phase II study will assess the boundaries, integrity and significance of cultural resources identified during Phase I studies. The results of this report would be included in the Article 10 Application.

2.20.1.5 Archaeological Material Recovered During Cultural Resources Studies

If the archaeologist recovers an artifact during the cultural resources studies for the Facility, the specific location (provenience) of the artifact will be recorded. As appropriate, the artifact will undergo initial processing, including cleaning, sorting, labeling, cataloging, stabilizing, and packaging. Descriptions of recovered artifacts will be included in a Phase 1B and/or Phase 2 archaeological report. Recovered artifacts will be considered the property of the landowner where the artifacts are recovered.

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The Article 10 Application will include a statement that all archaeological materials recovered during the Project cultural resources investigation were/will be handled according to New York Archaeological Council standards.

2.20.1.6 Unanticipated Discovery Plan

An Unanticipated Discovery Plan to address how the Project will proceed if cultural, historical, or archaeological resources are unexpectedly discovered during construction or operational maintenance activities will be included in the Article 10 application. The plan will include a provision for work stoppage upon the discovery of possible archaeological or human remains. A professional archaeologist, qualified according to the New York Archaeological Council ("NYAC") Standards, will evaluate such discoveries.

2.20.2 Historic Resources

The Project's potential effect on historic resources would be a change in the visual setting associated with a given historic resource, which is further discussed in Section 2.24 of this PSS. Construction of the Project will not require demolition or physical alteration of any buildings or other potential historic resources. No direct physical impacts to historic resources will occur as a result of the Project.

For historic resources, a Phase 1A Cultural Resource Investigation was conducted both within the Project Area and extending to 5 miles from proposed turbine locations. This study included field inspections, review of publicly available data (i.e., CRIS), previous surveys in this area, and consultation with local historic preservation groups to identify sites or structures listed or eligible for listing on the State or National Register of Historic Places. The study included an analysis of potential impacts on any standing structures which appear to be at least 50 years old and potentially eligible for listing in the State of National Register of Historic Places.

Panamerican used the OPRHP's CRIS to identify and review previously inventoried historic resources and historic districts within an area extending to 5 miles from proposed turbine locations, and within the APE. Panamerican also reviewed historic architectural resource surveys that were completed for four other wind energy projects near this proposed Project. Finally, a Phase 1A field visit was conducted, which involved a limited preliminary windshield survey near the Project. A historic resources survey within the APE also will be conducted for the Project. This survey will be conducted in accordance with the New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work (OPRHP 2006).

2.21 GEOLOGY, SEISMOLOGY AND SOILS [EXHIBIT 21]

This exhibit in the Article 10 Application will include details of the existing geology, seismology, and soils at the project location and how the Project may impact or be affected by these characteristics. Maps of existing conditions will be prepared and a discussion of proposed impacts and avoidance and mitigation measures will be developed.

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2.21.1 Map of Existing Slopes

A map will be prepared delineating existing slopes (0–3%, 3–8%, 8–15%, 15–25%, 25–35%, 35% and over) on and within the drainage area that potentially may be influenced by the Project including the Project interconnections. The USGS National Elevation Dataset will be used and DEM data will be processed using ESRI ArcGIS® Software to delineate drainage areas and a develop slope map.

2.21.2 Proposed Site Plan

The Article 10 Application will include a proposed site plan showing existing and proposed contours for the Facility location at a scale sufficient to show proposed buildings, structures, paved and vegetative areas, and construction areas. The Applicant anticipates having 2-foot surveyed contour data to develop the Facility site plan.

2.21.3 Cut and Fill

The Article 10 Application will include a description and preliminary calculation of the quantity of cut and fill necessary to construct the Project. These calculations will be based on the 2-foot contour intervals provided on the site plan. The Article 10 Application also will describe the general situations that may require cut and fill such as the construction of an access road on a side slope. The Applicant will provide preliminary cut and fill calculations and identify potential associated impacts.

The Applicant's contractors will be required to follow Best Management Practices ("BMP's") with regard to cleaning and maintaining equipment to reduce the likelihood that invasive species will be transported to the site on equipment. The contractor also will be responsible for checking that fill material transported to the site is free of invasive species. The Applicant anticipates that fill material stockpiled on site will be used during either construction or site restoration activities and will not be transported offsite. These measures should help control the introduction or spread of invasive species.

2.21.4 Fill, Gravel, Asphalt, and Surface Treatment Material

The Article 10 Application will include preliminary calculation as to the amount of fill and other materials such as gravel that will be required to construct Facility components. These preliminary calculations will be based on typical details for Facility components including roads and turbine foundations.

2.21.5 Cut Material or Spoils Removed from the Facility and Interconnection Sites

The Applicant anticipates that cut material and stockpiled soil will be used on-site during construction and restoration activities and will not be removed from the site.

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2.21.6 Excavation Techniques

The Article 10 Application will include a description of excavation techniques that will likely be employed during the Project. Excavation activity is expected to be required during installation of turbine foundations and possibly construction of other Facility components such as the substation. In addition, installation of underground electrical collector lines will involve excavation. The techniques required to install the various Facility components have been well established during the construction of other wind power developments in the region. For example, it is anticipated that the majority of the Facility's buried electrical collection lines 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.

2.21.7 Temporary Cut or Fill Storage Areas

The Article 10 Application will provide the preliminary cut or fill storage area locations. In general, temporary cut or fill storage areas will be located adjacent to excavations. These storage areas will be appropriately sited to avoid and minimize impacts to sensitive resources including wetlands and surface waters.

2.21.8 Suitability for Construction

The Article 10 Application will include a Preliminary Geotechnical Investigation report that will characterize the suitability of the Facility location for construction. The Preliminary Geotechnical Investigation report will include a review of publicly available information related to site geology, bedrock and soils including surficial geology data, New York State Aquifers, and geologic map available through the NYS GIS Clearinghouse, and the Natural Resources Conservation Service ("NRCS") Soil Survey Geographic ("SSURGO") and State Soil Geographic ("STATSGO") digital soil survey data. The Preliminary Geotechnical Investigation report also will include the results of test borings conducted at a sub-set of the proposed turbine locations and the substation location.

Once the Project Certificate is received, but before construction begins and more detailed geotechnical investigation will be conducted for turbine foundations, electrical design and, as needed, for other Project components. Once the specific locations for proposed Facility components are marked in the field, a professional engineer will determine the location at which to conduct geotechnical borings. Equipment such as a truck-mounted drill rig will be used to conduct borings and collect samples of the subsurface material (i.e., soils, rock), and determine the depth to bedrock and groundwater. Laboratory testing then will be conducted to classify the soil, determine soil electrical properties and chemical properties such as soil corrosivity that may affect construction.

2.21.9 Preliminary Blasting Plan

The need for a blasting plan will be determined based upon the Preliminary Geotechnical Investigation report described above. If it is determined that blasting will be required, the Article 10 Application will include a preliminary blasting plan as detailed in 16 NYCRR §10001.21 (i).

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2.21.10 Potential Blasting Impacts

The Applicant does not anticipate that blasting will be required to construct the proposed Facility. The need for blasting will be determined based upon the Project's Preliminary Geotechnical Investigation report, which will be provided in the Article 10 Application.

Exhibit 23 (Groundwater) of the Application will provide information on wells near the Facility in the event that blasting is proposed.

According to the DEC Oil and Gas Searchable Database, there are no natural gas production wells located in the Project Area including producing wells, non-commercial wells or plugged and abandoned wells (DEC 2014)).

2.21.11 Mitigation Measures for Blasting Impacts

The Applicant does not anticipate that blasting will be required, but if the Project's Preliminary Geotechnical Investigation report indicates that blasting will be needed, a preliminary blasting plan will be developed and implemented for construction.

If blasting is needed, the Applicant will conduct pre- and post-construction surveys of wells located within approximately 500 feet of blasting sites to determine structural integrity of wells. If these surveys determine that impacts to wells result from blasting activities, the Applicant will address these on a case-by-case basis and provide appropriate mitigation.

The Applicant will conduct pre-construction surveys to identify the location of buried gas lines and natural gas wells and work with owners of these facilities to avoid and minimize potential impacts.

2.21.12 Regional Geology, Tectonic Setting, and Seismology

The Project Area is located in the Northeastern Highlands ecoregion (Bryce et al. 2010). This ecoregion covers most of the mountainous portions of New England and New York. It is characterized by hills and mountains, extensive forest cover, and nutrient-poor frigid and cryic soils (mostly Spodosols). The Project Area occurs in the sub-ecoregion referred to as the Tug Hill Plateau (Bryce et al. 2010). The parent materials that formed most of the soils in Lewis County were deposited by glaciers with the exception of the area at the base of the Tug Hill Plateau, which includes more recent alluvial deposits (riverine deposits) (USDA 1960). In the portion of Lewis County west of the Black River, including the Project Area, the bedrock consists of Ordovician sediments. These sediments are made up of a series of limestone, black shale, gray shale and sandstone beds. The landscape surrounding the Project Area is underlain by Lorraine, sandstones and shales. Bedrock of the Lorraine group is hundreds of feet thick. The Pulaski formation represents upper portion of the Lorraine group (USDA 1960). This formation consists of gray, acid shale and thick-bedded, slightly calcareous sandstone. The lower portion of the Lorraine group is the Whetstone Gulf formation, which is gray, acid shale and thin-bedded sandstone (USDA 1960).

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The surficial geology underlying the Project Area originated primarily from glacial deposits with limited areas of alluvium deposition (NYS Museum 2016). Table 2.3 provides a general summary of the surficial geology in the area.

Table 2.3. Project Area Surficial Geology.

Material	Area of Project Area (acres)	Thickness (ft.)	General Description
Till	26,818	3 to 160	Variable texture (boulders to silt), usually poorly sorted sand-rich diamict; deposition beneath glacier ice; permeability varies with compaction.
Ablation moraine	2,660	3 to 33	Till, deposited by downwasting, with minor amounts of sand and silt; deposition during final melting of glacier.
Bedrock	2,179	Not stated	Exposed or generally within approximate 3 feet of surface; in some areas saprolite is preserved.
Swamp deposits	844	7 to 66	Peat-muck, organic silt and sand in poorly drained area; unoxidized; commonly overlies marl and lake silt; potential land instability.
Recent alluvium	604	3 to 33	Oxidized fine sand to gravel, permeable, generally confined to flood plains within a valley; in larger valleys may be overlain by silt; subject to flooding.
Kame moraine	421	33 to 98	Variable texture (size and sorting) from boulders to sand; deposition at an active ice margin during retreat; constructional kame and kettle topography; locally, calcareous cement.
Till Moraine	236	33 to 98	Variable texture (size and sorting); generally low permeability; deposition adjacent to ice
Kame deposits	190	33 to 98	Coarse to fine gravel and/or sand, includes kames, eskers, kame terraces, kame deltas, ice contact, or ice cored deposition; lateral variability in sorting, texture and permeability; may be firmly cemented with calcareous cement.

Based on information presented in the *Lewis County Multi-Jurisdictional Natural Hazard Mitigation Plan* (URS 2010), between 1737 and 2002 there have been three earthquakes near Lewis County characterized as “significant seismic events”. The first earthquake, which was recorded in 1853, had an Intensity of VI and damage was listed as “machinery knocked over”. The other two earthquakes were of magnitude 4.7-5.0 and magnitude 5.1. The 5.1 magnitude earthquake resulted in some minor structural damage to buildings. In addition to these three events, there have been several other minor earthquakes recorded in the Lewis County area (URS 2010). According to information presented in the *Lewis County Multi-Jurisdictional Natural Hazard Mitigation Plan*, there is a 10% chance over 50 years that Lewis County would be the epicenter of an earthquake with a magnitude of 4.0-4.9 (URS 2010). This magnitude earthquake would produce light to moderate perceptible shaking (Peak Ground Acceleration 3% to 5%)

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and potential damage would range from none to very light. Earthquakes causing greater damage have a less than 10% chance of occurring in Lewis County over a 50-year period (URS 2010). The New York State 2014 Seismic Hazard Map (USGS 2014) shows a similar likelihood for an earthquake of this intensity near the Project Area. According to this map, the 2% probability of exceedance in 50 years of Peak Ground Acceleration for this area is 8-10% of standard gravity. The Article 10 Application will provide a more detailed description of the Facility's potential vulnerability to seismic disturbances.

2.21.13 Facility Impacts on Regional Geology

The Article 10 Application will include an analysis of expected impacts the Facility will have on regional geology, to the extent that these impacts can be determined. Significant impacts to the existing site geology are not anticipated from construction of the Facility. Potential impacts will be localized to a very minor percentage of the Project Area and would most likely occur in association with buried electrical collection lines and turbine pads. Information on depth to bedrock for the Project Area is not readily available from public data sources. Based on construction requirements, bedrock is most likely to be encountered during construction of turbine foundations. If bedrock is encountered, the Applicant anticipates that methods other than blasting will be employed such as use of backhoes, rock rippers, chipping hammer, pneumatic jack, or hydraulic drill to either rip or fracture the bedrock.

2.21.14 Impacts of Seismic Activity on Facility Operation

Seismic events are not anticipated to present a significant hazard during the construction or operation of the Project. Previous earthquakes in the area of Lewis County have been relatively low-magnitude and have generally caused little to no property damage. In the extremely rare event of a large magnitude earthquake, it is anticipated that setbacks from roads, dwellings and other structures will limit the hazards that might occur should a turbine be damaged or possibly collapse (refer to Section 2.15 of this PSS for further details). In addition, turbines are equipped with operational controls so that they can be shut down in the event of a severe earthquake or other emergency situation.

2.21.15 Soil Types Map

The Article 10 Application will include a map delineating soil types for the Project Area. This map will be prepared using the SSURGO and STATSGO digital soil survey data and will provide soil mapping units and the soil hydric rating, if available.

2.21.16 Soil Characteristics and Suitability for Construction

The siltstone and shale of the Tug Hill Transition formed soil that is suitable for cultivation and as a result the landscape consists of farmland and woodlots (Bryce et al. 2010). According to the SSURGO and STATSGO digital soil survey data there are five soil map units underlying the Project Area: Turnbridge-Schroon-Bice-Berkshire (s6003); Pinckey-Camroden-Bice (s5915); Muskellunge-Malone-Adjidaumo (s5994); Insula-Bice (s5932); and Worth-Westbury-Empeyville (s6004). Within

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these soil map units, the five most common soil types are: Camroden silt loam; Pinckney silt loam; Marcy silt loam; Alden silt loam; and Darien silt loam. Table 2.4 provides general information of these soil types.

Table 2.4. Project Area Common Soil Types.

Soil Type	Area of Project Area (acres)	Percent Slope Ranges	Drainage Class
Camroden silt loam	10,075	0–3; 3–8; 8–15; 15–25	Somewhat poorly drained
Pinckney silt loam	6,604	3–8; 8–15; 15–25; 15–35	Well drained
Marcy silt loam	4,712	0–3; 3–8	Poorly drained
Alden silt loam	3,605	0–3	Very poorly drained
Darien silt loam	1,842	0–3; 3–8; 8–15	Somewhat poorly drained

2.21.17 Bedrock Analyses and Maps

The Article 10 Application will include maps, figures, and bedrock analyses that will be produced using publicly available information including geologic data available through the NYS GIS Clearinghouse and the SSURGO and STATSGO digital soil survey data as well as the Project's Preliminary Geotechnical Investigation. These will include depth to bedrock, underlying bedrock types, including vertical profiles showing soils, bedrock, water table, and seasonal high groundwater in relationship to typical foundation depths, and areas to be disturbed for proposed roads and interconnection components.

2.21.18 Foundation Evaluation

Foundation construction occurs in several stages, which typically include excavation, pouring of a 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 report.

2.21.18.1 Preliminary Engineering Assessment

The Article 10 Application will include a Preliminary Geotechnical Investigation report that will address the general suitability of the Project Area for turbine construction. This investigation will include a series of test borings at potential turbine locations as well as a review of publicly available data related to the surface (soils) and subsurface (surficial and bedrock geology) conditions at the project location. Once the Project Certificate is received, but before construction begins, a site specific geotechnical investigation will be conducted at turbine foundation locations.

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2.21.18.2 Pile Driving Assessment

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

2.21.18.3 Mitigation Measures for Pile Driving Impacts

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

2.21.19 Vulnerability to Earthquake and Tsunami Events

Based on a review of publicly available data, the Project appears to have minimal vulnerability from seismic events. Similarly, because the nearest large body of water, Lake Ontario, is located over 20 miles from the Project Area, there is no vulnerability from tsunamis.

2.22 TERRESTRIAL ECOLOGY AND WETLANDS [EXHIBIT 22]

2.22.1 Plant Communities

For the purposes of this PSS, plant communities have been broadly identified based on a desktop review and are as summarized below.

Desktop Review

Based upon the USGS NLCD (USGS 2011) the Project Area includes forested lands (deciduous, mixed, and evergreen), agriculture lands (pasture/hay, cultivated crops), and wetlands (woody, emergent herbaceous and open water). Approximately 1% of the Project Area is currently developed and this development occurs along roads, including Route 177, Route 194 and Whitesville Road. This small percentage of developed land is primarily developed open space and low intensity development with much smaller amounts of medium and high intensity development.

Agricultural land comprises approximately 12% (4,240 acres) of the Project Area. These areas are used primarily for pastureland and hay fields with less area in cultivated crops that can include annual crops, such as corn, soybeans, and vegetables and perennial woody crops such as orchards and vineyards. Agricultural areas within the Project Area occur primarily adjacent to roads with more extensive agricultural blocks along Route 194, Cronk Road, Route 175 and Route 177 east of the Deer River. Plants within these areas are expected to include annual crop species such as corn, soybean, vegetables, and plants typical of fields such as grasses (Poacea), sedges (Cyperacea), clovers (*Trifolium* spp.), goldenrod (*Solidago* spp.), and asters (*Symphyotrichum* spp.).

Forested land comprises approximately 59% (19,927 acres) of the Project Area. Deciduous communities are the dominant forest types with lesser amounts of mixed and evergreen communities. Forested lands include Pickney State Forest located in the northwestern corner of the Project Area and centered along Pickney Road and Lookout State Forest located in the southeastern portion of the Project Area extending from northwest of Route 194 to the east side

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of River Road. Other state forests within the Project Area include Granger State Forest located along Route 194, Tug Hill State Forest located north and south of Route 177, and Sears Pond State Forest and Grant Powell State Forest, both of which are located south of Route 177. Common trees within these forests likely include maples (*Acer* spp.), oaks (*Quercus* spp.), birches (*Betula* spp.) and American beech (*Fagus grandifolia*).

Wetlands represent approximately 24% (8,090 acres) of the Project Area. These resources are distributed throughout the Project Area. Wetlands in the area are primarily forested/scrub-shrub communities with smaller emergent and open water components.

Grasslands and shrub/scrub lands comprise very minor components of the Project Area representing approximately 4% (1,387 acres). Plants within these areas likely include those common in fields and early successional communities such as grasses, clovers, goldenrods, blackberries (*Rubus* spp.), shrubs such as dogwoods (*Cornus* sp.) and young trees such as aspens (*Populus* spp.).

Correspondence received from the New York Natural Heritage Program ("NHP") on March 23, 2016, identified four significant natural communities within the Project Area. These include two upland/terrestrial communities and two wetland/aquatic communities:

- Riverside Sand/Gravel Bar associated with the Deer River Gorge in the towns of Pinckney and Harrisburg
- Shale Cliff and Talus Community associated with Deer River Gorge in the towns of Pinckney and Harrisburg
- Confined River associated with Deer River
- Rocky Headwater Stream associated with the East Branch Deer River in the Town of Montague

The presence and extent of invasive plant species within the Project Area has not been assessed. The regulated invasive plant list maintained by the DEC will be reviewed when ecological field surveys are conducted for the Project to determine if these species are present.

Table 2.5 provides a summary of land cover and land use within the Project Area based upon the USGS NLCD data. The NLCD provides nation-wide data on land cover and land cover change at the Landsat Thematic Mapper 30-meter resolution, meaning that the data describes the land surface condition of each 30-meter cell of land (Homer et al. 2011). The NLCD includes 16 land cover classes that are divided into 7 major land cover types: forest, herbaceous/grassland, shrubland, developed, agriculture, wetlands, and other.

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Table 2.5. Project Area Land Cover and Land Use Summary.

Land Cover or Land Use	Approximate Acres	Percent Cover
Forest	19,927	59
Deciduous Forest	13,151	39
Evergreen Forest	6,236	18
Mixed Forest	540	2
Planted/Cultivated	4,240	12
Pasture/Hay	3,850	11
Cultivated Crops	390	1
Wetlands	8,090	24
Wooded Wetlands	7,544	22
Emergent Herbaceous Wetlands	352	1
Open Water	194	1
Shrubland	817	2
Shrub/Scrub	817	2
Herbaceous	570	2
Grassland/Herbaceous	570	2
Developed	308	1
Developed, Open Space	283	1
Developed, Low Intensity	23	<1
Developed, Medium Intensity	2	<1
Developed, High Intensity	<1	<1

The Article 10 Application will provide a description of plant communities within the Project Area and on adjacent properties to the extent possible using the desktop analysis presented above and the results of site specific field surveys. Site specific field surveys will involve the characterization of plant communities, and surveys for rare plant species and invasive plant species. The Article 10 Application will contain:

- A map of existing plant communities will be produced using publicly available data such as the USGS NLCD data and aerial photographs, and information from site specific surveys. For adjacent properties, a combination of aerial photograph interpretation and roadside observations will be used;
- Detailed descriptions of the ecological communities identified within the Project Area based on the *Ecological Communities of New York State* (Edinger et al. 2014); and
- A list of plant species based on Project specific field surveys. This will include the identification of rare plants as listed by the NHP. Table 2.6 below includes those rare, threatened, or endangered plant species identified within the Project Area based on correspondence received from NHP on March 23, 2016.

Field Surveys



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The Article 10 Application will include the results of field studies that supplement and verify the results of the desktop study.

2.22.2 Impact to Plant Communities

The Article 10 Application will include calculations of plant community impacts, which will be calculated using GIS software. These impacts will include the impacts of vegetation clearing; the total area of soil disturbance (temporary and permanent); and the area of permanent soil disturbance. These calculations will be based on a set of assumed typical impacts for each Facility component (i.e., turbine, access road, underground and above-ground electrical collection lines, and substation) as summarized in Table 2.6. The assumed typical area for impact for each component will be provided in the Article 10 Application.

Table 2.6. Assumed Clearing and Soil Disturbance for Facility Components.

Facility Components	Typical Area of Vegetation Clearing	Typical Area of Total Soil Disturbance	Final Footprint of Facility Components
Wind Turbines and Workspaces	Up to 200-foot radius per turbine	Up to 200-foot radius per turbine	0.20 acre per turbine (pedestal plus crane pad)
Access Roads	75 feet wide per linear foot of road	60 feet wide per linear foot of road	20-foot-wide per linear foot of road
Buried Electrical Collection Lines	40 feet-wide per linear foot of line per collection line circuit	20 feet wide per linear foot of line per collection line circuit	None
Overhead Electrical Collection Lines	75 feet wide per linear foot of line	25 feet wide per linear foot of line	0.10 acre per pole
Permanent Met Towers	1 acre per tower	0.10 acre per tower	0.10 acre per tower
O&M Building and associated site (4,000–6,000 sf)	6 acres	5.5 acres	5 acres
Staging Area	10 acres per staging area	10 acres per staging area	None
Collection substation	3 acres	3 acres	2 acres

The presence and extent of invasive plant species associated with the Facility will be assessed during site specific field surveys. The Study Area for this assessment will extend 500 feet from proposed Facility structures such as turbines, O&M building, met towers, and substation, and 200 feet of linear Project components including roads and electrical collector line. The regulated invasive plant list maintained by the DEC will be reviewed when field surveys are conducted to determine if these species are present. The Article 10 Application also will include an Invasive Species Prevention and Management Plan [Invasive Species Control Plan ("ISCP")]. This plan will include measures that will be implemented to minimize the introduction of new invasive species and spread of existing invasive species during soil disturbance, vegetation management, transport of materials, and landscaping/re-vegetation.

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2.22.3 Measures to Avoid or Mitigate Plant Community Impacts

The Article 10 Application will include a description of measures that will be employed to avoid and minimize impacts to plant communities. Such efforts typically would include site selection and the micro-siting of components to avoid rare or unique plant communities and minimization efforts such as utilizing existing developed or cleared lands and co-locating components such as access roads and above-ground electrical collection lines.

2.22.4 Characterization of Vegetation, Wildlife, and Wildlife Habitats

Vegetation

The Article 10 Application will include a characterization of vegetation as addressed above under Plant Communities.

Wildlife

Mammals

Publicly available information regarding the locations of mammals in Northern New York is generally not available. Therefore, the mammals will be documented during various on-site field surveys including wetland delineations, Breeding Bird Surveys, and spring and fall surveys for raptors and avian use. Documentation of mammals will include direct observation of animals as well as observation of signs such as tracks, scats, and browsing. A general assessment of mammals likely to be present based upon known ranges and available habitat also will be developed. In addition, an inquiry will be submitted to the DEC Regional Office for information on wildlife in the area. Based upon the habitat in the Project Area, common mammal species likely to be present include, but are not limited to, American black bear (*Ursus americanus*), white-tailed deer (*Odocoileus virginianus*), red fox (*Vulpes vulpes*), eastern coyote (*Canis latrans*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), North American porcupine (*Erethizon dorsatum*), eastern gray squirrel (*Sciurus carolinensis*) and snowshoe hare (*Lepus americanus*).

The only mammal-specific surveys planned as part of the Project are summer presence-absence surveys for bats and fall bat migration surveys. These surveys are intended to document the presence or potential absence of two federally listed species, Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) and characterize fall bat migratory activity within the Project Area. The work plans for these surveys was finalized based upon discussion with U.S. Fish and Wildlife Service ("USFWS") and DEC (see Appendix G). Copies of final reports as submitted to USFWS and DEC will be included in the Article 10 Application.

Birds

To characterize the bird community within the Project Area existing data sources were consulted and on-site field surveys were conducted. The Article 10 Application will include a detailed summary of relevant information from public data sources and on site surveys, including:

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- USGS Breeding Bird Survey ("BBS");
- NYS Breeding Bird Atlas ("BBA");
- Raptor Migration Surveys conducted by Stantec during 2016;
- Breeding Bird Surveys conducted by Stantec during Spring/Summer 2016, including habitat assessment;
- Eagle Point Count Surveys conducted by Stantec during 2016; and
- Upland Sandpiper Surveys conducted by Stantec during 2017.

Two separate avian survey work plans were developed for the Project. The survey protocols for these work plans were based on the latest DEC *Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects* (dated June 2016) and consultations with DEC. The *Deer River Wind Project Avian Survey Work Plan* dated June 3, 2016, was submitted to DEC following a teleconference held with DEC on May 9, 2016, to discuss this work plan (Appendix G). The Applicant conducted teleconferences with DEC to discuss fall avian surveys, but a separate work plan was not developed. The Applicant also will be conducting summer surveys for upland sandpiper (*Bartramia longicauda*) within the Project Area. The *DRAFT Deer River Wind Project Upland Sandpiper Survey Work Plan* (Appendix G) was developed in April 2017 following consultation with DEC including a call on February 17, 2017, to specifically discuss upland sandpiper surveys. Copies of final reports as submitted to USFWS and DEC will be included in the Article 10 Application.

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

Breeding Bird Survey

The North American Breeding Bird Survey (BBS) began in 1966 as a long-term and large-scale avian monitoring program to track the status and trends of North American bird populations. This is a cooperative program with participation by the U.S. Geological Survey's Patuxent Wildlife Research Center and the Environment Canada's Canadian Wildlife Service. The closest BBS route to the Project Area is the Highmarket route located to the south and east of the Project Area. During the 2015 survey, 79 species were recorded along this survey route. The most commonly observed species included red-eyed vireo (*Vireo olivaceus*), red-winged blackbird (*Agelaius phoeniceus*), cedar waxwing (*Bombycilla cedrorum*), song sparrow (*Melospiza melodia*) and common yellowthroat (*Geothlypis trichas*). One state-listed threatened species, northern harrier (*Circus cyaneus*), was documented and no state-listed endangered species were observed. One state-listed species of special concern, American bittern (*Botaurus lentiginosus*), was observed during the 2015 survey.

New York State Breeding Bird Atlas

The *Second Atlas of Breeding Birds in New York State* was published in 2008. This second BBA compiled comprehensive statewide surveys conducted from 2000-2005. This cooperative effort involved state and private agencies including the DEC, New York State Ornithological Society, New York Cooperative Fish and Wildlife Research Unit at Cornell University, Cornell University Department of Natural Resources, Cornell Lab of Ornithology and Audubon New York. The state

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was divided into 10 regions and each region was subdivided down to BBA blocks that were 9.65 square miles. The Project Area includes BBA blocks 4285B, 4285D, 4385A, 4385B, 4385C, 4385D, 4384A, 4384B, 4384D and 4484A. Over 100 species were recorded in these blocks. No state-listed endangered species were documented and one state-listed threatened species, northern harrier, was observed. Seven state-listed species of special concern were observed during these surveys: American bittern, northern goshawk (*Accipiter gentilis*), sharp-shinned hawk (*Accipiter striatus*), red-shouldered hawk (*Buteo lineatus*), grasshopper sparrow (*Ammodramus savannarum*), vesper sparrow (*Pooecetes gramineus*), and golden-winged warbler (*Vermivora chrysoptera*).

Amphibians and Reptiles

The NYS Amphibian & Reptile Atlas Project (Herp Atlas) was a 10-year survey conducted from 1990-1999 and designed to document the geographic distribution of reptiles and amphibians in the state of New York. Distribution maps resulting from this survey indicate at least 22 species were documented within the topographic quadrangles that cover the Project Area. According to these data, habitats within the Project Area are likely to support common species such as common snapping turtle (*Chelydra serpentina*), painted turtle (*Chrysemys picta*), red-spotted newt (*Notophthalmus viridescens*), Eastern American toad (*Bufo* [*Anaxyrus*] *americanus*), gray treefrog (*Hyla versicolor*), spring peeper (*Pseudacris crucifer*), bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans melanota*), wood frog (*Lithobates sylvaticus*), spotted salamander (*Ambystoma maculatum*), northern spring salamander (*Gyrinophilus p. porphyriticus*), northern two-lined salamander (*Eurycea bislineata*), northern redback salamander (*Plethodon c. cinereus*), northern redbellied snake (*Storeria o. occipitomaculata*), northern ringneck snake (*Diadophis punctatus edwardsii*), eastern milk snake (*Lampropeltis t. triangulum*), and common garter snake (*Thamnophis sirtalis*).

The Article 10 Application will include more detailed information on amphibian and reptile communities based upon available habitats documented during Project surveys and incidental observations made during these surveys including wetland delineations.

Terrestrial Invertebrates

Correspondence from NHP dated March 23, 2016, did not identify rare or state-listed terrestrial invertebrates in the vicinity of the Project.

Wildlife Habitat

The Plant Community descriptions (Section 2.22.1) as well as publicly available information such as Bird Conservation Areas will be used to identify and describe Wildlife Habitat within the Project Area. This information will be provided in the Article 10 Application.

2.22.5 Species List

The Article 10 Application will include a list of wildlife species likely to be present in the Project Area based upon site-specific observations of animals and availability of suitable habitat as well

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as information retrieved from publicly available data sets and correspondence with natural resource agencies such as NHP. This list will include mammals, birds, amphibians, reptiles, and terrestrial invertebrates.

2.22.6 Impacts to Vegetation, Wildlife, Wildlife Habitats, and Wildlife Travel Corridors

For the Article 10 Application, impacts to vegetation will be addressed under Impacts to Plant Communities as discussed in Section 2.22.2 of this PSS.

The Article 10 Application will detail potential direct and indirect impacts to wildlife from the construction and operation of the proposed Project. Such impacts may include direct mortality of individuals and indirect effects including displacement from breeding sites and disturbance due to noise. This portion of the Article 10 Application also will address impacts to existing habitats (i.e., loss and fragmentation) and, to the extent they are known to exist, wildlife travel corridors and how these impacts may affect local wildlife populations. This discussion will include potential effects to both local, non-migratory populations and migratory populations that may be present in the Project Area.

The Article 10 Application also will present information on the potential presence of threatened and endangered species and Species of Greatest Conservation Need ("SGCN"), and the Project's potential to impact these species or their habitats. Based upon preliminary information obtained through the USFWS Information for Planning and Conservation (IPaC) system, correspondence with NHP, and a review of public data sets including the BBS, New York State Breeding Bird Atlas, the Herp Atlas, and the New York State Wildlife Action Plan (DEC 2015), several federally- or state-listed threatened or endangered species or species identified as SGCN or special concern may be present. This information is summarized in Table 2.7.

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Table 2.7. Rare, Threatened and Endangered Species Present in the Vicinity of the Project Area.

Species	Status	Data Source
Indiana bat (<i>Myotis sodalis</i>)	Federal Endangered	IPaC, NHP database
Northern long-eared bat (<i>Myotis septentrionalis</i>)	Federal Threatened	IPaC, NHP database
Eastern small-footed myotis (<i>Myotis leibii</i>)	State Special Concern	NHP database
Northern harrier (<i>Circus cyaneus</i>)	State Endangered	BBS, New York State Breeding Bird Atlas, NHP database
American bittern (<i>Botaurus lentiginosus</i>)	Federal Bird of Conservation Concern; State Special Concern	IPaC; BBS, New York State Breeding Bird Atlas
American three-toed woodpecker (<i>Picoides dorsalis</i>)	State Protected Bird	NHP database
Northern goshawk (<i>Accipiter gentilis</i>)	State Special Concern	New York State Breeding Bird Atlas
Sharp-shinned hawk (<i>Accipiter striatus</i>)	State Special Concern	New York State Breeding Bird Atlas
Red-shouldered hawk (<i>Buteo lineatus</i>)	State Special Concern	New York State Breeding Bird Atlas
Grasshopper sparrow (<i>Ammodramus savannarum</i>)	State Special Concern	New York State Breeding Bird Atlas
Vesper sparrow (<i>Pooecetes gramineus</i>)	State Special Concern	New York State Breeding Bird Atlas
Golden-winged warbler (<i>Vermivora chrysoptera</i>)	Federal Bird of Conservation Concern; State Special Concern	IPaC; New York State Breeding Bird Atlas
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Federal Bird of Conservation Concern; State Threatened	IPaC
Black tern (<i>Chlidonias niger</i>)	Federal Bird of Conservation Concern; State Endangered	IPaC
Black-billed cuckoo (<i>Coccyzus erythrophthalmus</i>)	Federal Bird of Conservation Concern	IPaC
Blue-winged warbler (<i>Vermivora cyanoptera</i>)	Federal Bird of Conservation Concern	IPaC
Canada warbler (<i>Cardellina canadensis</i>)	Federal Bird of Conservation Concern	IPaC
Common tern (<i>Sterna hirundo</i>)	Federal Bird of Conservation Concern; State Threatened	IPaC
Least bittern (<i>Ixobrychus exilis</i>)	Federal Bird of Conservation Concern; State Threatened	IPaC
Olive-sided flycatcher (<i>Contopus cooperi</i>)	Federal Bird of Conservation Concern	IPaC

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Species	Status	Data Source
Peregrine falcon (<i>Falco peregrinus</i>)	Federal Bird of Conservation Concern; State Endangered	IPaC
Pied-billed grebe (<i>Podilymbus podiceps</i>)	Federal Bird of Conservation Concern; State Threatened	IPaC
Prairie warbler (<i>Dendroica discolor</i>)	Federal Bird of Conservation Concern	IPaC
Red-headed woodpecker (<i>Melanerpes erythrocephalus</i>)	Federal Bird of Conservation Concern; State Special Concern	IPaC
Short-eared owl (<i>Asio flammeus</i>)	Federal Bird of Conservation Concern; State Endangered	IPaC
Upland sandpiper (<i>Bartramia longicauda</i>)	Federal Bird of Conservation Concern; State Threatened	IPaC, NHP database
Willow flycatcher (<i>Empidonax traillii</i>)	Federal Bird of Conservation Concern	IPaC
Wood thrush (<i>Hylocichla mustelina</i>)	Federal Bird of Conservation Concern	IPaC
Bird's-eye primrose (<i>Primula mistassinica</i>)	State Threatened	NHP database
Jacob's-ladder (<i>Polemonium vanbruntiae</i>)	State Rare	NHP database
Wild sweet-william (<i>Phlox maculata</i> ssp. <i>maculata</i>)	State Endangered	NHP database

2.22.7 Measures to Avoid or Mitigate Impacts to Vegetation, Wildlife and Wildlife Habitat

For the Article 10 Application, measures to avoid or mitigate impacts to vegetation will be addressed under Measures to Avoid or Mitigate Plant Community Impacts as discussed in Section 2.22.3 of this PSS.

The Article 10 Application will detail potential measures to avoid or mitigate impacts to wildlife and wildlife habitat from the construction and operation of the proposed Project. Measures to avoid impacts to wildlife and wildlife habitat will include many of the same efforts used to avoid and minimize impacts to plant communities including site selection to avoid habitats of rare or sensitive species. Other potential measures may include adjusting the timing of clearing activities to limit disturbance during the breeding period of select species and restricting speed limits on Project controlled roads.

2.22.8 Avian and Bat Impacts, Post-Construction Monitoring and Mitigation for Proposed Wind-Powered Facilities

2.22.8.1 Avian and Bat Impacts

As discussed above in Section 2.22.4, Characterization of Vegetation, Wildlife, and Wildlife Habitats, the Project has developed work plans to conduct pre-construction avian and bat surveys, attached at Appendix G. When these surveys are completed, reports summarizing the

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methodology and results of each survey will be submitted to DEC for their review and comment. Copies of the finalized reports, which will incorporate review comments from DEC, will be included with the Article 10 Application. The Article 10 Application will include an evaluation of the expected impacts on avian and bat species and their habitats based upon the results of these pre-construction surveys and similar pre-construction surveys. In addition, the Article 10 Application will evaluate potential cumulative impacts to avian and bat species that could result from operation of the Facility. The cumulative analysis will utilize publicly available post-construction monitoring data from applicable operating wind facilities in New York State to assess potential impacts to bird and bat species most likely to be affected in consideration of the proposed Facility's location relative to those other wind-power facilities

2.22.8.2 Avian and Bat Post-Construction Monitoring

The Article 10 Application will include a proposed post-construction avian and bat monitoring program that will assess direct and indirect impacts of the operational Project and evaluate cumulative impacts in consideration of post construction mortality monitoring associated with nearby existing wind facilities. The monitoring program will be developed in consultation with the DEC and USFWS, and will include details such as study duration, monitoring schedule, search effort (number of turbines), search intervals, search/survey areas, search protocol and related survey protocols.

2.22.9 Map Showing Delineated Wetland Boundaries

The Article 10 Application will include maps showing wetlands located within 500 feet of proposed Facility components where there will be disturbance due to construction. Wetlands will be identified through a combination of field delineations and desktop analysis. The Study Area for field delineations will be extend 500 feet from proposed Facility structures such as turbines, O&M building, met towers, and substation, and to 200 feet from linear Facility components including roads and electrical collection lines. Beyond these distances out to 500 feet approximate wetland boundaries will be identified based upon aerial photograph interpretation and publicly available data sets. Aerial photograph interpretation and use of publicly available data set will be applied to adjacent properties without accessibility. Maps will distinguish between field delineated wetlands and those approximate wetland boundaries determined through desktop analyses.

Field delineation of wetlands will be conducted using the methodology in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratories 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2.0) (U.S. Army Corps of Engineers ["USACE"] 2011) and the *New York State Freshwater Wetlands Delineation Manual* (Browne et al. 1995). Wetland boundaries will be marked in the field with flagging and the boundaries will be located using a Global Positioning System ("GPS") receiver.

Publicly available data sources will be used as part of the desktop analysis and to supplement field surveys. A review of the National Wetland Inventory ("NWI") data shows that there are 995

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mapped wetlands, exclusive of riverine communities, within the Project Area. Forested and shrub dominated communities represent the largest area, totaling approximately 4,913 acres. Other wetlands within the Project Area include herbaceous dominated communities (approximately 365 acres), and open water and aquatic bed communities (approximately 105 acres).

Under Article 24 of the Environmental Conservation Law DEC are required to map the freshwater wetlands that are subject to jurisdiction of the law. Maps that are produced show the approximate location of the actual wetland boundary; the actual wetland boundary must be determined through field delineations. Mapped wetlands are assigned a classification based upon the benefits that they provide. The highest functioning wetlands are assigned a Class 1 (I) designation and the lowest functioning wetlands are assigned a Class 4 (IV) designation. Using the DEC Environmental Resource mapper, there are 33 state-regulated wetlands within the Project Area each of which is either a Class 2 or Class 3 wetland. The wetlands are generally distributed throughout the Project Area with the exception of the northwestern corner. A summary of these wetlands is provided in Table 2.8.

Table 2.8. DEC Mapped Wetlands.

Town	Wetland ID	Class	Size (Acres)
Harrisburg			
	NE-13	2	46.1
	NE-14	3	18.4
	NE-27	3	19.9
	NE-28	3	22.1
Montague			
	BC-06	3	24
	NE-25	3	20.6
	NE-26	3	20.4
	NE-15	3	25.3
	NE-16	3	80.7
Pinckney			
	BC-10	3	54.8
	BC-11	3	36.9
	BC-12	2	178.8
	BC-13	3	128.6
	BC-14	3	33.9
	BC-15	2	30
	BC-16	3	57.2
	BC-17	3	47.8
	BC-18	3	101.4

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Town	Wetland ID	Class	Size (Acres)
	BC-19	3	57
	BC-20	2	65.5
	BC-21	3	33.9
	BC-22	3	33.2
	BC-23	2	37.5
	BC-24	2	16.8
	BC-26	3	56.8
	BC-27	3	44.5
	NE-1	3	41.7
	NE-2	2	269.5
	NE-3	3	31
	NE-4	3	51.5
	NE-5	2	175.5
	NE-6	2	426.9
	NE-7	3	43.6

2.22.10 Description of Wetlands

The Article 10 Application will include a summary of field delineated wetlands including wetland classification (Cowardin et al. 1979) and general details on vegetation, soils, and hydrology. It is anticipated that copies of the Corps Wetland Determination Data Form completed for field delineated wetlands impacted by the Facility will be included as an attachment to the Article 10 Application.

2.22.11 Wetland Functional Assessment

The Article 10 Application will include a qualitative assessment of the functions and values of the field delineated wetlands. The assessment will be conducted in accordance with *The Highway Methodology Workbook Supplement: Wetland Function and Value, A Descriptive Approach* (USACE 1999). This method bases function and value determinations on the presence or absence of specific criteria for each of the thirteen wetland functions and values: groundwater recharge/discharge; floodflow alteration; fish and shellfish habitat; sediment/toxicant retention; nutrient removal; production export; sediment/shoreline stabilization; wildlife habitat; recreation; educational/scientific value; uniqueness/heritage; visual quality/aesthetics; and endangered species habitat.

2.22.12 Offsite Wetlands Analysis

The Article 10 Application will include an analysis of off-site wetlands that may be hydrologically or ecologically connected to those wetlands delineated in the field for the Project and therefore potentially influenced by the proposed Project.

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2.22.13 Wetland Impacts

The Article 10 Application will provide a summary of identified temporary and permanent wetland impacts based upon the level of design detail available at the time of application submission. Temporary wetland impacts including soil disturbance and vegetation removal may be associated with construction laydown yards and staging areas. These impacts are considered temporary because laydown yards and staging areas will be restored or allowed to revert to their previous condition following construction. Permanent impacts can result from the filling of wetlands for the construction of Facility components such as turbines and roads. With these types of impacts, wetlands no longer provide their pre-existing functions or values. Wetlands such as those associated with electrical collection lines or interconnection lines also may undergo clearing impacts that change the type of community (i.e., forested to emergent). These types of changes will be permanent for the life of the Project. However, although these wetland communities are changed, they may still provide some of the same wetland functions and values. Indirect impacts are more difficult to qualify and quantify, but can occur when there is disturbance adjacent to wetland. This type of impact is most often associated with changes in the function of wildlife habitat. To the extent possible, the Article 10 Application also will discuss these indirect wetland impacts.

2.22.14 Measures to Avoid/Mitigate Wetland Impacts

The preliminary Facility layout has been designed to avoid impacts to known wetlands to the extent practicable. The Article 10 Application will discuss measures taken to avoid and minimize wetland impacts and measures to mitigate for unavoidable impacts. Prior to the submission of this PSS, a wetland scientist reviewed early proposals for Facility layout based on a reconnaissance level field review of the Project Area, and early adjustments were made to the proposed layout to avoid potentially sensitive areas identified through this preliminary process. Subsequently, a combined civil and environmental site walkover evaluated potential locations of Facility components in the continuing iterative process of component siting. As identification, evaluation and delineation of wetlands proceeds, additional measures are anticipated to include further site selection and micro-siting of Project components to avoid wetlands, and minimization efforts such as crossing wetlands at the narrowest point reasonable, and implementing construction methods that reduce soil disturbance and erosion such as the use of timber mats and proper erosion control devices. Compensatory mitigation measures may be proposed, depending on level of impacts anticipated.

2.22.15 State and Federal Endangered or Threatened Species

For the Article 10 Application, impacts to vegetation including endangered and threatened species will be addressed under Impacts to Plant Communities as discussed in Section 2.22.2 of this PSS. Similar, impacts to endangered and threatened wildlife will be addressed under Impacts to Vegetation, Wildlife, Wildlife Habitats, and Wildlife Travel Corridors as discussed in Section 2.22.6 of this PSS.

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2.22.16 Invasive Species Prevention and Management Plan

As discussed in Section 2.22.2 (Impact to Plant Communities) of this PSS, the Article 10 Application will include an ISCP. This plan will address measures to minimize the introduction of new invasive species and the spread of existing invasive species within wetland as well as upland habitats.

2.22.17 Agricultural Impacts

The Article 10 Application will include an analysis of the temporary and permanent impacts of the construction and operation of the proposed Project on agricultural resources. This analysis will include the approximate acres of agricultural land temporarily impacted, the number of acres of agricultural land that will be permanently converted to nonagricultural use, and mitigation measures to minimize the impact to agricultural resources. This analysis will include reviewing aerial photographs and USGS NLCD to identify land in agricultural use and conducting a GIS-based calculation of this land that will be impacted by the Project. For mitigation, the NYSDAM guidelines will generally be followed.

The Facility layout has been, and will continue to be, designed to minimize impacts to active agricultural lands to the extent practicable. Where possible, access roads will be sited along the edges of fields and forests in order to minimize impacts to both. In addition, proposed access roads will be sited along existing access roads to the extent practicable. In addition, the Applicant is engaged in discussions with landowners regarding the locations of Facility components on their land. The Article 10 Application will provide additional details on measures the Applicant has undertaken to avoid and mitigate for impacts to agricultural land.

2.23 WATER RESOURCES AND AQUATIC ECOLOGY [EXHIBIT 23]

In the Article 10 Application, this exhibit will include details on existing groundwater, surface water, and aquatic species and ecology and potential impacts of the proposed Project on these resources. In addition, the exhibit will include information on measures to avoid and minimize impacts and measures to mitigate for unavoidable impacts.

2.23.1 Groundwater

2.23.1.1 Hydrologic Information

The average depth to bedrock in the Project Area is not readily available from public data sources.

For the Article 10 Application, the NRCS SSURGO Database will be used to generate maps showing the depth to bedrock and depth to water table for the Facility.

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2.23.1.2 Groundwater Aquifers and Recharge Areas Map

According to the USGS Potential Yields of Water Wells in Unconsolidated Aquifers in Upstate New York – Adirondack Sheet, there is one unconfined aquifer with potential yield of 10 to 100 gallons per minute underlying the Project Area (Bugliosi et al. 1988). This aquifer is located along the Deer River from intersection of Routes 12 and 194 southwest to the intersection of Routes 23 and 177. According to the DEC mapping there is no Primary or Principal Aquifer located below the Project Area (DEC 2016). The nearest Primary Aquifer is located approximately 42 miles southwest of the Project Area.

Based on DEC data on New York State water wells there are seven water wells within the Project Area. Five of these water wells are located in Pinckney adjacent to Route 177; one is located in Pinckney north of Pinckney Road; and one is located in Montague east of McDonald Road. The DEC water well data only document wells constructed prior to April 2000 so there may be other wells within the Project Area. Identification of other wells may require additional investigation through consultation with the New York State Department of Health ("DOH") or a survey of local residences and businesses. The Article 10 Application will present a summary of water well data that the Applicant is able to obtain from public data sources, and, as appropriate other supplemental data sources.

DEC water withdrawal data shows that no wells supplying a public drinking water system are present under the Project Area. The nearest public drinking water well is located approximately 3 miles north of the Project Area in the Town of Rutland. Additional inquiry to the DOH will be made and the results included in the Article 10 Application to verify that there are no Wellhead Protection Areas identified within the Project Area.

The Article 10 Application will include a map of the Project Area showing groundwater aquifers, groundwater recharge areas, and groundwater wells based on data from the DEC Division of Water Resources, Bureau of Water Management. In addition, publicly available water well information for wells within a 1-mile radius of the Facility will be provided, including such details as depth and yield for each well, if available.

2.23.1.3 Groundwater Impacts

The Article 10 Application will include an analysis and evaluation of potential impacts from the construction and/or operation of the Project on drinking water supplies, groundwater quality and quantity. This analysis will address potential impacts on public and private water supplies, including private wells within a one-mile radius of the Facility, and wellhead and aquifer protection zones. It is not anticipated that the Project will significantly impact these groundwater resources. Construction of most Facility components including installation of buried electrical collection lines will typically involve relatively shallow excavations and should not intercept and/or effect groundwater supplies. However, turbine foundations could potentially intercept groundwater. Siting of turbines will take into account mapped aquifers and known locations of private wells to avoid and minimize potential impacts. On a landscape level, the Project will add a relatively small amount of impervious surface, which will be distributed over a wide area.

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2.23.2 Surface Water

2.23.2.1 Surface Waters Map

The Article 10 Application will include a map and identification of surface waters, including intermittent streams, within the Project Area. Publicly available data from sources including the DEC and the USGS National Hydrography Dataset, and information from on-site surveys will be used to identify and characterize surface waters.

2.23.2.2 Description of Surface Waters

The Project Area is located within the Salmon-Sand Watershed (USGS Hydrologic Unit Code 04140102), which is a 969-square-mile watershed located entirely within the state of New York.

Article 15 of the Environmental Conservation Law (Water Resource Law) regulates activities that change, modify, or disturb the course, channel, or bed of a stream or that remove any sand, gravel or other material from the bed or banks of a stream that has a designated classification of AA, AA(T), A, A(T), B, B(T) or C(T). This applies to streams as well as small lakes and ponds with a surface area of 10 acres or less that are located within the course of a stream. Stream classifications define the use for which a stream is best suited. For freshwater streams these classifications and usages are:

- Classifications A, AA, A-S and AA-S: best usage for a source of drinking water, swimming and other recreation, and fishing;
- Classification B: best usage for swimming and other recreation, and fishing;
- Classification C: best usage for fishing;
- Classification D: best usage for fishing, but these waters will not support fish propagation; and
- Classifications AA, A, B and C may be designated as trout waters (T) or suitable for trout spawning (TS).

The DEC Environmental Mapper was used to identify the streams in the Project Area that are protected under Article 15 of the Environmental Conservation Law. According to this mapping tool, there are seven state protected streams within the Project Area. Five of these streams are classified C(T) and two are classified C(TS).

- One stream classified as C(T) is located at the northwestern corner of the Project Area and is an unnamed tributary to Sandy Creek.
- One stream classified as C(T) is located in the southwestern portion of the Project Area and is an unnamed tributary to Gulf Stream;
- Three streams classified as C(T) are located in the southeastern portion of the Project Area and are unnamed tributaries to Deer River; and
- The two streams classified as C(TS) are located in the southeastern portion of the Project Area and are also unnamed tributaries to Deer River.

The Article 10 Application will provide a description of streams within the Project Area based on publicly available data and information collected during site surveys including wetland and

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stream delineations. In addition, DEC mapped streams within the Project Area will be identified and the stream classification will be provided.

2.23.2.3 Drinking Water Supply Intakes

The Article 10 Application will identify the nearest downstream surface water drinking water supply intake that could potentially be affected by the Facility or interconnections, including characterization of the type, nature, and extent of service provided from the identified source. A Freedom of Information Law request to the DOH may be required to identify these intake sites.

2.23.2.4 Impacts to Surface Waters

To the extent practicable, direct impacts to surface waters will be avoided. The preliminary Facility layout has been designed to avoid impacts to known and mapped surface waters to the extent practicable. It is anticipated that most Facility components, particularly structures such as turbines, O&M building, and substation, will be sited to avoid direct filling of surface waters. Potential direct impacts, if they occur, will most likely result from stream crossings for roads or electrical collection and interconnection lines. Direct impacts may involve the installation of culverts or other conveyance at the stream for road crossings or trenching for the installation of underground lines.

Indirect impacts to surface waters can result from the removal of existing vegetation buffers or changes in the volume and quality of surface water runoff. These types of impacts can affect surface water quality. Removal of woody vegetation that shades surface waters can cause a temporary or permanent change in the water temperature, which can influence both water quality and aquatic habitat. Surface water runoff that carries sediment or pollutants also can affect water quality and aquatic habitats.

Based upon the Project layout, the Article 10 Application will detail impacts to surface water based on the results of on-site wetland and stream delineations. Calculations will include linear feet of temporary and permanent stream impacts and area impacts for other surface waters.

No dredging is proposed as part of this Project; therefore, the Article 10 Application will not identify precautions taken to avoid or minimize the need for dredging.

2.23.2.5 Measures to Avoid or Mitigate Surface Water Impacts

Direct impacts to surface waters will be avoided to the extent practicable. Unavoidable impacts will be minimized by placing crossings at the narrowest point and utilizing open-bottom or other appropriate culverts to maintain the natural stream substrate and hydrologic connectivity. To the extent practicable, clearing of vegetation adjacent to surface waters, including crossings will be minimized and erosion control devices will be installed and appropriately maintained throughout the construction process until the site is stabilized or restored.

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Methods to avoid and minimize surface water impacts will be detailed in the Article 10 Application, including measures such as:

- Equipment only will be allowed to cross streams at designated crossings (existing roads or proposed temporary or permanent road crossings) and use of streams as travel ways will be prohibited;
- To the extent practicable, permanent stream crossings will be designed to maintain natural stream characteristics including flow volume and substrate. Temporary crossings will employ mats or similar structures to span the channel rather than placing granular fill in the stream channel;
- Buffers will be established at streams and other surface waters. The degree of vegetation clearing and the methods for clearing will be set to minimize vegetation removal and the potential disturbance of adjacent ground and surface water banks. Activities within these buffers will be restricted including the storage of fuel and refueling of equipment; storage and use of herbicides; and disposal of slash or other debris; and
- An erosion and sedimentation control plan will be developed for the proposed Project to help reduce the transport of soil into adjacent areas including surface waters and wetlands. This plan will identify erosion control devices such as bales, silt fencing and sediment barrier berms to be installed as well as the appropriate methods and schedule to install and maintain these devices. Locations of these devices will be identified on construction drawings. The erosion and sedimentation control plan also will address site stabilization following the completion of construction activities including seeding and mulching to further help reduce potential erosion.

2.23.3 Stormwater

2.23.3.1 Stormwater Pollution Prevention Plan

The Article 10 Application will include a preliminary Stormwater Pollution Prevention Plan ("SWPPP") for the collection and management of stormwater discharges from the Project. The SWPPP will be prepared in accordance with the State Pollutant Discharge Elimination System ("SPDES") General Permit for Stormwater Discharges from Construction Activity (SPDES General Permit) and the current version of the New York State Standards and Specifications for Erosion and Sediment Control. The general SWPPP will address measures for the operational Project to meet applicable water quality standards including design, installation, and maintenance of erosion and sediment controls and inspection and maintenance of these devices.

Following Certification of the Project, the Applicant will conduct the detailed engineering necessary to prepare a final SWPPP, in accordance with the SPDES General Permit.

2.23.3.2 Post-Construction Erosion and Sediment Control Practices

The Project's preliminary SWPPP will include a discussion of post construction erosion and sediment practices that will be used to manage stormwater runoff from the developed Project. This could include runoff reduction/green infrastructure practices, water quality treatment practices, and practices that control the volume and rate of runoff.

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2.23.4 Chemical and Petroleum Bulk Storage

2.23.4.1 Spill Prevention and Control Measures

The Article 10 Application will contain a Preliminary SPCC Plan for the construction phase of the Project. The purpose of the SPCC Plan is to minimize the potential for unintended releases of petroleum and other hazardous chemicals. The SPCC Plan will address control measures to prevent releases from spreading and reaching sensitive resources including surface waters and containment and cleanup measures that would be employed in the event of a release. It also will include inspection, training and reporting requirements, 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. The construction phase SPCC will be finalized with the chosen contractor and an operational SPCC plan developed within 6 months of project operation.

2.23.4.2 Compliance with New York State Chemical and Petroleum Bulk Storage Regulations

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

2.23.4.3 Compliance with Local Laws for Storage of Chemicals or Petroleum

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

2.23.5 Aquatic Species and Invasive Species

2.23.5.1 Impact to Biological Aquatic Resources

The New York State Fish Atlas maps provide the distribution of fish species in New York State. Based on these distribution maps, some of the common species likely to present within the Project Area include golden shiner (*Notemigonus crysoleucas*), common shiner (*Luxilus cornutus*), longnose dace (*Rhinichthys cataractae*), central mudminnow (*Umbra limi*), brown bullhead (*Ameiurus nebulosus*), yellow perch (*Perca flavescens*), brook stickleback (*Culaea inconstans*), white sucker (*Catostomus commersonii*), pumpkinseed (*Lepomis gibbosus*), brook trout (*Salvelinus fontinalis*), and brown trout (*Salmo trutta*).

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Correspondence from the NHP dated March 23, 2016, identified no rare aquatic species within the Project Area.

Invasive species are defined in 6 NYCRR Part 575 as "a species that is nonnative to the ecosystem under consideration, and whose introduction causes or is likely to cause economic or environmental harm or harm to human health". Non-native invasive species have the potential to negatively affect aquatic environments. To minimize potential impact from invasive species, DEC regulates the possession, transport, importation, sale, purchase and introduction of select invasive species (6 NYCRR 575). These include species of fish, aquatic invertebrates, aquatic vertebrates and aquatic plants that could affect aquatic environments.

The Article 10 Application will include analysis of the impact of the construction and operation of the Facility on biological aquatic resources, including species listed as endangered, threatened, or species of special concern in 6 NYCRR Part 182. In addition, it will include a discussion of the potential for introducing and/or spreading invasive species. The Applicant does not anticipate that detailed surveys for aquatic species will be conducted, but related information collected during other on-site surveys will be provided in the Article 10 Application.

2.23.5.2 Measures to Avoid or Mitigate Impacts to Aquatic Species

As discussed in Section 2.23.2.5 (Measures to Avoid or Mitigate Surface Water Impacts) of this PSS, the Article 10 Application will discuss means to avoid and minimize impacts to surface water and mitigate for unavoidable impacts. These same measures will generally apply to limiting impacts to biological aquatic resources, and mitigating for unavoidable impact to these communities. The Article 10 Application also will include an ISCP. It is not anticipated that the Project will adversely impact listed endangered, threatened, or special concern aquatic species.

2.23.6 Cooling Water

The Project will not require use of cooling water; therefore, the requirements of this section are not applicable and will not be included in the Article 10 Application.

2.24 VISUAL IMPACTS [EXHIBIT 24]

2.24.1 Visual Impact Assessment (VIA)

A VIA will be prepared in support of Exhibit 24 of the Certificate Application. The VIA will be prepared in accordance with the requirements of 6 NYCRR §1001.24 and will assess the extent of visibility of the Project and describe potential adverse impacts to visual or aesthetic resources of statewide or local significance. The VIA will be prepared in accordance with industry standard methodologies developed and accepted by various state and federal agencies. These may include methods developed by the U.S. Department of the Interior, Bureau of Land Management (1980), U.S. Department of Agriculture, National Forest Service (1974), the State of Vermont (2012), and the New York State's Department of Environmental Conservation Policy

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System and the State Environmental Quality Review Act (SEQR) regarding environmental aesthetics. The VIA will include identification of visually sensitive resources, viewshed mapping, field verification of potential visibility from public vantage points, visual simulations of the future built Project, an evaluation of potential visual impact, and proposed mitigation measures. The VIA, which will be included as an appendix to the Article 10 Application, will specifically address topics required to be in conformance with 6 NYCRR §1001.24.

2.24.1.1 Character and Visual Quality of the Existing Landscape

The Study Area for the VIA shall generally include the area within a radius of at least 5 miles from the Facility. The VIA will provide a map indicating the extent of the Study Area and provide geographic context for the surrounding area. This study area size is anticipated to be sufficient to characterize the existing landscape and provide a foundation for addressing Project visibility and potential adverse impact, due to the remote rural agricultural and forested nature of the Project Area.

The existing landscape of the study area will be characterized and defined in categories based on the similarity of features such as landform, vegetation, water, and land use patterns, also called Landscape Similarity Zones ("LSZ").

Definition of discrete landscape types within a given study area provides a useful framework for the analysis of a project's potential visual effects. These landscape types are 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 (e.g., Smardon et al. 1987; USDA Forest Service 1995; U.S. Department of Transportation Federal Highway Administration 1981; U.S. Department of the Interior Bureau of Land Management 1980). Distinct LSZ within the visual Study Area will be identified, defined, and the approximate location of these LSZ will be illustrated in the Application.

2.24.1.2 Visibility of the Facility

The VIA will include an assessment of Project visibility of the Facility within the Study Area. The assessment of visibility will be based upon viewshed analysis as well as field visits to verify areas of potential visibility based upon the viewshed analysis. Viewshed analysis is discussed in Section 2.24.2, below. The field visit will also serve as the opportunity to photo document the project's existing condition and for subsequent use in the development of visual simulations.

2.24.1.3 Visibility of Above-ground Interconnections and Roadways

In the VIA, visibility of the facility would be determined for above ground structures, including electric poles and substations/interconnection facilities, in the viewshed analysis. Photo simulations prepared for the project would include roadways and areas of clearing, if they are visible from the selected viewpoints.

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2.24.1.4 Appearance of Completed Facility

The VIA will include photographic simulations of the constructed Facility including turbines, proposed clearing, wind measurement towers, and above ground electrical components (such as substations and above ground interconnection). The photographic simulations will be prepared from a three-dimensional ("3-D") computer model of the proposed Facility components, based on specifications and coordinates of the turbines and related components.

2.24.1.5 Lighting

Viewshed analyses will include the anticipated FAA lighting plan and indicate where lit turbines will potentially be visible at night throughout the Study Area. The Application will include a discussion of the potential need for and visibility of FAA warning lights. Anticipated lighting for the substation/POI will be described in the Article 10 Application.

2.24.1.6 Photographic Overlays

To demonstrate the appearance of the completed facility, the VIA will include high-resolution, computer-enhanced photographic simulations prepared and overlayed onto each existing condition photograph from selected representative viewpoints within the Study Area. Viewpoints will be selected that represent a variety of distances from the facility, user experiences, and visual receptors from public vantage points. Appendix H provides simulations of the current proposed layout of the Project from six representative viewpoints.

Existing features in the simulated view will be modeled based on aerial photographs and digital elevation model data. Simulated views will be shown in scale, proportion, perspective, and proper relation to the existing landscape elements in the view. The alignment, elevations, dimensions, and locations of the proposed Facility structures will be accurate in scale and relationship to other landscape features in the photograph.

2.24.1.7 Nature and Degree of Visual Change from Construction

The VIA will describe the temporary nature and type of typical visual impacts associated with clearing and other construction activities that will occur for the duration of construction. Representative photographs of construction activities will be included, and anticipated visual effects such as disturbance, loss of vegetation, and addition of construction equipment and materials will be discussed in the Application.

2.24.1.8 Nature and Degree of Visual Change from Operation

The VIA will illustrate and describe the potential impact to visual resources associated with the operation of the Project. This will be described in qualitative terms relating to the degree of contrast with existing landscape elements. Photo simulations will be presented in existing and proposed view formats, so that viewers can compare and contrast the views from selected

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viewpoints within the Study Area. This will include views from a variety of distances from the facility, including foreground views, with “before” and “after” photographs.

2.24.1.9 Operational Effects of the Facility

In addition to a VIA, other potential effects from Facility operation will be presented in the Application. This would include a study of the potential shadow flicker on residences within the vicinity of the Project. Shadow flicker is the effect caused when the sun shines through the blades of a rotating turbine. The Study Area for shadow flicker is a distance of 10-rotor diameters from a turbine. Residential structures within this study area will be identified and mapped for the purposes of impact from shadow flicker effect.

The shadow flicker analysis will be performed with industry standard modeling software (e.g., WindPRO, AWS Openwind, WindFarmer, or equivalent). Specific data sets will be used to develop shadow flicker modeling including turbine coordinates, coordinates for residential structures in the Study Area, terrain data, turbine specifications, wind measurement data, and other weather data including sunshine averages in the Project Area.

A shadow flicker modeling report will be presented in the Application. Shadow flicker will be presented in both a tabular and illustrative mapping based on hours per year at a receptor (residence) based upon the modeling effort. The report will include mapping that indicates the extent of shadow flicker effects across the Study Area. The model will include the cumulative sum of shadow flicker hours for all turbines.

2.24.1.10 Measures to Mitigate for Visual Impacts

The Application will provide mitigation strategies for visual impacts, including the feasibility and potential effectiveness of various strategies. Although the range of mitigation options for visual impacts from wind turbines are narrow, the Applicant will discuss measures appropriate to mitigate for impacts from other Facility components such as landscape screening at the substation area. Mitigation will be discussed in relation to the DEC Policy for Assessing and Mitigation Visual Impacts (DEP-00-2).

2.24.1.11 Description of Visual Resources to be Affected

The VIA and Application will include an inventory description of aesthetic or visual resources that would potentially be affected by the construction, operation, and maintenance of the Project. Visual resources are defined as the visually sensitive resources of statewide significance within the five-mile Study Area as defined in the DEC Policy for Assessing and Mitigation Visual Impacts. The Applicant has prepared an inventory of aesthetic resources of statewide significance from the sources according to Section V of the policy (Appendix I). Because all resources are not designated by the state, resources of local significance were also identified within the Study Area. These included scenic resources, landscapes of high quality, or local recreation areas.

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Generally, the following types of resources were included, where applicable:

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

In addition, resources of local significance within a 5-mile radius of the proposed Facility were also be identified. These scenic areas include places of concentrated activity such as village centers and heavily used roadways, or landscapes of high aesthetic merit that may be considered important by local residents.

2.24.2 Viewshed Analysis

The VIA will include a viewshed analysis that illustratively (mapping) and quantitatively (summary of area and percentage of area) identifies areas within the visual Study Area where the above ground Facility components may be visible from ground level locations. The viewshed analysis will be conducted as required by 6 NYCRR §1001.24(b)(1).

2.24.2.1 Viewshed Maps

The VIA will include viewshed maps that illustrate the areas within a 10-mile visual Study Area where the turbines and other above ground Facility components may be visible. The viewshed maps will indicate visibility based upon topography and vegetation. Maps will include inventoried and mapped aesthetic resources, landscape similarity zones, and viewpoint locations. Viewshed analysis will be based on maximum blade tip height and FAA warning light height.

Topographic and vegetation-based viewshed maps have the following data input:

- Coordinates of proposed turbines,
- Maximum blade tip height and nacelle height of proposed turbines,
- USGS DEM data (7.5-minute series)
- USGS NLCD
- Assumed forested landcover height of 40 feet.

2.24.2.2 Methodology For Developing Viewshed Maps

Using GIS analyses, viewsheds can be calculated to show areas where wind turbines can be seen. The VIA will include a detailed description of the methods used to develop viewshed

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maps, including software, baseline information, and sources of data. A general description is as follows.

Viewshed analyses will be prepared based on two conditions; 1) existing topography, and 2) the combined forest vegetation and topography. Further, viewshed analyses will be prepared based upon both the maximum turbine height (blade tip) and the nacelle height where FAA obstruction warning lights will be placed. The screening effects of structures or individual landscape or street trees will not be provided.

Five-mile radius viewshed maps will be prepared to determine the extent of potential visibility of the Project based on existing topography and forested vegetation, and the location and height of the proposed wind turbines. The topographic viewsheds represent a worst-case assessment of potential visibility and identifies those areas where the turbines will be screened from view. The vegetation viewshed considers the screening effect of areas of existing forested vegetation.

2.24.2.3 Sensitive Viewing Areas

As described in 2.24.1, above, the VIA will include an inventory of aesthetic resources within the five-mile visual Study Area and the viewshed analyses will indicate areas of potential visibility from those resources. Potentially sensitive viewing areas will only include locations with public access or public vantage points.

Visual or aesthetic resources are defined as the visually sensitive resources of statewide significance within the five-mile Project study area as defined in the DEC Policy for Assessing and Mitigation Visual Impacts, as well as other local resources. The types of resources identified by SDEC 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 Adirondack Park State Land Master Plan, 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; Scenic Areas of Statewide Significance; 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.

2.24.2.4 Viewpoint Selection

The Applicant will select viewpoints to prepare photographic simulations of the built Facility in consultation with representatives from the local municipality, DEC, OPRHP, and DPS or other agencies as appropriate in accordance with Section 1001.24. It is anticipated that viewpoints will be selected based on the following criteria:

- representative or typical views from unobstructed or direct line-of-sight views;

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- representative visibility from various LSZ;
- significance of viewpoints;
- level of viewer exposure, i.e., frequency of viewers or relative numbers, including residential areas, or high volume roadways;
- proposed land uses;
- input from local public sources; and
- building/structure data collected for each potentially eligible property prepared in a format acceptable to OPRHP and DPS and submitted to OPRHP and DPS for review prior to completing the viewpoint selection.

High resolution photographic simulations will be prepared from these will be shown in a side by side comparison of existing conditions and proposed changes, if the Project is built.

During the site visits, photos will be taken using digital SLR cameras with a minimum resolution of 10 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 assessment because it most closely approximates normal human perception of spatial relationships and scale in the landscape. Viewpoint locations will be documented using hand-held 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.

Photographic Simulations

Photographic simulations from representative viewpoints will be included in the VIA that illustrate the appearance of the built Project in leaf-off conditions. Simulations will consist of high resolution images and photo-realistic to-scale appearance of the proposed turbines and other above ground infrastructure. Visual changes will be displayed in a side by side comparison of existing conditions and proposed views once the Project is constructed.

The photographic simulations will be developed by using appropriate software (e.g., Windpro, Autodesk 3ds Max Design®) 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 DEM data, and a 3-D topographic mesh of the landform (based on DEM or LIDAR data) will be brought into the 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 Applicant. 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

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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.

2.24.2.5 Additional Simulations Illustrating Mitigation

Where appropriate, mitigation measures such as screening of the collection station/substation with berms or plantings will be illustrated. Simulations of additional mitigation measures to reduce project visibility are not proposed.

2.24.2.6 Simulation Rating and Assessment of Visual Impact

Existing and proposed simulated views prepared in support of the VIA will be compared and rated as a part of the visual impact analysis effort and reported in the VIA. The VIA will contain a summary of the methods used to conduct the rating and assessment method, the credentials of qualified professionals conducting the rating, and a summary of the rating results.

The proposed Facility is not anticipated to necessarily be perceived by viewers as having an adverse visual 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. In the Applicant's experience, operating wind power projects in New York State have generally received a positive public reaction following their construction. This observation is supported by multiple public opinion surveys conducted by Jefferson County Community College ("JCCC") in Lewis County, New York, which revealed strong community support for wind power (JCCC 2008, 2010, 2011, 2012). Lewis County is the location of the 195-turbine Maple Ridge Farm Facility in operation since 2006. A significant majority (approximately 90 percent) of Lewis County residents who participated in these surveys expressed support for the development of additional wind energy projects (JCCC 2010, 2011, 2012). Specific to visual impact, the 2008 survey revealed that 77 percent of individuals that could 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 percent of the participants who lived within 1 mile of the nearest wind turbine felt that wind farms have had a negative impact (JCCC 2008).

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2.24.2.7 Visible Effects Created by the Facility

Visible effects created by the facility will be presented in the VIA and the Shadow Flicker Analysis conducted for the Project, and included in an Appendix to the Application to support Exhibit 24.

2.25 EFFECTS ON TRANSPORTATION [EXHIBIT 25]

2.25.1 Conceptual Site Plan

The Article 10 Application will include an appropriately scaled conceptual site plan depicting the Facility site driveway and roadway intersections. This will include access road locations and widths. It will evaluate the routes for component delivery and will describe the suitability of public road intersections to accommodate Facility construction and operational needs.

2.25.2 Description of the Pre-construction Characteristics of Roads in the Area

The Article 10 Application will describe the pre-construction characteristics of the roadways near the Facility including the following details.

2.25.2.1 Existing Vehicle Traffic

The Article 10 Application will include a review of existing data on vehicle traffic, use levels and accidents along the routes expected to be used to access the Facility. The New York State Department of Transportation ("DOT") Traffic Data Online Data Viewer will be used to review existing traffic volumes along these access routes. Accident information along these access routes contained in the Accident Location Information System ("ALIS") will be obtained from the local law enforcement agencies.

2.25.2.2 Transit Facilities and Routes

The Article 10 Application will include a review of transit routes, including school district routes for the Copenhagen School District, Lowville Academy and Central School District, and South Jefferson Central School District. Information for school district routes will be obtained from school districts in the area. It is expected that this information will include school bus routes, the number of buses, and times buses are typically operating along these routes.

2.25.2.3 Potential Approach and Departure Routes for Emergency Vehicles

The Article 10 Application will identify potential approach and departure routes to and from the Facility for police, fire, ambulance, and other emergency vehicles. These routes will be finalized in consultation with local emergency service providers prior to construction.

In addition, the Article 10 Application will summarize consultations that have occurred between the Applicant and local emergency service providers, including local fire departments, police, and ambulance services. It also will provide a map of emergency service providers near the Facility, and their routes to the Facility. This map also will be posted in the Facility's O&M building.

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The Applicant will notify all fire departments that there will be a fire and emergency training and communication plan developed as part of the Article 10 process. Each Facility turbine will have a unique 911 ID/address.

2.25.2.4 Available Load Bearing and Structural Rating Information

The Article 10 Application will include a review of available load bearing and structural rating information for routes expected to be used to access the Facility. This information will be gathered through consultation with local highway supervisors, through the DOT's Windows Bridge On Line Transaction System (WindBolts) and Project specific field reviews conducted by the Applicant's qualified consultants.

2.25.2.5 Traffic Volume Counts

The Project is not located within a congested urbanized area; therefore, 24-hour traffic counts are not applicable and will not be included in the Article 10 Application.

2.25.3 Facility Trip Generation Characteristics

2.25.3.1 Number, Frequency, and Timing of Vehicle Trip

The Article 10 Application will include the estimated number and frequency of vehicle trips for each major phase of construction, and for the operational Project. This estimate will be based on the proposed Facility layout and site plan details that will determine material quantities and the number and types of vehicles that will be need to deliver these materials.

2.25.3.2 Approach and Departure Routes for Trucks Carrying Water, Fuels, or Chemicals

The Article 10 Application will identify the approach and departure routes to and from the Facility out to a 5-mile distance for vehicles carrying water, fuels or chemicals for construction or operation of the Project.

2.25.3.3 Major Cut and Fill Activity Number, Frequency, and Timing of Vehicle Trip

The Article 10 Application will include the anticipated quantities of earthwork and materials to construct the Facility, which will then be used to estimate the number and frequency of vehicle trips for cut and fill activities for each turbine site. To the extent practicable, this information will include time of day and day of week arrival and departure distribution, by size, weight, and type of vehicle.

2.25.3.4 Approach and Departure Routes for Construction Workers and Employees

Construction workers and employees who access the Facility using cars or standard pick-up trucks will use public roads that readily provide direct access. Workers operating heavy equipment and large construction vehicles such as dump trucks or vehicles that exceed the posted weight limits on public roads will use identified construction access routes. Construction

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access routes will be identified through consultation with the turbine manufacture and the Applicant's construction contractor. The Article 10 Application will identify conceptual construction access routes, and final routes will be provided to the Siting Board prior to the initiation of construction.

2.25.4 Traffic and Transportation Impacts

2.25.4.1 Future Traffic Conditions With and Without the Proposed Facility

The Article 10 Application will provide a comparison of projected future traffic conditions with and without the proposed Project. This analysis will address projected impacts for the peak period of construction and for the typical operational Project. Based on the experience of the Applicant and analysis on traffic volumes from other wind projects, typical operations of the Facility will have a negligible increase over existing traffic volumes during operation. Synchro and HCS software or similar software generally accepted by the industry will be utilized to determine levels of service for linear segments of highways used by construction and delivery vehicles. The Project is not located in a congested urbanized area; therefore, a detailed intersection analysis will not be included in the Article 10 Application.

2.25.4.2 Adequacy of the Road System

The Article 10 Application will evaluate the adequacy of the existing road system to accommodate the projected traffic. This analysis will be address projected impacts for the peak period of construction and for the typical operational Project. For the construction phase of the Project, this evaluation will address the expected extent and duration of traffic interferences. A detailed description of potential haul routes will be provided, and will include information associated with roadway condition, width, bridges, culverts, and any observed potential obstacles. The Applicant will have a Transportation Effect and Route Evaluation Study or similar study conducted that provides a detailed roadway evaluation, which will be included in the Article 10 Application.

2.25.4.3 Over-sized Deliveries

The Article 10 Application will include an assessment of over-size load deliveries, and the adequacy of roadway systems to accommodate oversize and over-weight vehicles. Resources such as aerial photographs and field review of roads will be used to help identify roads that potentially may be impacted. CADD® turning template or similar program will be used to check turning radii and impacts for delivery vehicles.

2.25.4.4 Measures to Mitigate for Traffic and Transportation Impacts

The Article 10 Application will identify and evaluate practicable mitigation measures for potential traffic and transportation impacts. Mitigation measures that will be considered include time restrictions, the use of alternative technologies, the construction of physical roadway improvements, and, as needed, the installation of temporary traffic control devices. Road Use

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Agreements are expected to address the repair of local roads due to damage by heavy equipment or construction activities during construction or operation of the Facility. If finalized, such agreements will be included in the Article 10 application.

2.25.4.5 Road Use and Restoration Agreements

The Article 10 Application will identify the anticipated County and Town road use agreements that are expected to be required. It is expected that the road use agreements will address details for the repair of local roads that might be damaged by heavy equipment or construction activities during construction of the Project.

2.25.5 Impact of the Facility on Mass Transit Systems

The Article 10 Application will include an evaluation of any potential impacts of the Project on airports and airstrips, railroads, subways, buses, and any other mass transit systems near the Project. No impacts are anticipated at this time.

2.25.6 Federal Aviation Administration Review

The proposed Project will require that a Notice of Proposed Construction be submitted to the administrator of the FAA in accordance with 14 Code of Federal Regulations, Part 77 pursuant to 49 U.S.C., Section 44718.

2.25.6.1 Department of Defense Review

The Applicant has submitted applications for FAA determinations. This submission initiates formal consultation and review of the proposed turbine locations by the DoD, and is coordinated by the FAA. The results of the FAA review and formal consultation will be discussed in the Article 10 Application, or submitted at a later date when they become available.

2.25.6.2 Consultation with Nearby Airports/Heliports

The Article 10 Application will evaluate the presence of airports and heliports located within 12 miles of the Facility. If they are present, the Application will include records of communications between the Applicant and operators of those aviation facilities.

2.25.6.3 Detailed Description of Responses Received

The Article 10 Application will include responses received from the FAA and DoD.

2.26 EFFECTS ON COMMUNICATIONS [EXHIBIT 26]

2.26.1 Existing Broadcast Communication Sources

The Article 10 Application will identify existing broadcast communication sources in the area of the Facility. It will include information about the following 14 communication sources that may

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be present. Reporting for most communication sources will be limited to those within a 2-mile radius of the Facility. For microwave transmission, Doppler/weather radar, air traffic control, armed forces, and LORAN—all sources potentially affected—including those beyond a 2-mile radius of the project location, will be identified:

- AM Radio
- FM Radio
- Television
- Telephone
- Microwave Transmission
- Emergency Services
- Municipal/School District Services
- Public Utility Services
- Doppler/Weather Radar
- Air Traffic Control
- Armed Forces
- GPS
- LORAN
- Amateur Radio Licenses

The Applicant will use Comsearch or similar service as well as information provided by the U.S. Department of Commerce, FAA, and the National Association of Amateur Radio to identify these broadcast communication sources. Data will include radio, television, telephone, microwave transmission, emergency services, and municipal service information. The Applicant will send written notification of the proposed Project to the National Telecommunications and Information Administration ("NTIA") of the U.S. Department of Commerce. The NTIA will provide plans for the proposed Project to the federal agencies represented in the Interdepartment Radio Advisory Committee ("IRAC"), which includes the National Oceanic and Atmospheric Administration ("NOAA"), FAA, Department of Homeland Security, U.S. Air Force, U.S. Army, U.S. Navy, and other federal entities responsible for communication services. The Applicant also will submit the Facility layout directly to the FAA for a hazard analysis, which relates to collision risk posed by turbines. Finally, the Applicant will conduct a search of the Federal Communications Commission's amateur radio license database through the National Association for Amateur Radio for license holders in the area (<http://www.arrl.org/advanced-call-sign-search>).

2.26.2 Existing Underground Cable and Fiberoptic Lines within 2 Miles

The Article 10 Application will evaluate the presence of existing underground cable and fiber optic major transmission telecommunication lines within a 2-mile radius of the proposed Facility.

2.26.3 Anticipated Effects on Communication Systems

The Article 10 Application will describe the anticipated effects that the proposed Project could have on the communication systems identified in sections 2.26.1 and 2.26.2 of this PSS. This will include the potential for:

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- Structures to interfere with broadcast patterns by re-radiating the broadcasts in other directions;
- Structures to block necessary lines-of-sight;
- Physical disturbance by construction activities;
- Adverse impacts to co-located lines due to unintended bonding; and
- Other potential for interference.

2.26.4 Evaluation of Design Configuration

The Article 10 Application provide an evaluation of the proposed Facility layout to demonstrate the Project has been configured, to the extent practicable, to avoid impacts to the communication systems discussed above in sections 2.26.1 and 2.26.2 of this PSS.

2.26.5 Post-construction Activities to Identify and Mitigate Adverse Effects on Communication Systems

The Applicant takes seriously any complaints that it receives from members of the public. The Applicant 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. Complaints can be made in person at the Facility's O&M building, via phone, or by writing, and the Applicant will contact the individual within 48 hours of receipt of the complaint. The Applicant will implement a five-point complaint response for all registered complaints, which will include community engagement, gathering information, response to the complaint, a follow up after the response has been issued, and further action if the complainant believes that the issue continues to exist. The Article 10 Application will include a description of the process by which the Applicant will identify communications systems impacts attributed to the operation Project, and how these impacts will be addressed.

2.26.6 Potential Interference with Radar

As described above, the Applicant will contact NTIA for information regarding potential concerns that the Project could pose to existing radar systems. The Article 10 Application will include the response from NTIA and a discussion of potential concerns related to radar operation and how the Project will address these concerns.

2.27 SOCIOECONOMIC EFFECTS [EXHIBIT 27]

The proposed Project is located primarily in Lewis County with the only the substation and POI located in adjacent Jefferson County. Table 2.9 provides a summary of population information for Lewis County and Jefferson County where Facility components will be located.

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Table 2.9. Summary of population information for Lewis County and Jefferson County.

Population	Lewis County	Jefferson County
2010 U.S. Census Total Population	27,087	116,229
2010-2014 American Community Survey 5-Year Estimate	27,164	118,885
Median Age (in years)	41.1	31.9
Educational Attainment		
Percent of High School Graduate or Higher	88.1	88.8
Total Housing Units	15,201	58,308
Median Household Income (in dollars)	46,990	48,613
Foreign-born Population	487	4,978
Percent of Individuals below Poverty Level	13.3	15
Number of Civilian Veterans	2,251	11,202
Race and Hispanic Origin		
White Alone	26,122	99,243
Black or African American Alone	283	5,825
American Indian and Alaska Native Alone	59	369
Asian Alone	109	1,681
Native Hawaiian & Other Pacific Islander	0	294
Some Other Race Alone	12	224
Two or More Races	155	3,440
Hispanic or Latino (of any race)	424	7,809

Quantifying the economic impacts of the Facility is central to understanding the local economic benefits. 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 is subsequently used to purchase local goods and services. The Article 10 Application will analyze three types of impact that the proposed Facility will have on the economy: on-site labor impact; local revenue and supply chain impact; and induced impact from increased household income. Each of these three impacts can be measured in terms of three indicators: jobs (as expressed through the increase in employment demand); the amount of money earned through those jobs; and the overall economic output associated with each level of economic impact.

To quantify the local economic impacts of constructing and operating the Facility, the Job and Economic Development Impact ("JEDI") model developed by the National Renewable Energy Laboratory, or a similar model, will be used to quantify the local economic impacts of constructing and operating the proposed Project. 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

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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 allows impacts to be estimated for both the construction and operation phases of the proposed development. The Article 10 Application will present the results of the JEDI model.

2.27.1 Construction Workforce

The Article 10 Application will identify the estimated construction workforce associated with the Project using the selected model results. The Applicant will use the results of the model to estimate the average work force, by discipline, for each quarter during construction.

2.27.2 Construction Payroll

The Article 10 Application will identify the estimated annual construction payroll and non-payroll expenditures associated with the Project using the selected model results. The Applicant will use the results of the model to estimate the annual construction payroll by trade.

2.27.3 Secondary Employment and Economic Activity from Facility Construction

The Article 10 Application will identify the estimated secondary employment and economic activity associated with Facility construction using the model results. The Applicant will identify the basis of economic multiplier factors or other assumption(s) used to estimate secondary employment and economic activity associated with constructing the proposed Project.

2.27.4 Workforce, Payroll, and Expenditures during Facility Operation

The Article 10 Application will identify the estimated number of jobs associated with Facility operation using the model results. The Applicant will use the model results to estimate on-site payroll by discipline. The Applicant also will provide an estimate of other expenditures likely to be made near the Project during a typical operational year.

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

2.27.5 Secondary Employment and Economic Activity from Facility Operation

The Article 10 Application will identify the estimated secondary employment and economic activity associated with Project operation using the model results.

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2.27.6 Incremental School District Operating and Infrastructure Costs

The Project is not expected to result in additional operating or infrastructure costs to the local school districts and this will be discussed in further detail in the Article 10 Application.

2.27.7 Incremental Municipal, Public Authority, or Utility Operating and Infrastructure Costs

The Project is not expected to result in additional operating or infrastructure costs to local municipalities, authorities, or utilities. This will be discussed in further detail in the Article 10 Application.

2.27.8 Jurisdictions to Collect Taxes or Benefits

The following jurisdictions are expected to receive taxes or other economic benefits from the proposed Project:

- Lewis County
- Jefferson County
- Town of Pinckney
- Town of Harrisburg
- Town of Montague
- Town of Rodman
- Copenhagen School District
- Lowville Academy and Central School District
- South Jefferson Central School District

2.27.9 Incremental Amount of Annual Taxes or Payments

The Article 10 Application will include an estimate of the incremental amount of annual taxes that will be levied by each jurisdiction on the operational Project. In the event the Applicant enters into a long-term PILOT agreement with local taxing jurisdictions, the payments from that PILOT agreement will increase the local tax revenues, and will represent a significant portion of their total tax levy. The Applicant may also enter into a Host Community Agreement ("HCA") with municipalities wherein the Facility is located.

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

2.27.10 Comparison of Incremental Costs and Incremental Benefits

The Project is not expected to result in additional costs to local tax jurisdictions, but the Article 10 Application will discuss the expected incremental benefits as discussed above.

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2.27.11 Equipment or Training Deficiencies in Local Emergency Response Capacity

The Article 10 Application will include an analysis of the capacity of local emergency response to handle a fire emergency or a hazardous substance incident at the proposed Project. This analysis will identify specific equipment or training that may be required to respond to these emergencies, but that are not currently available or in place. The Applicant will meet with all local fire departments and first responders to identify potential needs. The Article 10 Application also will identify emergency response equipment that will be maintained at the operational Project.

2.27.12 Consistency with State Smart Growth Public Infrastructure Criteria

The New York State Smart Growth Public Infrastructure Policy Act ("SGPIPA") is intended to minimize the unnecessary cost of sprawl and requires that NYS infrastructure agencies, including DOT, assess whether public infrastructure projects are consistent with the eleven Smart Growth criteria. The proposed Project will not involve the construction or operation of public infrastructure or result in unnecessary sprawl; however, because Project components may need to cross state highways, approvals from the DOT may be required. Therefore, the Article 10 Application will include a statement indicating how the proposed Project will be consistent with the Smart Growth criteria.

2.28 ENVIRONMENTAL JUSTICE [EXHIBIT 28]

The Project will be subject to the rules contained in 6 NYCRR Part 487 promulgated by the DEC for the analysis of environmental justice issues associated with projects subject to review and approval under Article 10 of the New York Public Service Law. In accordance with the DEC Environmental Justice Policy CP-29, Potential Environmental Justice Areas include census block groups featuring populations that meet or exceed at least one of the following statistical thresholds:

- At least 51.1 percent of the population in an urban area reported themselves to be members of minority groups.
- At least 33.8 percent of the population in a rural area reported themselves to be members of minority groups.
- At least 23.59 percent of the population in an urban or rural area had household incomes below the federal poverty level.

Based on data obtained from the DEC's Geospatial Information System Tools for Environmental Justice (www.dec.ny.gov/public/911.html), the Applicant has determined that there are no Potential Environmental Justice Areas in the Project Area. Therefore, an evaluation of impacts of the proposed Facility on environmental justice areas will not be included with Article 10 Application. The closest Potential Environmental Justice Areas are located in the Village of Lowville, portions of the Town of Martinsburg and the City of Watertown, which are located between 6.5 and 8.5 miles outside the Project Area.

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2.29 SITE RESTORATION AND DECOMMISSIONING [EXHIBIT 29]

2.29.1 Performance Criteria

The Article 10 Application will detail the performance criteria proposed for site restoration in the event the Project cannot be completed and for decommissioning Project. This will include a description of why the proposed performance criteria are appropriate. It also will address at a minimum the following conditions:

- Safety and the removal of hazardous conditions;
- Environmental impacts;
- Aesthetics;
- Salvage and recycling;
- Potential future uses for the site; and
- The useful life of the facility.

2.29.2 Decommissioning and Restoration Plan

The Article 10 Application will include a plan for the decommissioning and restoration of the facility site including how the decommissioning and restoration will be funded and a schedule for the decommissioning and site restoration activities.

The wind turbines for the Project are designed and certified by independent agencies for a minimum expected operational life in excess of 25 years. Based upon current trends in the wind energy industry, advances in technology allow operational facilities to replace or “re-power” existing facilities by upgrading older equipment with more efficient turbines, resulting in a life expectancy of the facility of up to 40 years. If turbines are not upgraded, or if they are non-operational for an extended period and are not expected to return to operation, they are decommissioned. The decommissioning process includes dismantling and removing wind turbines and project components on property owned or leased by the Applicant. Restoration activities follow decommissioning. Typical restoration activities involve stabilizing disturbed areas to prevent soil erosion and, to the extent practicable, allowing the site to return to pre-development condition and use. These activities can include leveling, terracing, mulching, adding soil amendments, and seeding.

Decommissioning

The following provides an outline for decommissioning process:

- a. If a wind turbine is non-operational for over 2 years the Applicant must decommission the wind turbine, unless otherwise approved by the town where the turbine is located.
- b. The Applicant, and its successors or assigns or heirs, are responsible for decommissioning and all costs associated with decommissioning the Project and associated facilities.

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- c. All above-ground components being decommissioned, including but not limited to, turbines, blades, nacelles, towers, transformers, above-ground collection cables and poles, permanent met towers, and the collection substation, must be removed.
- d. Foundations and buried Project components, other than buried collection lines, must be removed to a depth of 36 inches.
- e. Buried collection lines must be removed to a depth of 36 inches. Collection lines below a depth of 36 inches may remain in place.
- f. Decommissioning activities must be completed within 1 year of decommissioning initiation unless otherwise approved by the town where the Project components are located.

Restoration

The following provides an outline for restoration process:

- a. The Applicant, and its successors or assigns or heirs, are responsible for restoration and all costs associated with restoring the Facility.
- b. Ground disturbance must be minimized to the extent practical and the site restored to its original ground contours if possible.
- c. Disturbed on-site soils and vegetation will be reasonably restored and re-established using native seed mix or, in any agricultural areas, in coordination with the landowner to allow desired crops to be replanted.
- d. Roads must be adequately restored to their original condition following decommissioning activities.
- e. Access roads, fencing and residual minor improvements may remain with written consent from the landowner.

2.29.3 Decommissioning/Restoration Agreements between Applicant and Landowners

The Article 10 Application will describe site restoration and decommissioning agreements between the Applicant and landowners where Facility components will be located. This will include provisions for removing turbines, foundations, and electrical collection, and interconnection facilities and the restoration of these sites. The lease agreements between the Applicant and landowners who would have Facility components on their property include provisions for the removal of these components.

The Article 10 Application also will include provisions for the financial security to cover the costs for the removal Facility component and site restoration.

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The Applicant will provide financial assurance for decommissioning costs in the following manner:

- a. Prior to the erection of any the wind turbines, the Applicant will post and maintain financial assurance in the amount of the net decommissioning costs, on a per-turbine basis, to be determined by a qualified independent engineer licensed to practice engineering in the State of New York. The net decommissioning cost will be the total cost of decommissioning less the salvage value of the equipment and/or re-sale values divided by the total number of turbines.
- b. The net decommissioning cost must be re-evaluated after 1 year of operation of the Project and every fifth year thereafter.
- c. Financial assurance may be in the form of a letter of credit, a bond, escrow account, a parent guarantee or other form approved by the town where the turbines are located.

2.29.4 Nuclear Power Facilities

The proposed Project is not a nuclear power facility; therefore, this section is not applicable and will not be addressed in the Article 10 Application.

2.30 NUCLEAR FACILITIES [EXHIBIT 30]

The proposed Project is not a nuclear facility; therefore, the requirements of this exhibit are not applicable and will not be included in the Article 10 Application.

2.31 LOCAL LAWS AND ORDINANCES [EXHIBIT 31]

The Project is a proposed wind powered electric generating facility located within the towns of Pinckney, Harrisburg, and Montague, in Lewis County, New York with the proposed POI in the Town of Rodman in Jefferson County. No wind turbines are proposed to be located in Rodman.

During the preparation of the Article 10 Application, the Applicant will consult with the municipalities regarding the siting of wind turbines, electrical collection lines, accessory structures, or other Facility components. Consultation will be conducted to determine what local ordinances and ordinance requirements apply, and whether design changes to the Project can obviate the need to request that the Board elect to not apply those requirements.

It is the Applicant's understanding that the Town of Pinckney is considering amendments to the local laws applicable to wind projects. To the extent any of the host Towns make future revisions to their 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.

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2.31.1 List of Applicable Local Ordinances and Laws of a Procedural Nature

The Applicant has compiled the following preliminary listing of local ordinances, laws, resolutions, regulations, standards and other requirements of a procedural nature required of for the construction or operation of the proposed facility:

Town of Harrisburg Zoning Law (Local Law No. 1 of the year 2012)

- Section 605 (Special Uses) General Requirements
- Section 705 (Special Use Review Procedure) Authority
- Section 710 Objectives
- Section 715 Procedure
- Section 805 (Special Use Review Standards) General
- Section 810 Erosion Control Plan
- Section 905 Zoning Permits
- Section 915 Certificates of Occupancy
- Section 930 Violations and Penalties

Town of Montague Land Use Law (Local Law No. 1 of 2002 as revised by Local Law No. 1 of 2005)

- Article C. Section 2 Special Areas
- Article E. Administration and Enforcement
- Article F, Section 9(3) Special Use Permit required for certain disturbances of a water body or wetland
- Article G. Special Use Permit Requirements and Process
- Montague Driveway Installation Law (Local Law Number 1 of 2016), Sections 2, 3, 5 and 8, Permit, Application Procedures, Zoning Permit, and Violation

Town of Pinckney Zoning Law (Local Law Number 2 of The Year 1998 Reenactment of Town of Pinckney Zoning Law as revised by Windpower Local Law, Local Law No. 1 of 2006, as revised by Local Law Number 1 of 2011)

- Article 5 General Regulations Section 582(7) Removal
- Article 6 Site Plan Review
- Article 8 Administration and Enforcement
- Pinckney Driveway Installation Law (Local Law Number 1 of 2015), Sections 3, 4 and 6, Permits, Application Procedures and Zoning Permit

Town of Rodman³ Development Laws (Local Laws Number 1-6 of 1998, as amended by Local Law Number 1 of 2000, Local Law Number 1 of 2005, and Local Law Number 1 of 2008).

- Article III, Section 310 Special Use Permits
- Article V, Special Use Review
- Article VII, Section 710, Soil Erosion and Sediment Control (portions)
- Article VIII, Section 804-808, Development Permits
- Article VIII, Section 815, Certificate of Compliance

³ Note: Atlantic Wind does not propose wind turbines within the Town of Rodman but proposes that the POI be located there.

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- Article VIII, Section 818, Special Use Permit Application and Review

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.

2.31.2 List of Local Procedural Requirements Requiring Siting Board Authorization

To the extent that the towns or counties require permits or approvals for work performed on Town roads or within the Towns' ROW, it is the Applicant's intent to request that the Siting Board expressly authorize the towns to issue such permits or alternatively enter into road use agreements with the Applicant.

2.31.3 Identification of Municipal Agency Qualified to Review and Approve Building Permits

The County of Lewis is 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 for the Towns of Pinckney, Harrisburg, and Montague.

The County of Jefferson is 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 for the Town of Rodman.

Due to the complex nature of the Facility, there is the potential that the Applicant will arrange with the counties 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. The Applicant will work with the counties 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 Applicant and the counties and the process for review.

2.31.4 List of Applicable Local Ordinances and Laws of a Substantive Nature

The Applicant has compiled the following preliminary listing of local ordinances, laws, resolutions, regulations, standards, and other requirements of a substantive nature required of for the construction or operation of the proposed facility:

Town of Harrisburg Zoning Law (Local Law No. 1 of the year 2012)

- Section 405 Zoning District Uses
- Section 510 Corner Lots

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- Section 520 Parking, General
- Section 525 Parking, Specific Standards
- Section 530 Off Road Loading
- Section 535 Signs, Exempt
- Section 540 Signs, Prohibited
- Section 545 Signs, General Standards
- Section 565 Access Standards
- Section 575 Roads
- Section 580 Fences, Walls, Shrubbery
- Section 625 Essential Facilities⁴
- Section 665 Major Wind Energy Generating Facilities (A-B)
- Section 720 Financial Guarantees for Public Improvements(A-B)
- Section 810 Substantive Erosion Control Standards (A-B)
- Section 815 Landscaping and Screening (A-H)
- Section 820 Drainage
- Local Law Number 1 of 2004, Minimum Maintenance and Rehabilitation Guidelines and Standards for Low-Volume Rural Town Roads (to the extent applicable)

Town of Montague Land Use Law (Local Law No. 1 of 2002 as revised by Local Law No. 1 of 2005)

- Article D, Lot Size and Setbacks
- Article E (1)(11) Setbacks for Wind Power Generating Facilities and Wind Test Towers
- Article F, Section 2 Line of Sight for Traffic Safety
- Article F, Section 3 Parking for Public and Commercial Facilities
- Article F, Section 4 Basic Performance Standards
- Article F, Section 5 Height of Structures
- Article F, Section 9 Water Related Areas
- Article F, Section 10 Wetlands
- Article F, Section 11 Sewage and Waste Disposal Standards (if applicable)
- Article F, Section 16 Road Access
- Article G, Section 2 (12) Requirements for Major Wind Power Generating Facilities
- Local Law Number 1 of 2002, as amended by Local Law Number 1 of 2004 and Local Law Number 2 of 2016, Minimum Maintenance and Rehabilitation Guidelines and Standards for Low-Volume Rural Town Roads (to the extent applicable)
- Montague Driveway Installation Law (Local Law Number 1 of 2016), Section 4, Requirements and Responsibilities

Town of Pinckney Zoning Law (Local Law Number 2 of The Year 1998 Reenactment of Town of Pinckney Zoning Law as revised by Windpower Local Law, Local Law No. 1 of 2006, as revised by Local Law Number 1 of 2011)

- Section 410 Allowed Uses
- Section 420 Lot Size and Setbacks
- Section 510 Line-of-Sight for Traffic Safety
- Section 515 Height of Structures
- Section 525 Accessory Uses and Structures

⁴ As written, the Town law defines these structures as those operated by the municipality or a public utility, with "public utility" currently undefined. Applicant will consult with the municipality to determine applicability of the provisions in this section to the proposed project.

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- Section 530 Signs
- Section 540 Parking
- Section 580(3)-(5) Public Utility Structures (Transformer Facilities and Substations)⁵
- Section 582 Major Wind Generating Facilities
- Section 585 Streams, Wetlands and Water Bodies
- Local Law Number 1 of 2000, Minimum Maintenance and Rehabilitation Guidelines and Standards for Low-Volume Rural Town Roads (to the extent applicable)
- Pinckney Driveway Installation Law (Local Law Number 1 of 2015), Section 5, Requirements and Responsibilities

Town of Rodman Development Laws (Local Laws Number 1-6 of 1998, as amended by Local Law Number 1 of 2000, Local Law Number 1 of 2005, and Local Law Number 1 of 2008)

- Article IV, Section 410
- Article V certain substantive special use permit requirements, including Section 535 (financial guarantees for public improvements), to the extent applicable
- Article VII, Section 705 Access
- Article VII, Section 710 Soil Erosion and Sediment Control (portions)
- Article VII, Section 720 Line of Sight for Traffic Safety
- Article VIII, Section 805, Development on Seasonal and Limited Use Roads
- Local Law No 1 of 2002 and Local Law No. 1 of 2010, Minimum Maintenance and Rehabilitation Guidelines and Standards for Town Roads (to the extent applicable)

2.31.5 List of Substantive Local Ordinances/Laws that the Applicant Requests the Siting Board Not Apply

The Applicant will consult with the municipalities to identify what substantive ordinances or laws would apply to the Project, and then determine whether it will request that the Siting Board not apply those substantive ordinances. The Article 10 Application will include a statement justifying why any identified local law is unreasonably burdensome as applied to the Project.

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

Each relevant municipal ordinance will be reviewed in consideration of the Project design to determine if there are applicable procedural requirements related to water, sewer or telecommunications, if such lines are proposed.

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

If it is determined that Project design triggers the application of local ordinances or laws related to the use of water, sewer, or telecommunications in public rights-of-way, the Applicant will identify the substantive aspects of those laws that would apply.

⁵ As written, the Town law defines these structures as those operated by the municipality or a public utility, with "public utility" currently undefined. The Applicant will consult with the municipality to determine applicability of the provisions in this section to the proposed project.

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2.31.8 Local Ordinances/Laws Related to Use of Water/Sewer that the Applicant Requests the Siting Board Not Apply

The Applicant will consult with the municipalities to identify what substantive ordinances or laws related to the use of water, sewer, or telecommunications in public rights-of-way, would apply to the Project, and determine whether it will request that the Siting Board not apply those substantive ordinances.

2.31.9 Summary Table of Substantive Local Requirements

The Applicant will work with town officials to meet substantive local requirements during Project design, and the Article 10 Application will provide a summary table that identifies applicable substantive local requirements for the Project and how the Applicant intends to comply with these requirements.

2.31.10 Zoning Designation or Classification

Zoning regulations for the Project Area are described within the towns' Zoning Laws. The Article 10 Application will identify where the turbines will be located and how these locations comply with zoning districts allowances for the construction of major wind energy generating facilities.

2.32 STATE LAWS AND REGULATIONS [EXHIBIT 32]

The Applicant will continue to consult with State agencies to determine that approvals required for the Project have been correctly identified. The Article 10 Application will provide a complete list of those approvals, and identify any approval requirements it requests the Board not apply. The Applicant intends to comply with applicable requirements except in cases where the Siting Board grants relief.

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

Table 2.10 summarizes a preliminary listing of state approvals, consents, permits, or other conditions of a procedural nature required for the construction or operation of the proposed Project, including interconnection. As shown in the table, some of the listed requirements are supplanted by Article 10. Exceptions include permits to be issued by DEC by delegation or approval by federal authority, or pursuant to Federal recognition of State authority.

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Table 2.10. State Approvals, Consents, Permits, Certificates, or Other Conditions of a Procedural Nature.

State Agency	Requirement	Notes
New York State Board on Electric Generation Siting and the Environment		
	Certificate of Environmental Compatibility and Public Need PSL Article 10	This certificate is required for the construction and operation of major electric generating facilities with a nameplate generating capacity of 25 MW or more.
	Water Quality Certification ("WQC") Section 401 of the Clean Water Act	The Applicant will apply for Section 401 WQC that the Project will comply with the applicable provisions of the Clean Water Act sections 301, 302, 303, 306, and 307. These sections prohibit unpermitted discharges to waters of the U.S. and regulate permitted discharges.
	Consultation with OPRHP § 14.09 of the New York State Historic Preservation Act	The Applicant will consult with the OPRHP to establish requirements per the New York State Historic Preservation Act and § 106 of the National Historic Preservation Act.
New York State Department of Environmental Conservation		
	Water Withdrawal Permit ("WWP") Article 15 6 NYCRR Part 601	This permit is required for water withdrawal systems with the capacity to withdraw 100,000 gallons per day from surface or groundwater. Temporary water withdrawals for the purposes of construction, (e.g., dewatering, use of water wells for concrete mixing) are exempt if the average daily volume is 100,000 gallons or less for any consecutive 30-day consecutive period. The Applicant does not currently anticipate that the Project will require this permit. However, the WWP is listed in the event that a need for permitting is identified as construction plans are developed. In that case, the procedural requirements would be supplanted by Article 10.
	Protection of Waters Permit Article 15 6 NYCRR Part 608	A Protection of Waters Permit is required for disturbing the bed or banks of a stream with a classification of AA, A or B, or with a classification of C with a standard of (T) or (TS). This permit may be required for the crossing of protected streams by Project access roads and/or collection lines. If this permit is required, the procedural requirements are supplanted by Article 10.
	Freshwater Wetlands Permit Article 24 6 NYCRR Part 663	Under the Freshwater Wetlands Act, DEC regulates activities in freshwater wetlands and in their adjacent areas. A permit may be required for the crossing of regulated freshwater wetlands or adjacent areas by Project access roads and/or collection lines. Regulated freshwater wetlands are generally 12.4 acres or larger; they are designated and mapped by DEC, but must be confirmed prior to permitting. The regulated area includes an adjacent buffer of 100 feet. If this permit is required, the procedural requirements are supplanted by Article 10.

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State Agency	Requirement	Notes
	Endangered and Threatened Incidental Take Permit Article 11 6 NYCRR Part 182	ECL § 11-0535 and Part 182 prohibit the "take" of endangered and threatened species without a DEC permit. A permit is necessary to take, transport, sell, import and/or possess any species listed as endangered, threatened, or species of special concern. It may also be required in case of adverse modification of habitat. A permit may be required if it is determined that the Project could result in incidental take of state-listed fish or wildlife species. If this permit is required, the procedural requirements are supplanted by Article 10.
	SPDES General Permit for Construction Activity	This permit is required for construction projects that disturb one or more acres of soil. DEC has federally delegated authority to issue permits under the federal Clean Water Act and therefore, this approval is not supplanted by Article 10.
	Petroleum Bulk Storage Registration	Registration is required for facilities with certain bulk storage tanks, including aboveground petroleum bulk storage tanks that are in place for 180 days or more, including fueling tanks located at construction sites. Tanks at registered facilities must meet certain requirements, including spill prevention, standards of construction, and inspections, and must procure a certificate of registration.
New York State Department of Transportation		
	Special Use Permit for Oversize/Overweight Vehicles Section 385, NYS Vehicle and Traffic Law	The DOT requires Special Hauling Permits for vehicles and/or loads that exceed the legal dimensions or weights specified in Section 385. Permits will be required for transport of the blades, nacelles, tower sections, and cranes for the Project. Permitting is supplanted by Article 10. However, these permits are typically obtained by the contractor immediately prior to construction, and therefore the required information will likely not be available until after Project certification. Therefore, the Applicant plans to request that the Siting Board authorize the DOT to issue these permits.
	Highway Work Permit NYS Highway Law, Article 3, Section 52	The use of New York State highway ROWs must be carried out in accordance with terms and conditions of a highway work permit issued by the DOT. The Project may require a permit for the interconnect crossing of State Route 177. Permit approval would not be supplanted by Article 10 because it would involve the grant of property rights for the permanent location of facilities.
New York State Department of Agriculture and Markets		
	Notice of Intent NYS Agriculture & Markets Law (AML) Section 305(4)	The AML mandates notice to the NYSDAM of proposed non-agricultural construction within a designated agricultural district. The Applicant will coordinate with NYSDAM to identify project impacts and potential mitigative measures. Notice of Intent procedural requirements are supplanted by Article 10. However, the Applicant will continue to consult with NYSDAM and anticipates that NYSDAM will provide recommendations to the Siting Board.

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2.32.2 List of Procedural State Approvals, Consents, Permits, Certificates, or Other Conditions that the Applicant Requests the Siting Board Not Apply

As set forth in the DOT section of Table 2.10, above, the Applicant plans to request that the Siting Board authorize DOT to issue Special Hauling Permits, as required, for transport of the blades, nacelles, tower sections, and cranes for the Project. Additional explanation of the basis for this request will be provided in the Article 10 Application.

2.32.3 List of State Approvals, Consents, Permits, Certificates, or Other Conditions of a Substantive Nature

The Article 10 Application will include a complete list of substantive requirements for State approvals, consents, permits, certificates, or other conditions as they apply to the Project based on the final Facility layout and on consultation with the appropriate State Agencies and Authorities.

The following is a preliminary list of substantive state requirements:

- 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 Section 14.09 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, Article 3, 6 NYCRR Part 750-1.11 (Application of Standards, Limitations, and other Requirements)

2.32.4 Summary Table of Substantive State Requirements

A summary table of the substantive requirements identified in Section 2.32.1 will be provided in the Article 10 Application.

2.32.5 State Approvals, Consents, Permits, Certificates or Other Conditions for Offsite Features Not Encompassed by Major Electric Generating Facility

The proposed Project does not include offsite interconnections or ancillary features that do not fall under the definition of Major Electric Generating Facility; therefore, this section is not applicable and will not be addressed in the Article 10 Application. 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.

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2.33 OTHER APPLICATIONS AND FILINGS [EXHIBIT 33]

2.33.1 Other Applications or Filings Concerning the Subject Matter of the Proceeding

The Applicant is not aware of other applications or filings concerning the proposed Project. Additional detail will be provided in the Article 10 Application if it becomes available.

2.33.2 Federal Permits, Consents, Approvals, or Licenses Required for Construction or Operation

Table 2.11 summarizes anticipated federal permit, consent, approval, or license needed for the proposed Project. This information will be detailed and updated in the Article 10 Application.

Table 2.11. Summary of Anticipated Federal Requirements.

Federal Agency	Description of Permit or Approval Required
U.S. Army Corps of Engineers	<ul style="list-style-type: none">• Section 404 or Nationwide Permit for Placement of Fill in Federal Jurisdictional Wetlands/Waters of the U.S.;• Compliance with National Environmental Protection Act ("NEPA");• Compliance with Section 106 of the National Historic Preservation Act ("NHPA"); and• Compliance with Section 7 of the Endangered Species Act.
Federal Aviation Administration	Lighting Plan and Clearances for Potential Aviation Hazard. Includes formal consultation with Department of Defense.
U.S. Fish and Wildlife Service	Effect determination pursuant to Section 7 of the Endangered Species Act (associated with Section 404 Permit).

2.34 ELECTRIC INTERCONNECTION [EXHIBIT 34]

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 (34.5kV) at the output of each turbine. A medium voltage collection system comprised of underground and overhead conductors transmits the power to a substation at the POI. The POI substation will step the power up to 115kV and connect the Facility to the National Grid transmission system.

2.34.1 Design Voltage and Voltage of Initial Operation

The Article 10 Application will describe the design voltage and voltage of initial operation for the Project's electrical interconnection. Generally, a pad mounted 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 kV; the voltage level of the collection system.

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2.34.2 Type, Size, Number, and Materials of Conductors

The Article 10 Application will describe the type, size, number, and materials of conductors to be used on the electrical interconnection line. Generally, 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 three 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 overhead system is similar in concept to the underground section. Each section is anticipated to be comprised of three aluminum conductors and steel reinforced (ACSR) conductors. The size will range from 795 to 1272 kcmil. Determination of specular or non-specular material construction will be made during final design.

2.34.3 Insulator Design

The Article 10 Application will describe the insulator design for the electrical interconnection line. Typical utility-grade ceramic/porcelain or composite/polymer insulators, designed and constructed in accordance with ANSI C29, are anticipated to be used for any overhead sections of the collection line. Insulators in the POI substation are anticipated to be porcelain.

2.34.4 Length of the Transmission Line

There is no new transmission line associated with the project. It is anticipated that a 34.5 kV collection line will extend several miles to the collector substation at the POI. This information will be updated as needed for the Article 10 Application.

2.34.5 Typical Dimensions and Construction Materials of the Towers

The Article 10 Application will provide the typical dimensions and construction materials to be used for the interconnection towers.

2.34.6 Design Standards for Each Type of Tower and Tower Foundation

The Article 10 Application will detail the design standards for each type of tower and tower foundation for the electrical interconnection line.

The interconnection line towers and conductors will be designed in accordance with the following standards:

- NESC standards for heavy loading and high wind
- ASCE Manual 72, Design of Steel Transmission Pole Structures, and Standard 48, Design of Steel Transmission Pole Structures
- Rural Utilities Service Bulletin 1724E-200, Design Manual for High Voltage Transmission Lines

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2.34.7 Type of Cable System and Design Standards for Underground Construction

The Article 10 Application will describe the type of cable system to be used for underground construction and the design standards for that system.

2.34.8 Profile of Underground Lines

The Article 10 Application will include profile drawings of the collection system showing the depth of the underground cables and the locations of oil pumping stations and manholes that are known to be present.

2.34.9 Equipment in Switching Stations or Substations

The Article 10 Application will detail equipment to be installed in at the proposed collector substation and the need for the collector substation.

2.34.10 Terminal Facility

The POI and collector substation are the only terminal facilities anticipated to be included in the Project. The Article 10 Application will describe each of these details.

2.34.11 Need for Cathodic Protection Measures

The Article 10 Application will describe any necessary cathodic protection measures, if applicable, and standards to be followed.

2.35 ELECTRIC AND MAGNETIC FIELDS [EXHIBIT 35]

The Article 10 Application will include an electric and magnetic field ("EMF") evaluation in accordance with the requirements of 16 NYCRR 1001.35 and as detailed in the following sections.

2.35.1 Right-of-way Segments with Unique Electric and Magnetic Field Characteristics

None of the Facility's electrical lines from the turbines to the collection station/POI station will exceed 34.5 kV; therefore, the Facility will not have a ROW associated with high voltage transmission power lines.

2.35.2 Right-of-way Segments Base Case and Proposed Cross Sections

For each identified ROW segment with unique EMF characteristics, the EMF study will provide both base case and proposed cross sections that show, to scale, the following:

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- All overhead collection facilities including the proposed facility showing structural details and dimensions and identifying phase spacing, phasing, and any other characteristics affecting EMF emissions;
- All underground collection facilities;
- All ROW boundaries; and
- Structural details and dimensions for all structures (dimensions, phase spacing, phasing, and similar categories) and include a Station number identifying the location.

2.35.3 Enhanced Aerial Photos/Drawings

The EMF study to be included will include a set of aerial photos/drawings showing the location of each of the following:

- Identified ROW segment;
- Cross-section; and
- Nearest residence or occupied non-residential building in each identified ROW segment with a stated measurement of the distance between the edge of ROW and the nearest edge of the residence or building.

2.35.4 Electric and Magnetic Field Study

The EMF study will include calculation tables and field strength graphs for each identified ROW cross-section as detailed in the following sections.

2.35.4.1 Licensed Professional Engineer

The EMF study will be signed and stamped/sealed by a licensed professional engineer registered and in good standing in the State of New York.

2.35.4.2 Computer Software Program

The EMF study will identify the name of the computer software program used to model the facilities and make the calculations.

2.35.4.3 Electric Field Calculation Tables and Field Strength Graphs

The EMF study will model the circuits at rated voltage and provide electric field calculation tables and field strength graphs calculated at 1 meter above ground level, with 5-foot measurement intervals depicting the width of the entire ROW and out to 500 feet from the edge of the ROW on both sides. Digital copies of all input assumptions and outputs for the calculations will be included in the study.

2.35.4.4 Magnetic Field Calculation Tables and Field Strength Graphs

The EMF study will model the circuit phase currents equal to the summer normal, summer short term emergency, winter-normal, and winter short term emergency loading conditions. The study will provide magnetic field calculation tables and field strength graphs calculated at 1-meter

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above ground level, with 5-foot measurement intervals depicting the width of the entire ROW and out to 500 feet from the edge of the ROW on both sides. Digital copies of all input assumptions and outputs for the calculations will be included in the study.

2.35.4.5 Magnetic Field Calculation Tables and Field Strength Graphs for Maximum Annual Load within 10 Years

The EMF study will model the circuit phase currents equal to the maximum average annual load estimated to be occurring on the power lines within 10 years after the proposed Project becomes operational. The study will provide magnetic field calculation tables and field strength graphs calculated at 1-meter above ground level with 5-foot measurement intervals depicting the width of the entire ROW and out to 500 feet from the edge of the ROW on both sides. Digital copies of all input assumptions and outputs for the calculations will be included in the study.

2.35.4.6 Base Case Magnetic Field Calculation Tables and Field Strength Graphs

Because the interconnection line will be constructed within a new ROW for the proposed Project, there are no existing power lines within this ROW. Therefore, this requirement does not apply to the proposed Project and will not be addressed in the EMF study.

2.36 GAS INTERCONNECTION [EXHIBIT 36]

The proposed Project is not expected to require gas interconnection; therefore, the requirements of this exhibit are not applicable and will not be included in the Article 10 Application.

2.37 BACK-UP FUEL [EXHIBIT 37]

The proposed Project is not expected to require back-up fuel; therefore, the requirements of this exhibit are not applicable and will not be included in the Article 10 Application.

2.38 WATER INTERCONNECTION [EXHIBIT 38]

The proposed Project is not expected to require water interconnection; therefore, the requirements of this exhibit are not applicable and will not be included in the Article 10 Application. The Application will describe the anticipated water needs of the O&M building and any other ancillary facilities in Exhibits 3 and 11, as appropriate.

2.39 WASTEWATER INTERCONNECTION [EXHIBIT 39]

The proposed Project is not expected to require wastewater interconnection; therefore, the requirements of this exhibit are not applicable and will not be included in the Article 10 Application. The Application will describe the anticipated wastewater needs of the O&M building and any other ancillary facilities in Exhibits 3 and 11, as appropriate.

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2.40 TELECOMMUNICATIONS INTERCONNECTION [EXHIBIT 40]

Generally, it is not anticipated that the Facility will require telecommunication interconnections as defined by Article 10, 16 NYCRR 1000.40. However, the Applicant will conduct a review of existing communication facilities to determine whether new facilities will be required to meet off-site communication needs prior to submitting the Article 10 Application. In addition, Facility communications will be installed on-site as part of substation and O&M building construction.

Operational Data Transmitted to NYISO

The Facility's operational generating data will be transmitted to the NYISO/National Grid as required by terms of a Large Generator Interconnection Agreement. This data typically includes metering data; megawatts, megavars, voltages and current at the point of interconnection; status of generation and substation equipment; and other specified operational information. This information is gathered within the Facility through a fiber optic network that connects to all generation components and brings all data to the Facility's substation and Operations & Maintenance building. Data is transmitted to National Grid through a direct connection between the Facility substation and the adjacent National Grid Interconnection Station. Data is transmitted to the NYISO by means of a local telecommunications provider. The Article 10 Application will provide additional information on the Facility's meter location, the means of providing the operational data to National Grid, and the secure communications network for this operational data.

Facility Operations Communications Methods

The Article 10 Application will provide information regarding a high-speed internet (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 setup at the O&M building, allowing for telecommunications to the public and first responders/emergency responders if necessary, and communications to the Applicant's corporate offices for monitoring and access to the Facility.

Status of Negotiations

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 will be described. 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.

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2.41 APPLICATIONS TO MODIFY OR BUILD ADJACENT [EXHIBIT 41]

The Applicant is not proposing to modify an existing electrical generating facility or construct adjacent to an electrical generating facility that they currently own and operate. Therefore, the requirements of this exhibit are not applicable and will not be included in the Article 10 Application.

3.0 REFERENCES

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FIGURES

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Figure 1. Project Area Map

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Figure 2. Background Ambient Sound Monitoring Locations

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Appendix A PSS Notice
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Appendix B Guide to Organization of PSS
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Appendix C Certificate of Formation
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Appendix C CERTIFICATE OF FORMATION

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Appendix D Master List of Stakeholders
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Appendix D MASTER LIST OF STAKEHOLDERS

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Appendix E PIP Tracking Log
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Appendix E PIP TRACKING LOG

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Appendix F Phase 1A Archeological Report
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Appendix F PHASE 1A ARCHEOLOGICAL REPORT

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Appendix G Bat and Avian Work Plans
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Appendix G BAT AND AVIAN WORK PLANS

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Appendix H Photographic Simulations
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Appendix H PHOTOGRAPHIC SIMULATIONS

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Appendix I Aesthetic Resources of Statewide Significance
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**Appendix I AESTHETIC RESOURCES OF STATEWIDE
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