Case No: 12-F-0410

CAPE VINCENT WIND FARM

Preliminary Scoping Statement

The Cedar Creek 2 Wind Farm, Colorado

BP Wind Energy

STATE OF NEW YORK
BOARD ON ELECTRIC GENERATION SITING AND THE ENVIRONMENT

Application of Cape Vincent Wind Power, LLC, for a Certificate of Environmental Compatibility and Public Need to Construct an Approximately 200-285 Megawatt Wind Electric Generating Facility in the Town of Cape Vincent, New York	Case 12-F-0410

PRELIMINARY SCOPING STATEMENT

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LIST OF EXHIBITS

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LIST OF ACRONYMS

APE	Area of Potential Effects
CZMP	Coastal Zone Management Program
PSS	Preliminary Scoping Statement
VRA	A visual resource assessment
SLWF	Acciona Energy's 79.5 MW St. Lawrence Wind Farm
AR District	Agricultural and Residential
ARR	Agriculture and Rural Residence District
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practices
BP	BP p.l.c.
BP Wind Energy	BP Wind Energy North America Inc.
CVWEP	BP Wind Energy's 210 MW Cape Vincent Wind Energy Project
BLM	Bureau of Land Management
Project	Cape Vincent Wind Farm
CVWF	Cape Vincent Wind Farm
CVWP	Cape Vincent Wind Power, LLC
CWA	Clean Water Act
CR	County Routes
yd	cubic yard
DoD	Department of Defense
DPS	Department of Public Service
DANC	Development Authority of North Country
EMF	Electric and Magnetic Field
ERP	Emergency Response Plan
EJ	Environmental Justice
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FERC	Federal Energy Regulatory Commission
g	gravity
HUC	Hydrologic Unit Code
IRAC	Interdepartment Radio Advisory Committee
LOS	line-of-sight
LEC	Local Exchange Carrier
LWRP	Local Waterfront Revitalization Plan
LVRT	low voltage ride-through
MDSs	map-documented structures
MW	megawatts
MBTA	Migratory Bird Treaty Act
IBA	National Audubon Society has identified one Important Bird Area
NRHP	National Register of Historic Places

NTIA	National Telecommunications and Information Administration
NYISO	New York Independent System Operator, Inc.
NYS	New York State
Siting Board	New York State Board on Electric Generation Siting and the Environment
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSDOT	New York State Department of Transportation
SEQR	New York State Environmental Quality Review
OPRHP	New York State Office of Parks, Recreation and Historic Preservation
NYS RPS	New York State Renewable Portfolio Standard
SHPO	New York's State Historic Preservation Office
NLOS	non-line-of-sight
OSHA	Occupational Safety and Health Administration
OATT	Open Access Transmission Tariff
O&M	operations and maintenance
OPGW	optical ground wire
PILOT	payment-in-lieu-of-taxes
PPE	personal protective equipment
PIP	Public Involvement Program
PSL	Public Service Law
RLOS	radar line-of-sight
Study Area	radius of at least five miles from all generating facility components, interconnections and related facilities and alternative location sites
ROW	right(s)-of-way
Siemens PTI	Siemens Power Technologies International
SPCC	Spill Prevention, Control and Countermeasure
SPDES	State Pollutant Discharge Elimination System
WMAs	State Wildlife Management Areas
SWPPP	Stormwater Pollution Protection Plan
SRIS	system reliability impact study
SUFs	System Upgrade Facilities
FCC	the Federal Communications Commission
TOAF	Transmission Owner Attachment Facilities
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
GAP	U.S. Geological Survey Gap Analysis Program
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
NWI	USFWS National Wetlands Inventory
WF	Waterfront District
WECS	Wind Energy Conversion Systems

1.0 INTRODUCTION

According to the rules of the New York State Board on Electric Generation Siting and the Environment ("Siting Board") (16 NYCRR Part 1000), applicants proposing to submit an application to construct a major electric generating facility under Article 10 of the Public Service Law ("PSL") must submit a Preliminary Scoping Statement for Department of Public Service ("DPS") review at least 90 days prior to filing an application (16 NYCRR § 1000.5). The Preliminary Scoping Statement ("PSS") must include the following, which are provided in this document as indicated:

(1) as much information as is reasonably available concerning the proposed facility, generally in the form (though in less detail) that it will appear in the application (see Sections 1 and 2);

(2) a preliminary scope of an environmental impact analysis containing a brief discussion, on the basis of reasonably available information, of the following items:

(i) a brief description of the proposed facility and its environmental setting (see Sections 1.2 and 1.3);

(ii) potentially significant adverse environmental and health impacts resulting from the construction and operation of the proposed facility including also an identification of particular aspects of the environmental setting that may be affected, including any material impacts or effects identified in consultations by the public, affected agencies, and other stakeholders, and a responsive analysis by the Applicant as to those issues identified in consultations (see Section 2.0);

(iii) the extent and quality of information needed for the application to adequately address and evaluate each potentially significant adverse environmental and health impact, including existing and new information where required, and the methodologies and procedures for obtaining the new information (see Section 2.0);

(iv) for proposed wind-powered facilities, proposed or on-going studies during pre-construction activities and a proposed period of post-construction operations monitoring for potential impacts to avian and bat species (see Section 2.22);

(v) a description of how the applicant proposes to avoid adverse impacts to the environment and health (see Section 2.0);

(vi) for those adverse environmental and health impacts that cannot be reasonably avoided, an identification of measures proposed to mitigate such impacts (see Section 2.0);

(vii) where it is proposed to use petroleum or other back-up fuel for generating electricity, a discussion and/or study of the sufficiency of the proposed on-site fuel storage capacity and supply (not applicable);

(viii) a description and evaluation of reasonable and available alternative locations for the proposed facility, including a description of the comparative advantages and disadvantages of the proposed and alternative locations, except that a private facility applicant may limit its description and evaluation of alternative locations to parcels owned by, or under option to, such private facility applicant or its affiliates (see Section 2.9);

(ix) If the proposed facility affects any land or water use or natural resource of the coastal area and federal authorization or funding is necessary, a preliminary analysis of the consistency of the proposed facility with the enforceable policies of the New York State coastal management program or, where the action is in an approved local waterfront revitalization program area, with the local program (see Section 2.32);

(x) a statement of the reasons why the primary proposed location and source, taking into account the potentially significant and adverse environmental impacts, is best suited, among the alternatives, including a "no action" alternative, to promote public health and welfare, including the recreational and other concurrent uses that the site may serve, except that a private facility applicant may limit its description and evaluation of alternative locations to parcels owned by, or under option to, such private facility applicant or its affiliates and its description and evaluation of alternative sources to those that are reasonable alternatives to the proposed facility that are feasible considering the objectives and capabilities of the sponsor (see Section 2.9);

(xi) a preliminary identification of the demographic, economic and physical attributes of the community in which the facility is proposed to be located and in which any alternative location identified is located, and a preliminary environmental justice evaluation of significant and adverse disproportionate environmental impacts of the proposed facility and any alternative facility identified that would result from construction and operation considering, among other things, the cumulative impact of existing sources of emissions of air pollutants and the projected emission of air pollutants from the proposed or alternative facility in a manner that is in accordance with any requirements for the contents of an Article 10 preliminary scoping statement contained in 6 NYCRR Part 487 promulgated published by the DEC for the analysis of environmental justice issues (see Section 2.28); and

(xii) an identification of any other material issues raised by the public and affected agencies during any consultation and the response of the applicant to those issues (see Section 2.2.2).

(3) an identification of all other state and federal permits, certifications, or other authorizations needed for construction, operation or maintenance of the proposed facility (see Sections 2.33);

(4) a list and description of all state laws and regulations issued thereunder applicable to the construction, operation or maintenance of the proposed facility and a preliminary statement demonstrating an ability to comply (see Section 2.32);

(5) a list and description of all local laws, and regulations issued thereunder, applicable to the construction, operation, or maintenance of the proposed facility and a statement either providing a preliminary assessment of an ability to comply or indicating specific provisions that the applicant will be requesting the Board to elect not to apply, in whole or in part, and a preliminary explanation as to why the Board should elect not to apply the specific provisions as unreasonably burdensome in view of the existing technology or the needs of or costs to ratepayers whether located inside or outside of such municipality (see Section 2.31);

(6) a description of the applicant, its formation, status, structure, holdings, affiliate relationships, powers (including whether it has or will seek to obtain the power of eminent domain, either directly or indirectly), franchises and consents (see Section 1.1);

(7) a description of the applicant's property rights and interests or those it proposes to acquire to all lands of the proposed facility and any private or public lands or private or public streets, highways or rights-of-way crossed by any interconnections necessary to serve the facility such as, but not limited to, electric lines, gas lines, water supply lines, waste water or other sewage treatment facilities, communications and relay facilities, access roads, rail facilities, or steam lines (see Section 1.1); and

(8) any other information that the Applicant may deem to be relevant (not applicable).

Cape Vincent Wind Power, LLC ("CVWP" or "Cape Vincent Wind Power"), a subsidiary of BP Wind Energy North America Inc. ("BP Wind Energy"), hereby submits its proposed Preliminary Scoping Statement to DPS for review. CVWP proposes to construct a wind electric generating facility in the Town of Cape Vincent, Jefferson County, New York, that is approximately 200-285 megawatts ("MW") in size (the "Project"). Throughout this document use of the term "Project" refers to the wind electric generating facility with all proposed components including the overhead generator interconnection line.

1.1 Description of the Applicant and Their Property Rights and Interests

The applicant, Cape Vincent Wind Power, is a New York limited liability company. CVWP is currently wholly owned by BP Wind Energy, a Delaware corporation, with headquarters in Houston, Texas. BP Wind Energy is a principal owner and operator of wind power facilities in the U.S. It has now built and is operating around $5 billion worth of wind farms across the U.S. The company has interests in 16 wind farms in California, Colorado, Idaho, Hawaii, Indiana, Kansas, Pennsylvania, South Dakota and Texas. BP Wind Energy has a gross generating capacity of nearly 2,600 MW – enough electricity to power more than 775,000 average American homes.

Throughout the planning stage of each new wind farm, BP Wind Energy conducts a thorough assessment of the potential social, environmental and conservation impacts of its projects and takes steps to reduce impacts through engagement with the community, engineering, design, and technology.

BP Wind Energy is an indirect, wholly-owned subsidiary of BP p.l.c. ("BP"), which is a company organized under the laws of England and Wales with its international headquarters located in London, U.K. BP is a global leader in energy. BP has invested more in the United States over the last five years than any other oil and gas company. With more than $55 billion in capital spending between 2008 and 2012, BP invests more in the U.S. than in any other country. BP is the nation's second largest producer of oil and gas, a major oil refiner and a leader in alternative energy sources. Identification of property rights and interests are provided in Section 2.13 below and include a description of rights and interests acquired or proposed to be acquired, ownership in fee, leased private land, and proposed rights-of-way (ROW). No leases are proposed on public lands.

1.2 Proposed Facility

Since 2005, there have been two wind projects proposed for the Cape Vincent area: Acciona Energy's 79.5 MW St. Lawrence Wind Farm ("SLWF") and BP Wind Energy's 210 MW Cape Vincent Wind Energy Project ("CVWEP"). In February 2012, BP Wind Energy acquired the assets of the SLWF. Since the acquisition of the SLWF in February 2012, the project team has worked diligently to optimize the footprint of these two predecessor projects into the revised wind energy generating facility that is the subject of this PSS, the Cape Vincent Wind Farm ("CVWF"). The combined project, the Cape Vincent Wind Farm will yield a Project that delivers greater economic and environmental benefits over the prior two stand-alone projects for those who live in Cape Vincent, the greater Jefferson County area, and New York State.

The Project is proposed on some 26,000 acres of private land that is primarily agricultural, with wind turbines to be sited in the Town of Cape Vincent and the associated generator interconnection line and related equipment sited in the Towns of Cape Vincent and Lyme as well as the Village of Chaumont. Once built, the permanent footprint of the wind farm would cover a small amount of the total leased acreage enabling farmers to continue with their regular farming activities and remain as stewards of their land.

After merging the two projects, the combined number of total turbine locations was actually reduced. The SLWF design had consisted of 51 turbines while the original Cape Vincent Wind Farm had envisioned 84 turbines, making the total number of turbines between the two projects equal to 135 turbines. After an extensive review to optimize the layout of the combined project, CVWP has removed 11 turbines, reducing the total project size to 124 turbines.

The Project would be 200-285 MW in size leveraging these 124 turbine sites. While a specific turbine model has not been selected due to uncertainty regarding availability of turbine models at the time of construction, the selected turbine model is expected to range in output from approximately 1.7 to 3.0 MW per turbine. Turbines would be accessed by permanent gravel access roads. Electrical power generated by the wind turbines would be transformed and collected through a network of cables which would all terminate at the Project substation. Most, if not all, of the cables would be located underground. Temporary disturbance for the collection line rights-of-way would be approximately 50 feet wide for single lines. Multiple parallel circuits would be separated by 12.5 feet with an additional 25-foot work space added to the outermost edge. Each turbine would have an adjacent pad-mounted transformer, an access road, and electrical collection cables and communication lines. Permanent ancillary facilities include an operations and maintenance ("O&M") building, a Project substation, 5 meteorological towers, an approximately 6- to 8-mile 115 kV generator interconnection line, and a high-voltage electric interconnection switching station, as well as temporary facilities, which would include laydown/storage areas and 1-2 batch plants. Interconnection to the electrical grid would be through an existing National Grid substation located in the Town of Lyme.

The SLWF had contemplated using turbines that ranged in output from 1.5 to 3.0 MW per turbine, while the range for turbines under consideration for the CVWEP was from 1.5 to 2.5 MW per turbine. The maximum blade-tip height was estimated to be approximately 430 feet and the rotor width (diameter) to be approximately 300 feet to 328 feet. The latest turbine options under consideration would have the maximum blade-tip height increasing to 499 feet and the rotor width to approximately 394 feet.

The increased turbine height allows the Project to take advantage of improved technology while reducing the total number of turbine locations for construction.

Many of the sites for the eliminated turbine locations were proposed near the St. Lawrence River, an area the Town of Cape Vincent and the community indicated was sensitive. By incorporating community feedback into the latest design, the Project removed the turbines closest to the St. Lawrence River and now generally maintains a setback of approximately one mile from the river.

By removing the turbines closest to the St. Lawrence River, the Project will avoid the impacts that would have been associated with these turbines. This includes potential visual, noise, wetland, wildlife, and cultural impacts. A preliminary project turbine array is attached as Exhibit A and the proposed general study area for the Project is attached as Exhibit B. The Study Area ("Study Area") generally includes the area within a radius of at least five miles from all generating facility components, interconnections and related facilities and alternative location sites, although differs for the evaluation of some resources.

Once in operation, the Cape Vincent Wind Farm will add significant renewable power generation to the New York State power system. Approximately 200-285 MW in size, the CVWF will generate enough renewable energy to power roughly half the energy needs of a city the size of Syracuse, helping the State of New York to meet the renewable energy goals of its Renewable Portfolio Standard of 30 percent by 2015. The CVWF is also closely aligned with the state energy plan and supportive of the Energy Highway Blueprint introduced by Governor Andrew Cuomo and issued by the New York State Energy Highway Task Force Initiative. The renewable energy that the CVWF will generate will avoid significant emissions of air pollutants and greenhouse gases generated by conventional power plants such as coal and gas fired plants. Wind farms can help mitigate the harmful impacts these pollutants have on human health, wildlife, and the ecosystem.

1.3 Environmental Setting

1.3.1 Land Use

The Project will be located completely within Jefferson County. Jefferson County is primarily rural and dominated by agricultural land, scattered rural homes, and farms. Dairy farming is the leading agricultural industry. The region offers numerous opportunities for recreational activities including, for example, sport fishing, boating and winter recreation, including the "Thousand Islands Region," the Seaway Trail, the Village of Cape Vincent, Tibbetts Point Lighthouse, Three Mile Bay, Chaumont Bay, wildlife management areas, and State Parks. See Section 2.4 for more details regarding "Land Use."

1.3.2 Cultural Resources

The archeological record of the Cape Vincent area spans over 10,000 years of Native American and Euroamerican settlement and land use. A total of 69 inventoried archeological sites are located in or within approximately 1 mile of the current Cape Vincent project area. Historic architectural properties include buildings, structures, and districts and represent the past 200+ years of regional history. See Section 2.20 for more details regarding "Cultural Resources."

1.3.3 Geology, Seismology, and Soils

Jefferson County and other areas surrounding Lake Ontario are part of the Ontario Lowlands physiographic province. Elevations in the area range from approximately 250 feet above mean sea level near Lake Ontario and the St. Lawrence River to approximately 650 feet above mean sea level near the southern boundary of the physiographic province. The surficial geologic deposits in the Ontario Lowlands consist primarily of glaciolacustrine lake silts, clays, and fine-grained sands, with major areas overlain by glacial till or ground moraine. In the northwestern portion of Jefferson County, surficial geology is composed predominantly of glaciolacustrine silt and clay with smaller amounts of more recent deposits of alluvium, organic-rich swamp deposits, and glaciofluvial sand deposits. Bedrock at the surface may be seen in some coastal and inland areas and is composed predominantly of Ordovician period limestones, shales, sandstones, and dolostones. See Section 2.21 for more details regarding "Geology, Seismology and Soils."

1.3.4 Wildlife

The Project area supports a variety of terrestrial species, including some rare, threatened, and endangered species. Much of the lands associated with the Project were converted from forest to agricultural uses prior to 1900. The current developed and active agricultural portions of the Project (which is predominantly where the Project is sited) provide habitat for wildlife species associated with habitat fragmentation and human disturbance. In contrast, the less disturbed, undeveloped areas provide an array of habitats that contribute to supporting diverse wildlife communities in the area.

The Project is located in the Atlantic Flyway migratory bird route and the habitats within the Project provide stop-over points for migratory species as well as breeding habitat for several species. Based on previous migratory bird surveys conducted within the Project area, which are further discussed in Section 2.22, 44 species of birds have been documented in spring and 34 in fall. Most of the Project area is active agriculture and therefore, generally precludes the use of the site by large mammals and big game species other than white-tailed deer, which is common in the area.

The St. Lawrence Valley, in which the Project is located, contains grassland bird habitat, and has been designated as a management unit for waterfowl and grassland birds by both the U.S. Fish and Wildlife Service ("USFWS") and the New York State Department of Environmental Conservation ("NYSDEC"). Grassland bird species of concern in the valley include northern harrier, short-eared owl, upland sandpiper, Henslow's sparrow, grasshopper sparrow, vesper sparrow and sedge wren.

Mature upland forest found on Project lands provides breeding and wintering habitat for wildlife species dependent on mature forest communities such as the pileated woodpecker and the eastern turkey) as well as large mammals such as white-tailed deer, although none of these are state or federal listed species. Within the Project area, 94 species of breeding birds and 21 species of over wintering birds have been documented during previous breeding bird and wintering bird surveys (see Section 2.22 for further discussion).

Two Wildlife Management Areas, Ashland Flats and French Creek, and two Wildlife Concentration Areas, the Fox Island-Grenadier Island Shoals and the Wilson Bay Marsh, are located near the Project area. These wildlife concentration areas incorporate all, or portions of, two fish and wildlife coastal habitats protected by the New York State Department of State ("NYSDOS"). The National Audubon Society has identified one Important Bird Area ("IBA") near the Project area.

Eight species of bats have been documented during previous mist net surveys in the Project area: big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*), eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), little brown bat (*Myotis lucifugus*), northern long-eared bat (*Myotis septentrionalis*), Indiana bat (*Myotis sodalis*), and tricolored bat (*Pipistrellus subflavus*). In addition, the eastern small-footed myotis (*Myotis leibii*), a state species of special concern, has been documented within 25 miles of the Project. The Indiana bat is a State- and Federally-listed endangered species. A documented hibernaculum containing Indiana bats is located approximately 17 miles southeast of the Project. Indiana bat spring/summer roosts have been documented within the Project area.

Table 1.3-1 lists state and federal listed species that have been documented in the Project area.

Table 1.3-1. State and Federal Listed Species Documented in Project Area.

Common Name	Scientific Name	Status
Indiana Bat	*Myotis sodalis*	Federal & NY Endangered
Short-eared Owl	*Asio flammeus*	NY Endangered

Common Name	Scientific Name	Status
Bald Eagle	*Haliaeetus leucocephalus*	BGEPA[1], NY Threatened
Northern Harrier	*Circus cyaneus*	NY Threatened
Henslow's Sparrow	*Ammodramus henslowii*	NY Threatened
Sedge Wren	*Cistothorus platensis*	NY Threatened
Upland Sandpiper	*Bartramia longicauda*	NY Threatened
Blanding's Turtle	*Emydoidea blandingii*	NY Threatened

[1]BEGPA = Bald and Golden Eagle Protection Act

See Section 2.22 for more details regarding "Terrestrial Ecology and Wetlands."

1.3.5 Wetlands

Approximately 3,000 acres of wetlands are located in the Town of Cape Vincent consisting of emergent (18 percent), forested and scrub/shrub (76 percent), ponds (4 percent), lake (1 percent), and riverine (1 percent) cover types. In the Town of Lyme there are approximately 4,800 acres of wetlands consisting of emergent (12 percent), forested and scrub/shrub (43 percent), pond (2 percent), lake (39 percent), and riverine (3 percent) cover types. See Section 2.22 for more details regarding "Terrestrial Ecology and Wetlands."

1.3.6 Agricultural Resources

Agriculture is a significant contributor to the County's overall economy. The most important agricultural products in the region are dairy, chicken eggs, honey, beef, and sugar for maple syrup production. Within the Project, farmland is used primarily for grazing, although some of the land is used for crops. Approximately 60 percent of the Project is located in open uplands, including pasture, hay fields, and reverting hayfields; and approximately 19 percent of the Project is cultivated cropland. The main crops are hay, corn, and small grains.

1.3.7 Noise and Vibration

The site area is rural and can be characterized as consisting mostly of farms on relatively large tracts of land irregularly interspersed with scattered residences on smaller parcels. On the whole, the distribution of residential dwellings over the Project area is fairly sparse, but there are several areas of higher density, such as the hamlets of Rosiere and Three Mile Bay. The site topography is essentially flat and is largely an even mixture of open fields and wooded areas. Most of the homes and farm houses have at least a few trees immediately around them.

Previous ambient sound, conducted in the SLWF project area during the summer and winter of 2007 measured the L90, or residual, sound level which provides a measure of background sound levels that filters out short-duration, sporadic noise events that cannot be relied upon to provide consistent and continual 'masking' noise. These studies provide some indication of background sound levels.

Based on summer time conditions, background L90 sound levels over the Project area are only partially driven by wind-induced natural sounds. Sounds from such sources as crickets, distant farm equipment and local roads may dominate the sound level observed at any given location so that wind-induced sounds are secondary. There is only a very slight tendency towards louder sound levels during windier conditions.

Winter surveys provide lower background noise levels at any given wind speed, due to the lack of leaves on trees and bushes, and the scarcity of insects. In addition, there are generally fewer sources of human outdoor noise generation. See Section 2.19 for more details regarding "Noise and Vibration."

1.3.8 W*ater Resources & Aquatic Ecology*

Ground water – The surficial geology of the Project area includes Glaciolacustrine lake silts and clays that overlie consolidated rocks of sedimentary origin throughout most of the Project area (Cadwell et al., 1991), although a small portion of the Project consists of peat muck (swamp) deposits, which are poorly drained areas and include of organic silts and sands. The glacial till deposits form surficial aquifers, while bedrock consisting of carbonate rocks (Trenton Group Limestone) form deep aquifers. These consolidated rocks yield water primarily from bedding planes, fractures, joints, and faults, rather than from intergranular pores.

Carbonate rocks generally yield more water than other types of consolidated rocks because carbonate rocks are subject to dissolution by slightly acidic groundwater. Dissolution along bedding planes, fractures, and joints enlarges these openings and increases the permeability of these carbonate rocks (Isachsen et al., 2000)[1].

No known sole-source aquifers occur within the Project or its vicinity (United States Environmental Protection Agency [EPA], 2010)[2]. In 2000, total freshwater use for Jefferson County was 17.21 million gallons per day (Mgal/d), of which 13.25 Mgal/d (27 percent) was from surface-water sources and 3.96

[1] Isachsen, et al. 2000. Geology of New York: A Simplified Account (2nd ed). NYS Museum Educational Leaflet 28
[2] US Environmental Protection Agency (USEPA). 2010. Sole Source Aquifers, Region 2. http://www.epa.gov/region02/water/aquifer/

Mgal/d (73 percent) was from groundwater (USGS, 2006)[3]. However, domestic users acquired 100 percent of their water supply from groundwater sources (USGS, 2006).

Surface Waters – The Project is situated within the Chaumont-Perch watershed (USEPA Hydrologic Unit Code "HUC" 04150102) of the eastern section of Lake Ontario (Minor Tribs) Drainage Basin and the Upper St. Lawrence watershed (HUC: 04150301) of the St. Lawrence River Drainage Basin (USEPA, 2012)[4]. The Chaumont-Perch watershed is located along the northeastern shore of Lake Ontario and accounts for a large proportion of the drainage influence within the Project. The Upper St. Lawrence watershed, located at the extreme edges of the border between New York and Canada along the St. Lawrence River, encompasses the northern-most portion of the Project and follows the shoreline southwest to the confluence with Lake Ontario.

Eight major watercourses including Chaumont River, Kents Creek, Fox Creek, Little Fox Creek, Shaver Creek, Soper Creek, Three Mile Creek, and Wheeler Creek occur in the Project. Of these, only portions of Kents Creek, Shaver Creek, Three-Mile Creek, Fox Creek, and the Chaumont River are located in the Project's limits of disturbance. These perennial bodies of water vary in depth and width throughout the Project. All mapped unnamed surface waters in the Project have a direct or indirect tributary of a major watercourse with confluence to the St. Lawrence River or Lake Ontario. Two rivers, Chaumont River and Three Mile Creek, are classified as traditionally navigable waters by U.S. Army Corps of Engineers ("USACE"). Many of these streams have been modified to some extent through years of agricultural practices. Unmapped drainage ditches and channels constructed in upland, or graded along natural topographic low areas and swales can be observed as well.

Surface waters in the Project are classified by NYSDEC as Class C and D waters. Class C waters are best used for fishing, but are also suitable for fish propagation and survival, and primary and secondary contact recreation. Class D waters are best used for fishing and are suitable for primary and secondary contact recreation.

Floodplains – An evaluation of floodplains associated with the five hundred (500)-year flood indicate that none exist within the proposed Project. A 100-year floodplain is associated with the following streams and rivers located in the Towns of Cape Vincent and Lyme: Wheeler Creek, Kents Creek, Shaver Creek, and the Chaumont River. Among these streams and rivers, only Wheeler and Kents Creeks and

[3] US Geological Survey (USGS). 2006. Water Use in the United States, County-Level Data for 2006 http://water.usgs.gov/watuse/data/2006/

[4] U.S. Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds. 2012. Surf Your Watershed (New York State). (http://cfpub.epa.gov/surf/locate/hucperstate_search.cfm?statepostal=NY).

the Chaumont River (which is associated with the aerial crossing of the generator interconnection line), occur within the Project.

Aquatic Life – Most of the streams associated with the project do not support extensive fish communities. NYSDEC has documented walleye spawning activity over gravel beds in Kents Creek upstream of Route 12E and considers most of the spawning individuals in Kents Creek to be upstream migrants from Lake Ontario and/or the St. Lawrence River.

Several common reptile and amphibian species occur throughout the Project area, being most prevalent in wetlands and forested riparian habitats along Kents Creek. Such species include snapping turtle (*Chelydra serpentine*), map turtle (*Graptemys gibbonsi*), midland painted turtle (*Chrysemys picta marginata*), and the northern water snake (*Nirodia sipodon*).

Invasive Species – Eleven invasive species were identified by the NYSDEC as potentially occurring within the Project area:

- Eurasian Water-milfoil (*Myriophyllum spicatum)*
- Rock Snot (diatom) (*Didymosphenia geminate)*
- Purple Loosestrife (*Lythrum salicaria*)
- European Common Reed Grass (*Phragmites australis*)
- Pale Swallow-wort (*Cynanchum rossicum*)
- Eurpoean Frogbit (*Hydrocharis morsus-ranae)*
- Japanese Knotweed (*Fallopia japonica*)
- Spotted Knapweed (*Centaurea stoebe* ssp. *Micranthos*)
- Giant Hogweed (Heracleum mantegazzianum)
- Japanese Honeysuckle (*Lonicera japonica*)
- Common Buckthorn (*Rhamnus cathartica*)

See Section 2.23 for more details regarding "Water Resources and Aquatic Ecology."

1.3.9 Visual

The Project is located in the Erie-Ontario Hills subdivision of the Erie-Ontario Lowland physiographic region and is rural, largely cropland and pasture with intervening areas of woodland. It includes several villages and towns and portions of the shoreline/waterfront, open water, and islands of eastern Lake Ontario and the inlet mouth of the St. Lawrence River. The Project area also contains various types of resources/receptors that may be sensitive to visual impacts, including historic properties, parks, scenic

areas, wildlife management areas, community centers, scenic roadways, and public/community facilities and institutions. See Section 2.24 for more details regarding "Visual Impacts."

1.3.10 Transportation

New York State ("NYS") Highways in the Project vicinity include NYS Routes 3, 12, 12E, 12F, 13, 37, 104, 104B, 180 and 342 and are all constructed using asphalt pavement. The shoulder widths along these highways vary from 4 to 10 feet while the pavement width varies from 20 to 24 feet. The asphalt pavement is in fair to good condition according to the 2006 New York State Department of Transportation ("NYSDOT") Highway Sufficiency Ratings. The above highways are maintained as evidenced through sealing of asphalt cracking to prevent further degradation.

The Jefferson County Highways likely to be used during construction are County Routes 4, 6, 8 and 9. County Route 9 consists of two 10-foot wide travel lanes and 3-foot wide gravel shoulders. Asphalt pavement is in fair to good condition. Some longitudinal alligator cracking was noted during a 2010 inspection and had been sealed. County Route 8 consists of two 10-foot wide travel lanes and 4-foot wide gravel shoulders which are in good condition. County Route 4 consists of a 20-foot pavement width for two-way travel with no shoulders and during the 2010 inspections was in poor condition with visible potholes and structural problems despite application of a micro overlay of the asphalt pavement.

Local town roads will be utilized to gain access to turbine locations. Typically local town roads are not constructed to the specifications of a state highway because they are not expected to accommodate specialized transportation vehicles or high volumes. The town roads likely to be used during Project development are primarily constructed with asphalt pavement, although some roads constructed with crushed gravel may also be used. Many of the town roads are approximately 18 feet wide with 5-foot wide shoulders for two-way traffic.

The state, county, and local roads described above include a number of bridges which have varying capacity or clearance restrictions. In addition, there are several culverts associated with these roads also with varying weight restrictions. See Section 2.25 for more details regarding "Effects on Transportation."

1.3.11 Demographic and Economic Attributes of the Community

The population of Jefferson County was 116,229 in 2010. The estimated 2010 populations of the Towns of Cape Vincent and Lyme were 2,777 and 2,185, respectively. The Village of Chaumont (which is wholly

within the Town of Lyme) contains approximately 624 people as of 2010. The population in Cape Vincent is declining down from 3,445 in 2000, while that of Lyme is stable. Approximately 68 percent of the housing units in Cape Vincent and 61 percent of the housing units in Lyme were vacant in 2010. Most of the vacant homes are likely used for seasonal, recreational, or occasional use. In 2011 the property tax levy in Cape Vincent was $217,000 and in Lyme was $94,855. In 2010, the median value of owner-occupied units in the Towns of Cape Vincent and Lyme were $130,500 and $128,000, respectively.

2.0 ENVIRONMENTAL ANALYSIS

2.1 General Information

General information specific to the applicant and their property rights and interests is provided in Section 1.1.

2.2 Overview & Public Involvement

2.2.1 Overview

A brief description of the major components of the proposed facility, interconnections and related facilities is provided in Section 1.2.

2.2.2 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received several comments regarding the proposed facilities. These are summarized in Table 2.2-1.

Table 2.2-1 Comments and Responses on Proposed Facilities

Date	Commenter	Issue/Comment Summary	Response
25-Sep-12	Town of Cape Vincent	Specifications should be provided for the type(s) of wind turbines proposed for Cape Vincent.	A specific turbine model has not been selected at this time due to uncertainty regarding availability of turbine models, although it is expected that the output per turbine will range from 1.7 to 3.0 MW.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	How long is the transmission line?	The overhead generator interconnection line is expected to be approximately 6-8 miles in length.
23-Oct-12	Town of Cape Vincent Planning	Do you have a minimum numbers of turbines to make the project viable?	CVWF is not evaluated in such a manner, but rather proposes a project that delivers greater economic and environmental

Table 2.2-1 Comments and Responses on Proposed Facilities

Date	Commenter	Issue/Comment Summary	Response
	Board Mtg		benefits for those who live in Cape Vincent, the greater Jefferson County area, and New York State.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	If the tax credit is not renewed will that adversely affect the economic value of the project and will you go forward?	This comment was made prior to the end of 2012. The production tax credit was subsequently renewed at the start of 2013.
5-Dec-12	Town of Cape Vincent	Size of project, 200-285 MW range equates to a 42.5% variation.	The project consists of 124 turbine locations. Due to various wind turbine technologies available in the marketplace, the overall Project size will not be determined until a model has been selected.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	How tall would the turbines be?	Turbines would not exceed 500' in height (from the base to the tip of blade at its highest point).
12-Nov-12	Town of Cape Vincent	Turbine model to be used	A specific turbine model has not been selected at this time due to uncertainty regarding availability of turbine models, although it is expected that the output per turbine will range from 1.7 to 3.0 MW.
14-Dec-12	Town of Cape Vincent	They still cannot tell us whether the project is 200 MW or 285 MW	The project consists of 124 turbine locations. Due to various wind turbine technologies available in the marketplace, the overall Project size will not be determined until a model has been selected.
20-Dec-12	Town of Cape Vincent	Request accurate and definitive size of project - 200-285 MW has a 42% variation	The project consists of 124 turbine locations. Due to various wind turbine technologies available in the marketplace, the overall Project size will not be determined until a model has been selected.
20-Dec-12	Town of Cape Vincent	Poor details and lack of specificity	The project consists of 124 turbine locations. Due to various wind turbine technologies available in the marketplace, the overall Project size will not be determined until a model has been

Table 2.2-1 Comments and Responses on Proposed Facilities

Date	Commenter	Issue/Comment Summary	Response
			selected.
20-Dec-12	Town of Cape Vincent	Request accurate numbers for productivity	The project consists of 124 turbine locations. Due to various wind turbine technologies available in the marketplace, the overall Project size will not be determined until a model has been selected.

2.2.3 Public Involvement

Exhibit C provides a brief summary of the public involvement program conducted by the CVWP to date and identifies significant issues raised by the public and affected agencies during this outreach. It also provides the response of the CVWP to those issues including a summary of changes made to the PSS as a result of the public involvement program.

2.2.4 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received comments regarding the Public Involvement Program. These are summarized in Table 2.2-2.

Table 2.2-2 Comments and Responses on Public Involvement

Date	Commenter	Issue/Comment Summary	Response
25-Sep-12	Town of Cape Vincent	PIP...lack of rigor, ….hodgepodge of past materials rather than what is needed to move forward	The CVWF Public Information Plan (PIP) details the history to date of the public involvement that has been undertaken to inform, engage, and solicit input from the local community, elected officials, general public, and other stakeholders in the wind farm. It also details the future activities CVWP will take in continuing to build on its strong record of close community outreach and engagement. As outlined in the monthly tracking report, significant progress has been made in sharing and receiving information and CVWP will continue to engage in such outreach activities.

Table 2.2-2 Comments and Responses on Public Involvement

Date	Commenter	Issue/Comment Summary	Response
25-Sep-12	Town of Cape Vincent	Public involvement efforts, including those required by SEQRA ... have no legitimate value in an Article X permitting process going forward under that law. Much has changed since BP's years old prior groundwork. Those earlier efforts are stale and have lost their validity.	The CVWF Public Information Plan (PIP) details the history to date of the public involvement that has been undertaken to inform, engage, and solicit input from the local community, elected officials, general public, and other stakeholders in the wind farm. It also details the future activities CVWP will take in continuing to build on its strong record of close community outreach and engagement. As outlined in the monthly tracking report, significant progress has been made in sharing and receiving information and CVWP will continue to engage in such outreach activities.
25-Sep-12	Town of Cape Vincent	BP's past efforts were well received by town officials, but not the community as a whole, because many of these officials had wind contracts or were closely related to leaseholders of BP and Acciona.	The CVWF Public Information Plan (PIP) details the history to date of the public involvement that has been undertaken to inform, engage, and solicit input from the local community, elected officials, general public, and other stakeholders in the wind farm. It also details the future activities CVWP will take in continuing to build on its strong record of close community outreach and engagement. As outlined in the monthly tracking report, significant progress has been made in sharing and receiving information and CVWP will continue to engage in such outreach activities.
25-Sep-12	Town of Cape Vincent	BP failed to include in its exhibits a Watertown Daily Times story dated August 14, 2010, State Probing Officials at Cape, where the New York State Attorney General's Office launched an investigation into the relationship between Cape Vincent's municipal officials and commercial wind developers.	The CVWF Public Information Plan (PIP) details the history to date of the public involvement that has been undertaken to inform, engage, and solicit input from the local community, elected officials, general public, and other stakeholders in the wind farm. It also details the future activities CVWP will take in continuing to build on its strong record of close community outreach and engagement. As outlined in

Table 2.2-2 Comments and Responses on Public Involvement

Date	Commenter	Issue/Comment Summary	Response
			the monthly tracking report, significant progress has been made in sharing and receiving information and CVWP will continue to engage in such outreach activities.
25-Sep-12	Town of Cape Vincent	Much of what BP outlines in their exhibits occurred between BP and their leaseholders and not the general public or the town. Moreover, little of the material listed in their exhibits was forwarded to the town. None of it is currently in any town files; much of it was new to all of us.	The CVWF Public Information Plan (PIP) details the history to date of the public involvement that has been undertaken to inform, engage, and solicit input from the local community, elected officials, general public, and other stakeholders in the wind farm. It also details the future activities CVWP will take in continuing to build on its strong record of close community outreach and engagement. As outlined in the monthly tracking report, significant progress has been made in sharing and receiving information and CVWF will continue to engage in such outreach activities.
25-Sep-12	Town of Cape Vincent	Qualitatively, the majority of BP's past public information program was a one-way communication. Their efforts were directed more to telling us what they were going to do rather than a dialog where they were listening to community concerns.	The CVWF Public Information Plan (PIP) details the history to date of the public involvement that has been undertaken to inform, engage, and solicit input from the local community, elected officials, general public, and other stakeholders in the wind farm. It also details the future activities CVWP will take in continuing to build on its strong record of close community outreach and engagement. As outlined in the monthly tracking report, significant progress has been made in sharing and receiving information and CVWF will continue to engage in such outreach activities.

Table 2.2-2 Comments and Responses on Public Involvement

Date	Commenter	Issue/Comment Summary	Response
25-Sep-12	Town of Cape Vincent	Many people and various involved agencies, including the PSC, studied the SEQRA material carefully and collectively wrote hundreds of questions in response to BP's solicitation. Yet, today, four and one-half years later, not a single question has been answered.	As outlined in the monthly tracking report, available at: www.capevincentwindfarm.com significant progress has been made in sharing and receiving information. CVWP will continue to engage in such outreach activities.
25-Sep-12	Town of Cape Vincent	Along with BP's open house we suggest they include a provision for an informal public hearing where people can ask questions and get responses that all attendees can hear and understand.	As outlined in the monthly tracking report, available at www.capevincentwindfarm.com significant progress has been made in sharing and receiving information and CVWP will continue to engage in such outreach activities.
25-Sep-12	Town of Cape Vincent	In their PIP BP suggests the only interaction needed with the Town of Cape Vincent is to discuss infrastructure costs and what local zoning laws we would elect to NOT apply. … it should be a requirement in its PIP for BP to begin a dialog with all the local taxing jurisdictions, including Towns of Cape Vincent and Lyme, T. I. and Lyme school districts and Jefferson County.	As outlined in the monthly tracking report, significant progress has been made in sharing and receiving information and CVWP will continue to engage in such outreach activities.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	When would the siting board be convened?	No timeframe has yet been established by the Siting Board. However, upon the filing of the Preliminary Scoping Statement, the Department of Public Service shall designate a presiding examiner.
12-Nov-12	Town of Cape Vincent	When would Article 10 Siting Board's representatives come to Cape Vincent and at what time would they begin to hear testimony?	No timeframe has yet been established by the Siting Board.

Table 2.2-2 Comments and Responses on Public Involvement

Date	Commenter	Issue/Comment Summary	Response
16-Nov-12	Town of Cape Vincent	Response letter dated November 20, 2012 from Mr. Larry Folks, Senior Vice President and Chief Development Officer for BP Wind Energy North America, Inc. wholly unresponsive.	The CVWF Public Information Plan (PIP) details the history to date of the public involvement that has been undertaken to inform, engage, and solicit input from the local community, elected officials, general public, and other stakeholders in the wind farm. It also details the future activities CVWP will take in continuing to build on its strong record of close community outreach and engagement. As outlined in the monthly tracking report, significant progress has been made in sharing and receiving information and CVWP will continue to engage in such outreach activities.
12-Dec-12	Town of Cape Vincent	Role of PSC Commissioner Maureen Harris	The DPS address with letter dated December 18, 2012. A copy of the letter is available on the DPS website at: http://www.dps.ny.gov/SitingBoard/
12-Dec-12	Town of Cape Vincent	Donations to service groups was not identified in PIP	The DPS addressed with letter dated December 18, 2012. A copy of the letter is available on the DPS website at: http://www.dps.ny.gov/SitingBoard/
14-Dec-12	Town of Cape Vincent	Is the PIP process supposed to be a dialogue, a two way communication, or does the applicant state what they intend to do without any discussion?	The CVWF Public Information Plan (PIP) details the history to date of the public involvement that has been undertaken to inform, engage, and solicit input from the local community, elected officials, general public, and other stakeholders in the wind farm. It also details the future activities CVWP will take in continuing to build on its strong record of close community outreach and engagement. As outlined in the monthly tracking report, significant progress has been made in sharing and receiving information and CVWP will continue to engage in such outreach activities.
14-Dec-12	Town of Cape	Does Article 10 make provision for ad hoc members to be nominated from	Each municipality is able to nominate four members. Two of the seven members of

Table 2.2-2 Comments and Responses on Public Involvement

Date	Commenter	Issue/Comment Summary	Response
	Vincent	each municipality in which the project will be located? If there are two separate municipalities involved does the number of ad hoc member of the Board increase?	the Siting Board will be considered "ad hoc" members.
14-Dec-12	Town of Cape Vincent	Is the applicant required to interact with the Town during the development of their Preliminary Scoping Statement?	The CVWF Public Information Plan (PIP) details the history to date of the public involvement that has been undertaken to inform, engage, and solicit input from the local community, elected officials, general public, and other stakeholders in the wind farm. It also details the future activities CVWP will take in continuing to build on its strong record of close community outreach and engagement. As outlined in the monthly tracking report, significant progress has been made in sharing and receiving information and CVWP will continue to engage in such outreach activities.
14-Dec-12	Town of Cape Vincent	Is the applicant required to submit a copy of their Preliminary Scoping Statement to the Town for comment before it is officially submitted to the Article 10 Board?	No
20-Dec-12	Town of Cape Vincent	Revisions to PIP non-responsive to DPS comments	On November 16, 2012 CVWP submitted its revised PIP which addressed and incorporated all of the DPS recommendations. The CVWP's revised program provides the framework for effective dissemination of information about the Project, events, Article 10 procedure and opportunities for public participation and comment. The revised framework allows for a robust public involvement program anticipated to foster meaningful and education participation by all stakeholders and other interested parties.

Table 2.2-2 Comments and Responses on Public Involvement

Date	Commenter	Issue/Comment Summary	Response
20-Dec-12	Town of Cape Vincent	Website has neither summaries of feedback from the public nor summaries of actions taken by BP in response to feedback	As outlined in the monthly tracking report, available at www.capevincentwindfarm.com significant progress has been made in sharing and receiving information with the Towns of Cape Vincent and Lyme and CVWP will continue to engage in such outreach activities.
20-Dec-12	Town of Cape Vincent	Donations to service groups	The DPS addressed with letter dated December 18, 2012. A copy of the letter is available on the DPS website at: http://www.dps.ny.gov/SitingBoard/

2.3 Location of Facilities

The proposed 124 turbines, their pad-mounted transformers, new maintenance access roads, and electrical collection cables and communication lines, and the O&M building, the project substation, the 5 meteorological towers, and less than 0.5 miles of overhead generator interconnection line will be located in the Town of Cape Vincent, Jefferson County, New York. All temporary facilities including the laydown and storage areas and the batch plant will also be located in the Town of Cape Vincent. The approximately 6- to 8-mile 115 kV overhead generator interconnection line and the proposed interconnection switching station (with associated laydown area) would be located in the Town of Lyme, with one proposed generator interconnection line route option (approximately 450 yards in length) located in the Village of Chaumont. A preliminary project turbine array and the electrical interconnection route are shown on Exhibit A. The proposed general study area for the Project, which includes a five-mile radius around all facility components, interconnections and related facilities, although differs for the evaluation of some resources, is shown on Exhibit B.

2.3.1 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received comments regarding the location of facilities. These are summarized in Table 2.3-1.

Table 2.3-1 Comments and Responses Regarding Location of Facilities

Date	Commenter	Issue/Comment Summary	Response
23-Oct-12	Town of Cape Vincent Planning Board Mtg	Are there turbines proposed for the Town of Lyme?	No turbines are planned for the Town of Lyme under the Project proposed in this PSS.
25-Sep-12	Town of Cape Vincent	The most important information BP can provide to our community are maps outlining turbine locations. … Detailed project maps have been the most scrutinized documents in all the open houses and DE IS filings in the past. All other materials are of far less significance to average property owners. Good maps are a must in any public information program.	Project maps have been and remain available on the Project website, in the local CVWP office, and have been on display at each of the public forums, including the Open House, and meetings with the Town of Cape Vincent and Lyme. A Project map was previously provided to the Town and is also provided as part of the PSS submittal.
20-Dec-12	Town of Cape Vincent	BP's map lacks boundaries of the project, setbacks from property lines, location of turbines, a legend of host landowners and adjacent landowners. Locations of electric lines, substations, interconnection switching stations, and interconnection points are vague and indeterminable.	Project maps have been and remain available on the project website, in the local CVWP office, and have been on display at each of the public forums, including the Open House, and meetings with the Town of Cape Vincent and Lyme. A Project map was previously provided to the Town and is also provided as part of the PSS submittal. Setbacks were outlined in the PIP submittal.
20-Dec-12	Town of Cape Vincent	Maps do not show setbacks	Project maps have been and remain available on the project website, in the local CVWF office, and have been on display at each of the public forums, including the Open House, and meetings with the Town of Cape Vincent and Lyme. A Project map is also provided as part of the PSS submittal. Setbacks were outlined in the PIP submittal.

2.4 Land Use – Exhibit 4

Land use and zoning are discussed in terms of regional and local land use patterns and zoning, agriculture, coastal zone, and future land use. The land use analysis for the Project will include an assessment of the proposed facilities and their compatibility with and impacts on land use and zoning. This analysis will be conducted through a review of aerial photographs, Project-specific maps, municipal and county documents, and/or other desktop research.

2.4.1 Potentially Significant Adverse Impacts

The land use patterns throughout the regional and local areas are largely rural with agriculture, scattered rural homes, and farms with pockets of commercial and industrial development along major transportation corridors.

Agriculture is a significant contributor to the County's overall economy. The most important agricultural products in the region are dairy, chicken, eggs, honey, beef, and sugar for maple syrup production. Farmland within the Project is used primarily for grazing, although some of the land is used for crops. The main crops are hay, corn, and small grains. Construction will result in the temporary disturbance of agricultural land; mitigation measures will be employed to minimize impacts (see Section 2.4.4). During operation of the Project, cropland will have permanent impacts within the facility footprints and immediately surrounding aboveground facilities associated with placement of turbines, overhead power lines, and ancillary facilities. Impacts in areas used for grazing will, however, be minimal as cattle will be able to access all but the immediate wind turbine footprint.

With Lake Ontario and Chaumont Bay to the west and the Saint Lawrence River to the north, the Towns of Cape Vincent and Lyme each have coastlines and lands within the designated coastal zone. The coastal zone falls under the NY Coastal Management Program. Project facilities are located within the coastal zone in two locations: a turbine is proposed to be located within the coastal zone near Kents Creek and the overhead generator interconnection line will cross the Chaumont River with approximately 0.5 miles located in the coastal zone to connect to the substation. After consultation with the NYSDOS, the policies listed in Table 2.4-1 have been identified as potentially applicable. Table 2.4-1 also contains a preliminary assessment of potentially applicable coastal policies and consistency measures.

Table 2.4-1 Consistency with New York State Coastal Policies

No.	Policy	Consistency Measures
2	Facilitate the siting of water-dependent uses and facilities on or adjacent to coastal waters.	The turbine and segment of the overhead generator interconnection line would not preempt the reasonably foreseeable development of water dependent uses.
11	Buildings and other structures will be sited in the coastal area so as to minimize damage to property and the endangering of human lives caused by flooding and erosion.	The turbine and segment of the overhead generator interconnection line are not located in coastal erosion hazard areas, coastal high hazard areas, or floodways.
12	Activities or development in the coastal area will be undertaken so as to minimize damage to natural resources and property from flooding and erosion by protecting natural protective features including beaches, dunes, barrier islands, and bluffs.	The turbine and segment of the overhead generator interconnection line will not be located on beaches, dunes, barrier islands, or bluffs and will not result in disturbance of these areas.
19	Protect, maintain, and increase the level and types of access to public water-related recreation resources and facilities.	The locations of the turbine and segment of the overhead generator interconnection line will have minimum to no impact on the level or types or access to public water-related recreation resources and facilities.
21	Water-dependent and water-enhanced recreation will be encouraged and facilitated, and will be given priority over non-water-related uses along the coast.	The turbine and segment of the overhead generator interconnection line will not result in a major barrier to the recreational use of a major portion of a community's shore.
22	Development, when located adjacent to the shore, will provide for water-related recreation, whenever such use is compatible with reasonably anticipated demand for such activities, and is compatible with the primary purpose of the development.	Water-related recreation use is not compatible with the primary purposes of the development, and a reasonable demand for public use is not foreseen as a result of the construction of the Project.
23	Protect, enhance and restore structures, districts, areas or sites that are of significance in the history, architecture, archaeology or culture of the state, its communities, or the nation.	Impacts to sites that are of historic, architectural, archaeological or cultural significance are not anticipated.
24	Prevent impairment of scenic resources of statewide significance.	Impacts on scenic resources will be dependent on viewer attitudes and will be further explored in the Project-specific Visual Impact Assessment (VIA).
25	Protect, restore or enhance natural and man-made resources which are not identified as being of statewide significance, but which	The turbine and segment of the overhead generator interconnection line will seek to reduce direct impacts to natural or manmade resources to the

Table 2.4-1 Consistency with New York State Coastal Policies

No.	Policy	Consistency Measures
	contribute to the overall scenic quality of the coastal area.	maximum extent practicable, but in any event will fulfill the consistency measures. Indirect impacts will be further explored in the Project-specific VIA.
26	Conserve and protect agricultural lands in the state's coastal area.	The turbine and segment of the overhead generator interconnection line will be designed and constructed consistent with the New York State Agriculture & Markets guidelines for Agricultural Mitigation for Windpower Projects.
27	Decisions on the siting and construction of major energy facilities in the coastal area will be based on public energy needs, compatibility of such facilities with the environment, and the facility's need for a shorefront location.	Purpose, and need, and compatibility with the environment will be discussed in the Article 10 Application.
33	Best management practices will be used to ensure the control of stormwater runoff and combined sewer overflows draining into coastal waters	The activity will be performed in accordance with applicable permit conditions, including the SPDES General Permit for Stormwater Discharges during Construction.
44	Preserve and protect tidal and freshwater wetlands and preserve the benefits derived from these areas.	The turbine and segment of the overhead generator interconnection line may affect tidal or freshwater wetlands, but in any event will be consistent with Department of State Coastal Zone Management requirements.

Localities are encouraged to prepare and adopt a Local Waterfront Revitalization Plan ("LWRP") to provide more detailed implementation of the Coastal Zone Management Program ("CZMP") through powers such as zoning and site plan review. The Village of Cape Vincent has adopted a LWRP that the NYSDOS will take into consideration when conducting the consistency determination.

Recreational resources near the Project area are both water and land-based. The Project is in the "Thousand Islands Region" of the St. Lawrence River Valley that offers recreational opportunities for fishing, boating, and winter recreation. Land-based recreational opportunities include the Seaway Trail, State Wildlife Management Areas ("WMAs"), and State Parks. Direct impacts to recreational resources are expected to be limited because Project facilities are not currently proposed to be located within the boundaries of any recreational resources, other than potentially being located close to some

snowmobile trails. Impacts to recreational resources will be indirect in the form of visual impacts, further described in Exhibit 24.

If future land use in the Project area consists of additional residential development, it is anticipated that the wind farm would not significantly impact future plans to develop the land.

According to the Town of Cape Vincent Zoning Law, most of the Town of Cape Vincent and the locations that the Project facilities are proposed to be located in are situated in the Agricultural and Residential ("AR") District. For the Town of Lyme, all project components fall within the Agriculture and Rural Residence District ("ARR"), except for portions of the generator interconnection line route which fall into the Waterfront District ("WF"), which is defined as "those areas of land which are within 500' of the mean high water mark of Lake Ontario, all of its bays, and the Chaumont River." One of the proposed routes for the generator interconnection line for the Project runs approximately 450 yards along County Route 179 in the Village of Chaumont. The consultations and permits required from the Towns of Cape Vincent and Lyme according to their zoning ordinances as well as additional consultations and permits required through board and departments under Jefferson County are provided in Table 2.4-2.

Table 2.4-2 Municipal Zoning Requirements

Permit/ Consultation	Trigger	Comment
JEFFERSON COUNTY		
Planning Department		
Consultation	Reviews for development projects and local zoning actions referred by municipalities.	The Planning Department provides local government technical assistance to town and village boards. The Planning Department also manages administration of the County Agriculture Districts Program.
Fire Prevention and Building Code Department		
Building Permit	New commercial construction	To obtain a Building Permit, a developer completes the Permit Application and Construction Specification Forms available at Town offices and the Code Enforcement Office. This department issues and enforces building permits for the Towns of Cape Vincent and Lyme.
Agricultural and Farmland Protection Board		
Consultation	Actions on agricultural land	The Agricultural and Farmland Protection Board has developed a Protection Plan that works to protect agricultural lands from development pressure, designates priority agricultural lands for protection, and examines

Table 2.4-2 Municipal Zoning Requirements

Permit/ Consultation	Trigger	Comment
		agricultural economic development opportunities.
Highway Department		
Consultation	Work in county or town rights-of-way	The Highway Department provides technical assistance to Towns and Villages for highway and bridge design, mapping/drafting, permit applications, drainage calculations, construction practices, and traffic engineering.
LYME TOWNSHIP		
Zoning Board of Appeals		
Special Use Permit	Construction project requiring special use permit as identified in the Zoning Ordinance	As the Project is currently proposed, there are transmission facilities but no wind turbines in Lyme Township. Essential services, which include electrical facilities, are identified as special permit uses in all the zoning districts and are subject to 30 foot to 60 foot setbacks. The applicant must conduct a pre-submission conference and submit a special permit application.
Certificate of Compliance	Issuance of zoning permit	After a zoning permit is issued no structure or land can be used or occupied until a certificate of compliance has been issued by the Zoning Enforcement Officer stating that the building, structure, or proposed use complies with the provisions of zoning law and the zoning permit. Article 10 pre-empts local procedural requirements and this requirement is likely to be determined to be procedural in nature.
Town Board		
Wind Energy Local Law	Construction of wind turbines and associated facilities	As the Project is currently proposed, there are transmission facilities but no wind turbines in Lyme Township. However, The Wind Energy Local Law includes accessory uses. The applicant may request a pre-application meeting and submit an application to the Town Clerk. Article 10 pre-empts local procedural requirements and this requirement is likely to be determined to be procedural in nature.
Highway Superintendent		
	For a new road or driveway that enters onto a public road.	Based on prior conversations with the Highway Superintendents, no Town permits are required.
CAPE VINCENT TOWNSHIP		
Town Board		
Special Use	Wind turbines and	As the Project is currently proposed, the wind turbines are

Table 2.4-2 Municipal Zoning Requirements

Permit/ Consultation	Trigger	Comment
Permit	associated facilities	located in the Agricultural Residential District (AR). Wind turbines are considered special uses in this district.
Wind Energy Conversion Systems	Wind turbines and associated facilities	The Town Board recognizes the increased demand from alternative energy throughout the state, although its preferred alternative energy is solar. The Town Board states that its goal is to protect citizens and property values from wind turbines, wind turbines must be outside avian corridors, 2 miles from waterfronts, 1.25 miles from the Town's historical and scenic assets, 1.25 miles from any villages or hamlets in the Town, and 1.25 miles from schools. An applicant must submit a site plan, including a plot plan, landscaping plan, lighting plan, and other materials as stated in the Zoning Ordinance, and decommissioning plan to the Town Board. If a positive declaration of environmental significance is determined under SEQR, a Draft EIS is required to include, at a minimum, a shadow flicker analysis; visual impact analysis; fire protection/emergency response plan; noise study; electromagnetic interference assessment; cultural, historical, and archeological resources plan; wildlife impact analysis; operation and maintenance plan; stray voltage report; and provide proof of an Interconnection Agreement.
Zoning Board of Appeals		
Area Variance	Variance from area or dimensional requirements	The height maximum in the AR District is 35 feet and, accordingly, the wind turbines will require an area variance. Area variances may also be required for setbacks, which range from 25 feet to 200 feet.
Certificate of Compliance	Issuance of zoning permit	No Land, building, or structure can be occupied or used until a Certificate of Zoning Compliance has been issued by the Zoning Officer stating that the building, structure, or proposed use thereof complies with the provisions of this Law.
Highway Superintendent		
		Based on prior conversations with the Highway Superintendents, no Town permits are required.

2.4.2 Extent and Quality of Information Required

The Cape Vincent Wind Farm will review existing land use and local regulations as they relate to the specific facilities and locations proposed as part of this Project. This review will assess the community character, new and proposed land uses, comprehensive plans, and zoning districts and permitted land use within each zone.

A qualitative assessment of land uses throughout the Project area will provide information regarding the proposed Project, including wind turbines, transmission lines, access roads, and substation, in relation to existing and future land uses. Land uses, including but not limited to, residential, schools, civic facilities, agricultural, commercial, coastal areas, scenic resources, recreational and public lands within one mile of the Project facilities will be identified. This information will be attained through aerial photographs and desktop research.

This Exhibit will include a detailed review of planning and zoning documents produced by the towns and county. This extensive review will include:

- Town of Cape Vincent 2003 Town and Village of Cape Vincent Comprehensive Plan and 2012 Joint Comprehensive Plan Update
- Town of Cape Vincent Zoning Law, amended in 2012
- Town of Lyme Comprehensive Plan, updated in 2012
- Town of Lyme Zoning Ordinance, amended in 2012
- Town of Lyme Wind Energy Conversion Systems Law, adopted in 2012
- "Lyme Wind Meeting Page" for updates on wind-related events happening within the Town
- Village of Chaumont Land Development Code, Adopted 2007

Aerial photographs of all properties within the study area will be of such scale and detail to enable discrimination and identification or all natural and cultural features. In addition, a series of maps will be provided that show:

- Existing land uses within the study area;
- Existing overhead and underground major facilities for electric, gas or telecommunications transmission within the study area;
- All properties upon which any component of the Project will be located, and all properties within 2,000 feet of such properties, that shows the 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;

- Existing zoning districts and proposed zoning districts within the study area;
- Designated coastal areas, inland waterways and local waterfront revitalization program areas, groundwater management zones, designated agricultural districts, flood-prone areas, and critical environmental areas designated pursuant to the previously undertaken SEQRA reviews; and
- Recreational and other land uses within the study area that might be affected by the sight, sound or odor of the construction or operation of the facility.

2.4.3 Avoidance and Minimization Measures

Planned measures to avoid or minimize impacts to land use include locating Project facilities on properties with compatible land uses. For example, vacant land and some types of agricultural land are generally more compatible than residential, recreational, public and scenic properties.

The turbines are proposed to be located on crop, hay, pasture, and vacant land. To minimize impacts to these agricultural resources, the Project has been sited and would be built in accordance with guidelines provided by the New York State Department of Agriculture and Markets.

2.4.4 Proposed Measures to Mitigate Unavoidable Impacts

Unavoidable direct loss of use to properties will be mitigated through landowner payments from CVWP. Unavoidable indirect impacts to properties adjacent to Project facilities will be visual. Proposed measures to mitigate unavoidable visual impacts are discussed in Exhibit 24.

2.5 Electric System Effects – Exhibit 5

A system reliability impact study ("SRIS") has been performed in accordance with the Open Access Transmission Tariff ("OATT") of the New York Independent System Operator, Inc. ("NYISO") and is on file with the Federal Energy Regulatory Commission ("FERC"). The SRIS shows expected flows on the system under normal, peak and emergency conditions and effects on stability of the interconnected system, including the necessary technical analyses (Thermal, Voltage, Short Circuit and Stability) to evaluate the impact of the interconnection. The study included the new electric interconnection between the facility and the point of interconnection, the interconnection switching station (115 kV "Rockledge substation"), as well as other system upgrades required.

The SRIS was performed for the portion of the Project formally called St Lawrence (130 MW at that time) by E PRO in 2007 and in a Supplemental SRIS in April 2008; and for the Cape Vincent portion (210 MW at that time) of the Project by Siemens Power Technologies International "Siemens PTI" originally in February 2007 and then updated due to a change in turbines in 2008. Following the acquisition of the NYISO queue position #166 by Cape Vincent Wind Power, LLC, the SRIS for the Project was completed by Siemens PTI in a report titled, "Review of the Materiality for the Change in Wind Turbine Generators of the Cape Vincent Project (NYISO Queue #207/166)," dated July 31, 2012.

National Grid completed facilities studies for the previous 210 and 130 MW projects in 2008 ("2008 FS") and is currently re-evaluating the Transmission Owner Attachment Facilities ("TOAF") and System Upgrade Facilities (SUFs) for the combined project with an estimated completion date in May 2013 ("2013 FS"). The 2008 FS met the main objective to identify the TOAF and related SUF necessary for the Project to reliably interconnect to the NYISO transmission system. The results of the 2013 FS are outstanding as of the date of this PSS.

2.5.1 (a) Reliability Impact Study Methodology

To determine the reliability impacts of the Project on the NYISO controlled transmission system, Siemens PTI performed power factor, stability and short circuit analyses using approved NYISO transmission system load flow and short circuit models subject to NYISO and the interconnecting transmission owner's planning standards. The study models also included queue projects ahead of the Project in the NYISO interconnection queue.

Power factor requirement and stability analyses were performed using PSS/E Rev.29.5. The impact of the Project during summer peak and winter peak operating conditions were evaluated. The analyses performed included the impact of the Project on NYISO transmission during normal operating conditions as well as following selected critical system outages.

The short circuit analysis was performed using ASPEN One-Line and in accordance with NYISO Guideline for Fault Current Assessment. Three-phase-to-ground, two-phase-to-ground and single-phase to ground faults were simulated. The fault contributions of the Project were calculated using NYISO and the interconnecting transmission owner's short circuit calculation practice.

2.5.2 (b) Reliability Impacts of Project

The reliability impact analysis results showed that the addition of the Project did not have adverse reliability impacts on the existing transmission system. There was no thermal overload or limitation identified. The power factor requirements analysis performed showed that the reactive capacity of the Project was sufficient to insure the security and reliability of the existing transmission system following its integration. The study also showed that the stability of the NYISO transmission grid and the interconnected transmission system were not adversely impacted following the addition of the Project. Stable and adequately damped transmission system performance was observed following critical outages simulated. Further, the study showed that the Project met the low voltage ride-through ("LVRT") standard per NYISO OATT.

The Short circuit analysis showed that the interconnection of the proposed Project did not cause the existing breakers interrupting capacities to be exceeded.

2.5.3 (c) Benefits of Project on Ancillary Services and the Electric Transmission System

The interconnection of the Project will require the construction of a new 115 kV interconnection switching station named Rockledge. This interconnection switching station will strengthen the transmission system in the vicinity of the Project and enable National Grid to expand its transmission footprint in the future to serve local needs. In addition, the interconnection of the Project will enable National Grid to upgrade its transmission line protection and communication equipment at the Black River and Coffeen Substations. While no negative impacts are expected, the impact on ancillary services will be discussed as part of the Exhibit 8 Electric System Production Modeling reporting.

2.5.4 (d) Additional Supporting Studies

In addition to the SRIS and FS, system impacts will be further examined in the Electric System Production Modeling study supporting Exhibit 8 of the filing ("Production/Curtailment Impact Study"). Several portions of the Production/Curtailment Impact Study will support Exhibit 5 as the study will address several deliverability components and potential negative impacts on must-run generation. For example, the SRIS identified recommended mitigation measures to alleviate certain system constraints. As the Production/Curtailment Impact Study evaluates the system impacts as load and generation vary over the 8760 hours of the year, it supplements the SRIS mitigation recommendation by monitoring system flows, changes in generation dispatch and impact of system constraints – assuring that the Project can be delivered to the grid under NYISO market rules and without curtailments of must-run generation.

The Production/Curtailment Impact Study will also discuss the impacts of the Project on ancillary services as required under Exhibit 5 C. Details on the Production/Curtailment Impact Study scope are provided in Section 8.

2.5.5 (e) Impact on total transfer capacity of transmission interfaces

The study did not identify any impact on the total transfer capacity of the vicinity transmission interfaces under the system conditions studied.

2.5.6 (f) A description of criteria, plans, and protocols

(1) Engineering codes, standards, guidelines and practices that apply

The design of the project substation will be developed in accordance with national standards and will incorporate any required, applicable standards of the interconnecting utility. The design of the generator interconnection line and interconnection switching station will be governed by and in compliance with the standards of the interconnecting utility. Codes and Standards: All work shall be in accordance with the prevailing standards of skill and care of each trade and current codes and applicable laws and ordinances at the time of construction. The following codes and standards are applicable to the Project:

- ANSI - American National Standards Institute
- IEEE - Institute of Electrical and Electronic Engineers
- NEC - National Electric Code
- NEMA - National Electrical Manufacturers Association
- NESC - National Electrical Safety Code
- AEIC - Association of Edison Illuminating Companies
- IEC - International Electrotechnical Commission
- ACI - American Concrete Institute
- NERC - North American Electric Reliability Council
- NEMA - National Electrical Manufacturers Association
- NFPA - National Fire Protection Association
- IBC - International Building Code
- ASTM - American Society for Testing and Materials
- ICEA - Insulated Cable Engineers Association
- OSHA - Occupational Safety and Health Administration

- AISC - American Institute of Steel Construction
- ASCE - American Society of Civil Engineers

(2) Generation facility type certification

The proposed Project will be a wind-power facility.

(3) Procedures and controls for facility inspection, testing and commissioning

Functional testing will be performed to ensure the equipment has been installed correctly for each portion of the facility. When all systems have been tested and are operating properly, the Project would be commissioned for commercial operation and the sale of energy.

A detailed energization procedure for the energization of the generator interconnection line would be developed and reviewed with the interconnecting utility prior to energization of the gen tie-line. Detailed energization procedures will also be developed for the substation and collection systems, and potentially the interconnection switching station and its associated portion of the generator interconnection line. This procedure will include step-by-step instructions for each section of the system. In general, the order for energizing the system would be:

- The generator interconnection line
- The Project substation
- The collection systems (including the padmount transformers at each turbine)

The energization procedure is the basis for the O&M plan for the facility.

(4) Maintenance and management plans, procedures and criteria.

The O&M plan will go into effect once substation and collection systems as well as the turbines are energized and the Project enters the operating phase. Turnover to operations occurs on a wind turbine string by string basis.

One objective of the O&M plan is to provide guidance on the maintenance activities needed to minimize the potential impacts to the environment during maintenance and repairs to the facility. The operations personnel will have the responsibility to implement specific actions and procedures during operations, maintenance, and repair activities.

The operations staff will maintain the turbines, including routine maintenance, long-term maintenance, and emergency work. In all cases, the operations personnel will be responsible for arranging needed repairs either through internal resources or with the aid of additional contractor support.

The maintenance plans will be based on the manufacturers' recommendations and standard industry practices, including requirements from the local interconnecting utility.

2.5.7 (g) Estimate of Change in Total Transfer Capacity

This section is not applicable

2.5.8 (h) New Interconnection Substation Transfer Requirements

The Application will describe:

- the substation facilities to be transferred and the contemplated future transaction, including a timetable for the future transfer
- the substation-interconnection design will meet the transmission owner's requirements, and
- the operational and maintenance responsibilities for substation and how they will meet the transmission owner's standards.

2.5.9 (i) Facility Maintenance and Management Plans

The maintenance for the turbines will be done in accordance with the original equipment manufacturers' recommendations. The maintenance schedule includes regularly scheduled safety inspections. The tower integrity is reviewed in accordance with manufacturer's recommendations.. The routine preventative maintenance is to be performed at least once on every turbine each year, and as needed for corrective maintenance.

The facility will undertake maintenance activities on a regular basis.

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

A facility maintenance plan, as will be further described in the Application, will address electric transmission, gathering and interconnect line inspections, maintenance, and repairs, including minimization of interference with electric and communication distribution systems.

2.5.10 (j) Vegetation Management Practices

As part of the Operations and Maintenance procedures for the facility, a vegetation plan will be developed. The vegetation plan, for instance, may call for potential tree removal to avoid dangerous interference with the equipment. The plan would also include prescribed inspection intervals for the Project substation, interconnection switching station, and generator interconnection line to ensure proper vegetation control. Note, after construction is complete, the connecting transmission operator would be responsible for owning and operating the interconnection switching station as well as that portion of the generator connection line that continues onto the Lyme 115kV tap.

2.5.11 (k) Proposals for Sharing Above Ground Facilities

This section is not applicable

2.5.12 (l) Equipment Availability

A status report will be provided with the Application regarding equipment availability and expected delivery dates, if available, for major components including towers, turbines, and transformers.

2.5.13 (m) Blackstart Capabilities

This section is not applicable

2.5.14 (n) Compliance with Applicable Reliability Criteria

CVWP is coordinating with NYISO for the SRIS, National Grid (the local transmission owner) for the Facilities Study, and will continue coordination with DPS in conjunction with the Article 10 filing, including this PSS. CVWP is coordinating with NYISO and National Grid to ensure that the remaining Article 10 requirements meet the relevant applicable reliability criteria of the Northeast Power Coordinating Council Inc., the New York State Reliability Council, and the local interconnecting transmission utility.

2.6 Wind Power Facilities – Exhibit 6

2.6.1 (a) Setback Requirements and/or Recommendations

Manufacturer's Specifications

Setbacks associated with the selected wind turbine model will be guided by the established recommendations of the original equipment manufacturer.

Applicant Specifications

Setbacks used on BP Wind Energy projects are designed to reduce environmental, health, and safety risks. As currently contemplated, setbacks for the combined Project meet or exceed the setbacks held by the previously proposed SLWF and CVWEP; no setbacks have been decreased.

Local Ordinance or Laws

The Project proposes to site wind turbines in the Town of Cape Vincent. The current Town of Cape Vincent Zoning Law was enacted on August 1st, 2012 ("CV Zoning Law"). The setback requirements as stated in the CV Zoning Law have the effect of unjustifiably and unreasonably restricting the placement of turbines in agricultural districts and preclude CVWP from placing turbines in planned and/or optimal locations within the Town. In light of passage of the CV Zoning Law, CVWP decided to enter the CVWF into the Article 10 permitting process in September 2012.

2.6.2 (b) Accommodation Setbacks Requirements and/or Recommendations

CVWP will consult with the manufacturer of the selected wind turbine model to make sure the manufacturer is in agreement with setbacks and/or positioning for the proposed turbine layout.

2.6.3 (c) Status and Results of Third-Party Review and Certification

After a turbine model has been selected, the turbine manufacturer, a turbine certification agency, and an independent engineer will be consulted regarding the turbine review study and certification status.

2.6.4 (d) Wind Meteorological Analyses

CVWP will perform a wind meteorological analysis to predict site specific capacity factor and long term energy production following the procedures of wind measurement campaign, data collection, data analysis and energy analysis.

Wind Measurement Campaign

CVWP currently operates seven meteorological (met) towers in the Project area. Measurements at the site began on a 60m met tower in September 2002. To account for the variations of wind regime at the site due to topographic and terrain features, six additional met towers were deployed and installed. Four 60m met towers began measurements in February 2006, December 2006, December 2006 and September 2010 respectively. One 80m met tower began measurement in May 2007 while the other 80m met tower began measurements in January 2011. One 60m met tower was installed at the site in November 2011.

The standard measurement configuration utilizes two boom mounting heights on each meteorological tower. Opposite-mounted wind speed sensors are located at each height, and directional sensors are also located at each height, although 6 feet below the anemometers to minimize interference. This redundancy allows a sector-wise approach to be utilized in "filtering" out tower shadow effects. CVWP has installed standard NRG sensors, and uses a mix of Campbell Scientific and NRG data loggers with cellular phone/modem daily download and quality control. Data are stored as 10-minute wind speed averages, standard deviation, 3-second gust, and wind direction.

Data Collection

Data from the on-site tower is downloaded daily through the use of a cell phone modem on the data logger. The data is reviewed weekly by DNV KEMA Energy & Sustainability with over 25 years of experience in wind energy. Numerous filtering, comparison, and other techniques are utilized by DNV KEMA to assure the highest data quality.

After a sufficient amount of on-site data is collected to take into account of seasonal variations of the wind regime at the site, a thorough quality control analysis is conducted on all collected on-site data to identify and isolate data integrity issues caused by adverse weather conditions, sensor malfunctions, sensor degradation over time, damaged wires or logger problems to remove any invalid or unrealistic data.

Data Analysis

In addition to collecting the on-site data and ensuring the quality of that data, it is also very important to adjust the data collected at a site to represent its historical wind conditions as closely as possible because wind climate can vary considerably over time scales of months to years. Long term wind speed characteristics at the site are generated by correlating on-site meteorological tower measurements with coincident measurements from off-site reference stations and/or numerical weather prediction model output. The knowledge/correlation information that was gained from the coincident comparison is then applied to the extended dataset to give the extended dataset similar characteristics as those seen during the coincident period.

Vertical shear is the change in wind speed related to a change in vertical height. A number of shear derivation methods are reviewed to extrapolate long term normalized measurement height wind speeds to hub height. Generally shear is calculated by two fundamental laws depending on site characteristics, power law and log law as shown as below.

i) Power Law:

$$\frac{U(z)}{U(z_r)} = \left(\frac{z}{z_r}\right)^{\alpha}$$

where z and z_r are the target and reference heights, $U(z)$ and $U(z_r)$ are the target and reference height wind speeds and α is the power law shear exponent

ii) Log Law:

$$\frac{U(z)}{U(z_r)} = \frac{\ln\left(\frac{z}{z_o}\right)}{\ln\left(\frac{z_r}{z_o}\right)}$$

where z and z_r are the target and reference heights, $U(z)$ and $U(z_r)$ are the target and reference height wind speeds and z_0 is the surface roughness length

The long term normalized time series at measurement height is sheared up to hub height using a 12x24 matrix using month and hour or wind direction and hour.

Energy Analysis

Micrositing is determined through a hybrid application of Wind Atlas Analysis and Application Program (WAsP) modeling. WAsP wind flow model takes long-term normalized hub height wind data, topographical data and surface roughness data to generate a wind flow map at the site and calculate wind speed and energy production at each proposed turbine location.

Preliminary wind speed estimates for the entire Project area, in grid format, are first determined using WAsP, as seeded by the primary on-site meteorological station. Then preliminary wind speeds at each planned turbine location are obtained from the model and placed in a spreadsheet. Each turbine is assigned to a nearby meteorological station, as appropriate, and the preliminary wind speeds are then adjusted to "true-up" to measured wind speeds at each local meteorological station. In effect, the relative wind speeds from WAsP are retained, but the absolute wind speeds are based on measured data.

The long term net capacity factor estimate is determined by applying the wind turbine power curve, adjusted for air density to the predicted long-term project wind speed distribution. Only the site air density has been taken into account to establish this "gross" energy capture estimate.

Energy output is determined by first computing a series of gross outputs over a range of wind speeds at each meteorological station. These results are based on measured data (frequency distribution), and a cubic curve fit through the results yields an energy response curve for each meteorological station. The energy response curves are then used to generate a gross output figure at each planned turbine location.

Net energy is determined by calculating "net-to-gross" factors, specific for each scenario, such as wake effects, equipment availability, electrical losses and environmental impacts such as extreme weather.

Other than air density adjustment, no adjustment has been made to the standard power curve.

CVWP also hired a third party consultant to conduct wind resource assessment independently, which provides further verification of the results.

2.7 Natural Gas Power Facilities – Exhibit 7

This exhibit is not applicable to the proposed Cape Vincent Wind Farm.

2.8 Electric System Production Modeling – Exhibit 8

The Electric System Production Modeling will be completed by a consultant who understands the Article 10 requirements, has experience in the region, is licensed and qualified to use ProMOD with the Transmission Access Model, GEMAPS, or a similar program, and can meet all the requirements for the Exhibit 8 analyses.

Prior to preparing this exhibit and executing the associated analysis, CVWP will consult with DPS and DEC to develop an acceptable input data set, including modeling for the Applicant's proposed facility and inputs for the emissions analysis, to be used in the simulation analyses. The assumptions will be delivered to DPS/DEC in a format meeting the requirements of those agencies.

The analysis will supplement Exhibit 5 in terms of deliverability related impact on the NYISO grid by evaluating flows, emissions, changes in generating resource dispatch and impacts on "must-run" resources as defined in Article 10. The results will be documented in a report meeting the requirements of Exhibit 8 and other selected elements of the Article 10 filing.

The scope of work for Exhibit 8 is attached to this PSS as Exhibit D.

2.9 Alternatives – Exhibit 9

The following sections contain a preliminary description and evaluation of reasonable and available alternative locations for the proposed facility, including a description of the comparative advantages and disadvantages of the proposed and alternative locations. These descriptions and evaluations are limited to parcels owned by, or under option to, CVWP. This discussion includes a statement of the reasons why the proposed location, taking into account the potentially significant and adverse environmental impacts, is best suited among the alternatives to promote public health and welfare. It also includes evaluation of a "no action" alternative.

2.9.1 Selection of the Cape Vincent Area

The Cape Vincent area was selected through a systematic process that considered the following parameters which would allow for the development of an economically viable wind power project:

- Good wind resources,
- Availability of existing roads and utility interconnections,
- Willing participant landowners and community support,
- Low to moderate environmental constraints, and
- Community / landscape where wind power is complementary
- Ability to inject power into the New York State grid without overly costly grid upgrades

2.9.2 Alternative Project Design/Layout

Once the project location was selected, CVWP evaluated various project size alternatives and determined the Project's optimal generating capacity. Certain "fixed infrastructure" costs are incurred regardless of the size of the project. For example, the cost of the Project substation will not vary greatly as a direct result of the size of the facility. Consequently, the financial viability of a project depends on the ability to maximize electric generation to defray these fixed costs. Since wind is a fuel-free energy resource, the Project's main costs are fixed capital costs. To be competitive with other wind projects and other sources of electrical energy, the capital and other fixed costs per kilowatt-hour of output must be reduced as much as possible by maximizing project output. Some smaller wind energy projects do not enjoy economies of scale and are only possible because of large financial grants. The Project's size was selected to offer the most cost-effective clean energy for the state of New York while reducing environmental impacts.

The design and layout of the proposed Project components have been continuously evaluated since the decision was made to pursue a project in the Town of Cape Vincent. Various turbine models and layouts were evaluated in an attempt to maximize energy efficiency while reducing potentially significant adverse environmental impacts. The Project layout has been engineered to capture the area's high wind energy, while reducing wake effects on downwind turbines. Ultimately, the optimal siting plan for the turbines needs to factor in available land, appropriate setbacks, wetlands, wildlife habitat, and agricultural land, among other items. The proposed location of turbines and associated facilities accounts for feedback from stakeholders at the local and state levels and results in a Project that factors in environmental, health, and safety issues while attaining cost-effective wind power.

CVWP has analyzed several different project configurations. Each configuration incorporated major or minor adjustments to turbine locations and access road and collection line routing based on the criteria outlined below. While many criteria are evaluated in designing a project layout, the primary siting criteria considered included:

- Availability of adequate wind resource;
- Setbacks from homes, secondary structures, roads, non-participating property lines;
- Spacing between turbines to minimize turbulence effects and maximize power production;
- Compliance with agricultural protection measures;
- Unstable land forms and other engineering constraints;
- Sensitive environmental and cultural resources;
- Sensitivity to viewshed and noise issues; and
- Landowner preferences

Alternatives Considered:

- 135-Turbine Alternative
- 124-Turbine Alternative
- 124-Turbine Alternative 1
- Transmission Line Alternatives
- No Action

135-Turbine Alternative

Since 2005, there have been two wind projects proposed for the Cape Vincent area: Acciona's 79.5 MW SLWF and BP Wind Energy's 210 MW CVWEP. Since the acquisition of the SLWF in February 2012, the

Project team has worked diligently to combine the layouts of the SLWF and CVWEP to optimize the footprint of the proposed Cape Vincent Wind Farm. The CVWF will deliver greater economic and environmental benefits over the prior two stand-alone projects for residents of Cape Vincent and the greater Jefferson County area. The SLWF design had consisted of 51 turbines and the CVWEP design consisted of 84 turbines, making the total number of turbines between the two projects equal to 135 turbines.

The Project will result in some stream crossings and some unavoidable wetland areas that are crossed by roads and/or collections lines. It is impractical to eliminate all impacts to wetlands and further efforts to avoid wetlands beyond the current proposed Project would likely result in longer access roads and trenching for electrical interconnects, thereby increasing land disturbance impacts. The most efficient layout of roads between turbines is a straight line from one turbine to the next.

While it is anticipated that most of the collection system will be buried, overhead lines may be used to span wetlands and streams and to avoid installing multiple buried lines in certain locations. The installation of buried lines has impacts to vegetation, soils, and wetlands while the installation of overhead lines also has visual impacts. The installation of overhead lines, as proposed, will reduce impacts to soil and water resources but will increase visual impact during operation. To minimize adverse visual impact, most overhead lines will be carried on single metal poles or equivalent structure, somewhat taller, but generally comparable in height compared to the existing network of distribution lines that currently run throughout the Project area. The overhead lines will be routed to reduce the need for right-of-way clearing and to be compatible with agricultural land and farming operations.

The Project seeks to narrow the width of access roads where practicable. Following consultation with local landowners and referring to state guidance for agricultural land conservation for wind projects, the Project seeks to reduce loss of agricultural land and impacts on farming operations. Consequently, alternative project designs are expected to pose equal or greater risk of adverse environmental impacts while yielding equal or less electrical output.

124-Turbine Alternative

After an extensive review to optimize the layout of the combined project while incorporating stakeholder feedback, CVWP has removed 11 turbines, reducing the size to 124 turbines. CVWP considered community feedback to determine the latest design and removed the turbines closest to the St. Lawrence River, an area the Town of Cape Vincent and the community indicated was sensitive. The Project now generally maintains a setback of one mile from the St. Lawrence River and will avoid

impacts and concerns associated with locating these turbines close to the river. Setbacks for the CVWF have been increased or maintained compared to the predecessor projects; no setbacks have been decreased.

The turbines under consideration for the SLWF ranged in output from 1.5 to 3.0 MW per turbine while the turbines under consideration for the CVWEP ranged in output from 1.5 to 2.5 MW per turbine. The maximum blade-tip height for the SLWF and CVWEP was approximately 430 feet and the rotor diameter was approximately 300 feet to 328 feet. The turbines under consideration for the CVWF would have the maximum blade-tip height increasing to 499 feet and the rotor diameter increasing to approximately 394 feet. The increased turbine height allows the Project to take advantage of improved technology while reducing the total number of turbines and changing the potential visual, noise, wetland, and cultural impacts. Studies are in process to determine the relative impacts associated with a different turbine.

124-Turbine Alternative 1

Additional information has become available since the Project layout was proposed, and through further project review, stakeholder engagement, etc., the Project may look to enhance the design even further. A more fully optimized layout for the 124-turbine arrangement would seek to address environmental, health, and safety issues while factoring into economic and constructability issues.

Transmission Line Alternatives

CVWP is exploring several alternatives for the overhead generator interconnection line (see Exhibit A). All alternatives share the segment from the Project substation to Merchant Road. From Merchant Road to the interconnection substation there are several route alternatives with 3 potential river crossings. Total lengths of these alternatives (from the Project substation to the interconnection substation) range from approximately 6 miles to approximately 8 miles.

As an option to stringing an overhead generator interconnection line to carry power from the Project, CVWP studied the feasibility of using a buried line. For a project of this size, this would require the interconnection cable to not simply be buried, but to be encased in concrete. The result would remove the transmission line from view, but would require high construction costs that would contribute to making the project uneconomic. In addition, underground placement would generally require greater disturbance to wetland features which are located along the various routes identified. These wetlands are proposed to be crossed by aerial spans, greatly reducing both short-term and long-term impacts to the wetland ecology. Maintenance of an underground transmission line of this length would be very

likely to incur higher costs of repairs during the project life, as well as requiring substantially greater impacts to the environment in the case of any line maintenance, repairs, or upgrades.

No Action Alternative

Under the no action alternative, the wind power turbines and associated infrastructure would not be constructed within this portion of the Town of Cape Vincent. Failure to construct this Project would avoid the impacts directly associated with the construction and operation of the Project but would not result in the environmental and economic development benefits and objectives of the Project to deliver renewable, clean energy. In its place, New York State would fall short of its goal to increase renewable energy as part of its overall energy portfolio while decreasing the State's dependence on fossil fuels, such as coal and natural gas. Once the cost of constructing a wind project is incurred, the wind (i.e., fuel) is free and the costs of operating and maintaining it are relatively low, which allows the technology to serve as a long-term hedge against more typical fluctuations seen in the energy marketplace. Additionally, the state would not reap the economic development benefits associated with the Project. Therefore, the no action alternative is not an effective alternative to this Project and is excluded from further analysis.

2.9.3 Alternative Turbine Models

The wind industry is generally moving toward the use of larger turbines because they are more cost-effective than smaller machines (i.e., they have a more favorable ratio of rotor "swept area" to generator size). Smaller turbines are available; however, a larger number of smaller turbines would be required to produce comparable amounts of power with higher installation costs due to the greater number of foundations, roads, and associated facilities. This would also increase temporary and permanent disturbance to soils, vegetation, and water resources as the number of towers and the length of required access road and interconnect increases. Potential operational impacts (e.g., noise and avian mortality) may also increase with a larger number of smaller machines. In terms of visibility and visual impact, while smaller turbines might be marginally less visible, higher blade speed, higher density, and greater numbers could actually increase the Project's visual impact. Use of a shorter tower would also reduce the efficiency of the turbines, as wind speed increases with height above the ground. Based on these factors, the larger turbines were determined to be optimal for the site.

2.9.4 Alternative Technologies

Some of the public comments received to date seek to explore the use of solar energy in lieu of wind energy in the Project area. The objectives and capabilities of CVWP are such that solar energy would not be a feasible alternative – CVWP is not in the solar energy business. Moreover, given the abundant wind resource in the Project area, solar energy would not be able to provide cost-effective energy compared to wind energy.

2.9.5 Best Alternative Statement

The mouth of the St. Lawrence River offers some of the strongest and reliable wind in the State of New York. This, in combination with the sparse population, and dominant agricultural and managed land use, make the Project area in Towns of Cape Vincent and Lyme suitable for development of a large-scale wind power project.

2.9.6 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received several comments to date regarding exploration of alternative options. Feedback is summarized in Table 2.9-1.

Table 2.9-1 Comments and Responses on Potential Alternative Locations

Date	Commenter	Issue/Comment Summary	Response
20-Dec-12	Town of Cape Vincent	No alternative facility sites are proposed.	This PSS document offers extensive discussion regarding alternative locations for the Project.
20-Jan-13	Town of Cape Vincent	Alternative project layouts and arrangements in the Acciona FEIS and BP's SDEIS were inadequate in relation to extensive comments made by involved agencies under SEQRA. Aside from BP's proposed project which is incompatible with the Town of Cape Vincent Comprehensive Plan and Zoning Law BP should include for consideration a renewable energy development alternative that is compatible with the Town's plan and law. The analysis should also include alternative options (e.g. buried line) for the transmission line bisecting the	This PSS document offers extensive discussion regarding alternative facility sites, including other renewable energy development, and transmission line options.

Table 2.9-1 Comments and Responses on Potential Alternative Locations

Date	Commenter	Issue/Comment Summary	Response
		Town of Lyme.	
20-Jan-13	Town of Cape Vincent	Based on USFWS 6/15/07 SLWF DEIS Review the developer should be required to also consider a range of alternative facility arrangements to enable the advancing of a project design that is responsive to the many significant resources of State interest in the project area.	This PSS document offers extensive discussion regarding alternative facility sites.
20-Jan-13	Town of Cape Vincent	Based on USFWS 3/19/08 CVWF DEIS Review no explanation is provided for feasibility of a smaller project. The DEIS should provide an explanation on the minimum number of turbines needed to make a viable project. How can alternatives be considered without knowledge of wind resources and avian concentrations within the project footprint.	CVWF does not evaluate projects in such a manner, but rather is looking to propose a project that is meaningful and can bring economic and environmental benefits to the community. Evaluation of potential impacts to avian species is addressed in section 2.22.
20-Jan-13	Town of Cape Vincent	Based on NYSDEC 2/29/08 CVWF DEIS review the lack of detail in the project scope precludes meaningful discussion of alternatives if there is no project to compare alternatives to…. Details …. should include the factors that led to the specific turbine layout for each alternative such as wind resource evaluation turbine spacing and/or orientation wind turbine model selection site constraints (setback requirements avoidance of wetlands landowner preference, etc.) access road and	This PSS document offers extensive discussion regarding alternative facility sites.

Table 2.9-1 Comments and Responses on Potential Alternative Locations

Date	Commenter	Issue/Comment Summary	Response
		interconnect design, considerations and avoidance of identified adverse environmental impacts (e.g. archeological sites). The range of alternatives may also include as appropriate alternative sites technology scale or magnitude design timing use and types of action.	
20-Jan-13	Town of Cape Vincent	Based on PSC 1/12/07 comment BP should include alternative scales and layout's to avoid significant impacts.	This PSS document offers extensive discussion regarding alternative facility sites.
20-Jan-13	Town of Cape Vincent	Based on PSC 02/28/08 BP DEIS does not provide alternatives that avoid or minimize environmental impacts to greatest extent practicable.	This PSS document offers extensive discussion regarding alternative facility sites.
20-Jan-13	Town of Cape Vincent	Based on PSC 06/13/07 comment on SLWF DEIS, the location of (transmission line/facilities should be specified and alternatives, including consideration of the costs and benefits of underground location for all or part of the line should be addressed in the SDEIS. The alternatives analysis should address routing alternatives for 115kV transmission line including facility routes: within the abandon railroad ROW adjacent to abandon railroad ROW and other alternative locations. Consideration of underground placement should address at a minimum the crossing of the Chaumont River any regulated wetlands or Wildlife Management Areas Important bird areas locations visible from the Seaway Trail Scenic Byway Historic Districts and other locations as appropriate.	This PSS document offers extensive discussion regarding alternative facility sites, including transmission line options.
20-Jan-13	Town of Cape Vincent	Based on PSC 06/13/07 comment on SLWF the discussion of project	This PSS document offers extensive discussion regarding alternative

Table 2.9-1 Comments and Responses on Potential Alternative Locations

Date	Commenter	Issue/Comment Summary	Response
		alternatives should consider project alternative reduced alternative layout and project arrangement which would remove turbines from: the most prominent locations near the Coastal Zone and Local Waterfront Revitalization Areas, the Seaway Trail Scenic Byway, State Parks, Historic Properties listed or eligible for listing on the State or National Register of Historic Places, and other resources of recreational scenic and importance to the State from designated Coastal Habitat areas, Important Bird Areas ,Wildlife Management Areas, and NYS regulated wetlands.	facility sites, and specifically addresses the reduced Project layout from 135 to 124 turbines, with the large majority of eliminated turbines coming from the St. Lawrence River area.
20-Jan-13	Town of Cape Vincent	Based on PSC 06/13/07 comment on the SLWF DEIS alternative scenarios that should include at a minimum: Reduced project footprint, Increase setbacks from shoreline areas and the Seaway Trail, Increase setbacks from visual and cultural resources, Increase setbacks from Significant Coastal Fish and Wildlife Habitats, Increase setbacks from WMA and Important Bird Areas, AND remove facilities from NRHP listed properties.	This PSS document offers extensive discussion regarding alternative facility sites.
20-Jan-13	Town of Cape Vincent	Based on Mentor Rubin & Trivelpiece 6/14/07 SLWF Review, the DEIS should contain a meaningful discussion of alternatives and not just the conclusory assertions that it presently contains. An EIS must contain a description and evaluation of the range of reasonable alternatives to the action that are feasible/considering the objectives and capabilities a level of detail	This PSS document offers extensive discussion regarding alternative facility sites.

Table 2.9-1 Comments and Responses on Potential Alternative Locations

Date	Commenter	Issue/Comment Summary	Response
		sufficient to permit a comparative assessment of the alternatives discussed NYCRR§617.9 (b)(5)(v). Significant further assessment of alternatives is warranted.	
25-Sep-12	Town of Cape Vincent	We need large-scale maps that show all turbines and interconnecting lines that make up the total project, both the 200 MW and 289.5 MW project alternatives.	Project maps have been and remain available on the project website, in the local CVWF office, and have been on display at each of the public forums, including the Open House, and meetings with the Town of Cape Vincent and Lyme. A Project map is also provided as part of the PSS submittal. The project size ranges from 200 and 285 MW, but leverages the same 124 turbine locations.
25-Sep-12	Town of Cape Vincent	… we are not opposed to a commercial, renewable energy project. In both our Comprehensive Plan and Zoning Law commercial solar projects are deemed better fits and are encouraged as a renewable energy development project proposal. Since BP has completed other solar, renewable projects in New York, i.e., Brookhaven, L.I., we encourage BP to provide a solar energy development alternative as part of their public involvement program.	BP is currently investing in three alternative energy technologies: 1) Wind, where BP has built up one of the leading wind businesses in the US; 2) Biofuels, that BP deems to be affordable, low carbon, sustainable and scalable; and 3) Emerging business and ventures where BP is partnering with technology start-ups and venture capital firms with a goal of speeding up breakthrough innovations in areas of strategic importance to the company.

2.10 Consistency with Energy Planning Objectives – Exhibit 10

2.10.1 Potentially Significant Adverse Impacts

CVWP will prepare a statement demonstrating the degree of consistency of the construction and operation of the proposed Project with the energy policies and long range energy planning objectives and strategies provided in the most recent state energy plan. This discussion will consider the proposed Project's effect on reliability, fuel diversity, regional requirements for capacity, electric transmission

constraints, fuel delivery constraints and other energy policy or long range energy planning objective or strategy identified in the most recent state energy plan. This discussion will also include an analysis of the comparative advantages and disadvantages of reasonable and available alternative locations or properties identified for construction of the proposed facility. CVWP will also provide a rational as to why the proposed location and source is best suited, among the alternatives identified, to promote public health and welfare, including minimizing the public health and environmental impacts related to climate change.

While this section sets forth nine separate areas (a through i) requiring statements, descriptions and analysis, these sections can be grouped into three general categories:

1. Reliability of the bulk transmission grid, managed by the New York Independent System Operator (b), (d), and (e).
2. Consistency with the New York State Energy Plan (a), (c), (f), (g).
3. Alternatives analysis (h) and (i).

2.10.2 Extent and Quality of Information Required

Reliability of the bulk transmission grid

Information requested by the NYISO and the interconnection utility will be provided to assess potential impacts both during normal operating conditions and outages. The interconnection process will follow requirements set forth by the Federal Energy Regulatory Commission. Further, the analyses performed by NYISO and the interconnection utility will ensure compliance with standards set forth by the North American Electric Reliability Corporation.

Consistency with New York State Energy Plan

For this Exhibit, a discussion as to how the proposed Project is in compliance with the current state energy plan will be provided. Moreover, the Project will qualify for the New York State Renewable Portfolio Standard ("NYS RPS") by meeting the generation type and fuel source eligibility requirements as defined and clarified by the New York Public Service Commission ("PSC") in its various orders specifically including the PSC orders issued for Case 03-E-0188, the controlling authority for all determinations of eligibility of projects participating in the NYS RPS.

Alternatives Analysis

A discussion will be provided as to why the Project location was chosen as well as the numerous iterations of project layouts (also, see Section 2.9 above).

2.11 Preliminary Design Drawings – Exhibit 11

Preliminary design drawings to be submitted pursuant to this section will be prepared by a Professional Engineer, Architect, or Landscape Architect, as appropriate, licensed and registered in New York State. Drawings will be labeled "not for construction purposes" to indicate their preliminary status. These drawings will be drawn to an appropriate scale using computer-aided design software.

The preliminary site plan will show at a minimum the following project components:

- Turbine Centers
- Access Road Placements
- Crane Assembly Areas
- Crane Walk Placements
- Location of Ancillary Facilities:
    - Substation
    - Interconnection switching station
    - Operations and Maintenance Building (O&M)
    - Laydown Yards
    - Batch Plants
    - Meteorological Towers
- Electric System Placement for:
    - Spacing between collection lines
    - Spacing from property lines and existing rights-of-way
    - Environmental areas
    - Project Substation, Generator Interconnection Line, Interconnection Substation, O&M, Laydown Yard
- Stormwater and Erosion and Sediment Control Designs as required by the project's Stormwater Pollution Prevention Plan
- Temporary Disturbance Limits
    - Turbines
    - Access Roads
    - Collection Lines
    - Crane Walks

In addition the following preliminary notes, details and plans will be included:

- Construction operations plan;
- Grading and erosion control notes, details or plans;
- A landscaping plan;
- Architectural drawings of building and structure arrangements;
- Typical design detail drawings of all underground facilities and overhead facilities, including major components;
- Plans and drawings for the proposed interconnection facilities including a profile of the centerline of the interconnection facilities; and
- A list of applicable engineering codes, standards, guidelines and practices.

2.12 Construction – Exhibit 12

CVWP will prepare a preliminary Quality Assurance and Control plan, including staffing positions and qualifications necessary, demonstrating how the facility will be monitored and will conform with all applicable design, engineering and installation standards and criteria.

Also included in this Exhibit will be statements that CVWP and its contractors will conform to the requirements for protection of underground facilities contained in Public Service Law §119-b, as implemented by 16 NYCRR Part 753; and will comply with pole numbering and marking requirements, as implemented by 16 NYCRR Part 217.

CVWP will also work with the appropriate parties to develop a mutually agreeable approach for avoiding intentional conflicts with existing utility and transmission and distribution systems by providing preliminary plans and descriptions indicating design, location and construction controls. These descriptions will also indicate locations and separations of proposed facilities from existing electric, gas, and communications infrastructure.

This Exhibit will also a proposed process for addressing public complaints, and procedures for dispute resolution during facility construction and operation. CVWP is committed to developing a process that will provide a timely and effective response to concerns raised by local residents and landowners during the construction and operations of the CVWF. This document will detail a set of processes and commitments that will be developed to ensure that issues are addressed in a timely, fair and transparent manner.

2.13 Real Property – Exhibit 13

The preliminary real property drawing for Exhibit 13 (see Exhibit A) shows the parcels (leased or subject to easement as well as those that can expect to be leased or made subject to easement) on which proposed project facilities (including turbine locations, access roads, collection lines, overhead generator interconnection lines, project substation, switching station, batch plants, and laydown yards) are to be located as well as the associated tax parcel numbers. Existing utility easements (as identified to-date), such as the point of interconnection substation and water pipeline easement currently owned by the Development Authority of North Country ("DANC"), and public roads are also shown. The map also shows current zoning information for the Town of Cape Vincent – the River Front (RF) District is shown in blue while the rest of the proposed project falls into the Agriculture and Residential (AR) District. All project components within the Town of Cape Vincent are proposed for siting in the AR District. For the Town of Lyme, all project components fall within the Agriculture and Rural Residence District (AR), except for portions of the generator interconnection line route which fall into the Waterfront District (WF), which is defined as "those areas of land which are within 500' of the mean high water mark of Lake Ontario, all of its bays, and the Chaumont River." One of the proposed routes for the generator interconnection line for the Project runs approximately 450 yards along County Route 179 in the Village of Chaumont.

2.13.1 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received comments regarding the real property. These are summarized in Table 2.13-1.

Table 2.13-1 Comments and Responses Regarding Real Property

Date	Commenter	Issue/Comment Summary	Response
20-Dec-12	Town of Cape Vincent	Request lists of host landowners and adjacent landowners	The map provides information on lands that are leased, under easement, or have potential to be leased or under easement, as well as tax ID parcels. Property lines are visible on the maps.
25-Sep-12	Town of Cape Vincent	There should also be smaller scale maps that also include property lines so that individuals can see turbine locations referenced to their property.	The map provides information on lands that are leased, under easement, or have potential to be leased or under easement, as well as tax ID parcels. Property lines are visible on the maps.

Table 2.13-1 Comments and Responses Regarding Real Property

Date	Commenter	Issue/Comment Summary	Response
20-Dec-12	Town of Cape Vincent	Maps do not show host landowners or adjacent property owners	The map provides information on lands that are leased, under easement, or have potential to be leased or under easement, as well as tax ID parcels. Property lines are visible on the maps.

2.14 Cost of Facilities – Exhibit 14

The capital cost estimate for the proposed Project will include materials and supplies, construction labor, utility labor, equipment purchases, engineering costs, testing and commissioning, fees, contingencies specific to the site and other indirect charges.

An order of magnitude cost estimate will be prepared using the following assumptions:

- Land leases and rights-of-way ("ROW") costs will be provided on an aggregate basis and will comprise both actual and estimated land values, as applicable, for the associated ROW required.
- Materials, labor, and transportation costs will be estimated based upon locality, general industry experience, budgetary quotes from potential suppliers, and historical experience of CVWP and its consultants.
- Additional Project contingency will be applied.
- Allowances will be made for administrative overhead taking into account anticipated scope and duration of required services including services to date.
- Estimates for development related activities and interconnection will be taken into account
- Allowances for legal fees and other specialized services will be taken into account for interactions with applicable New York State agencies and, if applicable, any financing arrangements.
- Allowance for fees assessed by Town of Cape Vincent for Wind Energy Conversation Systems greater than 100kW in size, per Resolution 58, as passed November 15, 2012.

Cost estimates will be provided in year 2013 US dollars and any applicable sales tax on equipment and materials will not be included.

2.14.1 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received comments regarding the cost of facilities. These are summarized in Table 2.14-1.

Table 2.14-1 Comments and Responses on Cost of Facilities

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	Provide detailed financial data including such information that may be relevant to the required consideration of alternatives, the reasonableness of local laws or whether the proposed facility is in the public interest.	The Application will include an order of magnitude cost estimate as outlined above.

2.15 Public Health and Safety – Exhibit 15

2.15.1 Potentially Significant Adverse Impacts

While wind farms create substantially less waste than fossil fired generation, some hazardous materials such as diesel fuel, lubricating oil, and hydraulic fluid required by construction equipment, will be used in the construction and operation of the Project. Potential release of these substances to the environment could pose a threat to public health. In addition, while rare, there are instances of blade throw, ice throw and tower collapse at wind farms around the world. Potential impacts associated with low and audible frequency noise will be discussed in Exhibit 19 (Noise and Vibration), while Exhibit 24 (Visual Impacts) will cover shadow flicker.

2.15.2 Extent and Quality of Information Required

Hazardous Materials and Public Water Supply

In compliance with the Clean Water Act, a Spill Prevention, Control and Countermeasure ("SPCC ") Plan will be prepared which will assess the amount of hazardous material associated with the Project both during its construction and operation. During construction, this will primarily be diesel and cooling fluid for transformers; during operation this will primarily be cooling fluid for transformers and lubricating oil for wind turbine components. The potential for discharge to waterways will be assessed in the SPCC Plan.

Ice and Blade Throw

A modeling effort pertaining to ice shedding /throwing range and ice size will be generated based on a literature search of available information from wind farms operating in North America. In addition, a climatological analysis using hourly time-series data from meteorological databases will be prepared, using temperature, humidity and wind speed to estimate icing frequency across the project area. The

database will be updated to include data through 2012 and the persistence of icing events and return periods will be characterized over a 50 year period. A graphical analysis of time-series data will be presented to illustrate, weekly, annual and inter-annual characteristics. Further, the propensity for icing will be compared to other wind farms within the northeastern United States.

Calculations in the California Energy Commission's Permitting Setback Requirements for Wind Turbines in California, prepared by the California Wind Energy Collaborative, November 2006, report number CEC-500-2005-184, (the "CEC report") will be used to help inform an understanding about blade throw. The calculations follow the ballistics model prediction in Section 3.4.1 of that report. The key assumptions in the calculations are stated below. The calculations will be done for the throw of an entire blade, and several fractional breakages from 20% to 80%, at the maximum nominal rotor speed.

The release will be assumed to take place in a vacuum so no aerodynamic forces are modeled. The only force acting on the blade is gravity. The rotor in a vacuum will follow a simple ballistics model path. The CEC report notes that "the maximum range in a vacuum is achieved when the release angle is 45^{o}". However, this is only true for an object that is released and lands at the same elevation. This is virtually impossible for a utility-scale wind turbine which typically has a hub height of 263 feet (or more), and would require the ground to be approximately 263 feet higher than the base elevation of the wind turbine. This is possible only if the turbine were sited at the bottom of a gully or valley and the blade were to strike the side of a hill. Therefore, an iterative process will be used to determine various cases for blade throw at this site using the actual topographic data for the Project.

Tower Collapse

The wind turbine manufacturer will evaluate site specific loads which will help inform whether the wind turbines as designed may be able to withstand the wind loading, along with a factor of safety.

2.15.3 Avoidance and Minimization Measures

The SPCC Plan will endeavor to provide specifications as to when secondary containment will be necessary, what spill control equipment should be onsite, contact information for appropriate emergency agencies and procedures for controlling a spill. In addition, routine inspection of the storage of these materials will be conducted to ensure compliance with best management practices.

The ice and blade throw analyses will be used to help inform the wind turbine layout.

A third party engineering firm will review materials from the wind turbine manufacturer to help assess risk for wind turbine towers.

2.15.4 Proposed Measures to Mitigate Reasonably Unavoidable Impacts

The mitigation measures in 2.15.3 should adequately mitigate any impacts.

2.15.5 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received several comments regarding public health and safety. These are summarized in Table 2.15-1.

Table 2.15-1 Comments and Responses Regarding Public Health and Safety

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	Provide a Fire Protection/Emergency Response Plan created in consultation with the fire department(s) having jurisdiction that addresses coordination with local emergency / fire protection providers during any construction or operation phase emergency, hazard, or other event.	Meetings were held with the Town of Cape Vincent Fire Department on January23 2013 and the Three Mile Bay Fire Department (for the Town of Lyme) on February 6, 2013 (see monthly tracking report in Exhibit C)
23-Oct-12	Town of Cape Vincent Planning Board Mtg	Health and Safety Issues	We appreciate the feedback from the Town and will continue to address health and safety issues throughout the Article 10 process.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	Turbines too close to residences	The Project maintains setbacks to residences at one-quarter of a mile, which meets or exceeds the previous setback for residences held for either of the predecessor projects and is believed to be adequate to address health and safety concerns.

Table 2.15-1 Comments and Responses Regarding Public Health and Safety

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	1) Provide a comprehensive analysis of the scientific literature, including the aforementioned papers/ to describe the negative health impacts associated with sleep disturbance regardless of the cause. 2) Assess the potential for sleep disruptions, and other direct and indirect health effects, with proposed 124-turbine project. 3) Assess potential for sleep disruption in Cape Vincent based on predicted sound levels.	Potentially significant adverse health and safety impacts associated with noise will be addressed in Exhibit 19 of the Application.
20-Jan-13	Town of Cape Vincent	1) Provide epidemiological evidence that stray voltage generated by the turbine model selected and transmission components do not pose adverse risks to the nervous and immune systems of residents living in or near the project. 2) Rule out the possibility that stray voltage or electromagnetic fields generated by the turbines or transmission components will not adversely affect the function of pacemakers or similar implanted devices intended to regulate human organ functions. 3) Provide evidence that stray voltage generated by the turbine model and transmission components does not adversely affect milk production in dairy cows and goats in farms in or near the project. 4) Assess pre- and post-installation, of possible stray voltage problems on the site and neighboring properties within one (1) mile of the project boundary to show what properties need upgraded wiring and grounding.	The Project when constructed will be electrically grounded and stray voltage is not expected to be an issue. Specifically regarding item 1 - Proper grounding and installation of electrical systems based on the standards of the National Electric Code and National Electric Safety Code mitigates the risk of stray voltage affecting neighbors. *The bulk of the current will be physically close to the midpoint of the distribution pathway and will tail off considerably as one considers areas above and below this route. That is why so little current is discernible or measurable away from grounding electrode sites on the surface of the earth. The same is true for the horizontal profile. (Wisconsin)* *Stray voltage is a well understood electrical phenomenon that can be easily detected and corrected. MREC member utilities have Programs to assist farmers who have stray voltage concerns.*(MREC, 2005)

Table 2.15-1 Comments and Responses Regarding Public Health and Safety

Date	Commenter	Issue/Comment Summary	Response
			Specifically regarding item 2 – Because there are no regulatory limits and much biological data is unclear, the most conservative limits regarding magnetic field safety is from the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values data. • Routine occupational exposures should not exceed 600 Gauss to the whole body on an 8 hr time weighted average. • Routine occupational exposures should not exceed 6000 Gauss to the extremities on an 8 hr time weighted average. • A maximum ceiling (i.e. maximum value at any time should be 20,000 Gauss for the whole body and 50,000 Gauss for the extremities. • Pacemaker users or others with magnetic implants should not exceed 5 Gauss at any time. • In 2004 a team measured magnetic fields at the base of a wind turbine at the Windrush wind farm. They measured 0.0004 Gauss. (Windrush, 2004) Specifically regarding item 3 – Proper grounding and installation of electrical systems based on the standards of the National Electric Code and National Electric Safety Code mitigates the risk of stray voltage affecting livestock. *Potential causes of stray voltage on a farm include improperly made electrical connections, improper or damaged*

Table 2.15-1 Comments and Responses Regarding Public Health and Safety

Date	Commenter	Issue/Comment Summary	Response
			grounding systems, improper separation of electrical equipment grounds and neutral wires in buildings, and improper installation of electric fences, trainers or milking systems. While experience has shown that a majority of stray voltage sources are directly related to farm operation, utility distribution system sources may also be a contributing factor. Utility sources may include improper grounding, undersized conductors, loose electrical connections, and inadequate system balance. (Midwest Rural Energy Council, 2005) *The bulk of the current will be physically close to the midpoint of the distribution pathway and will tail off considerably as one considers areas above and below this route. That is why so little current is discernible or measurable away from grounding electrode sites on the surface of the earth. The same is true for the horizontal profile.* (Wisconsin, 2003) Specifically regarding item 4 – Proper grounding and installation of electrical systems based on the standards of the National Electric Code and National Electric Safety Code mitigates the risk of stray voltage affecting neighbors. Stray voltage affecting neighbors is likely originating from onsite generation. *Most earth currents and ground currents are the result of local 120-volt on-farm loads. From the PSCW utility stray voltage database, it has been determined that stray voltage levels above the 0.5 volt action level arise from*

Table 2.15-1 Comments and Responses Regarding Public Health and Safety

Date	Commenter	Issue/Comment Summary	Response
			solely on-farm sources 1/3 of the time, from solely off-farm sources 1/3 of the time, and from a combination of both sources 1/3 of the time. This implies that on-farm sources contribute to elevated levels of stray voltage about 50% of the time. (Wisconsin, 2003)
20-Jan-13	Town of Cape Vincent	Provide a comprehensive assessment of rotor failure and debris scatter for modern industrial scale wind turbine failures as well as a well-reasoned explanation for setbacks they may use that are not compliant with the Cape Vincent zoning law.	Potentially significant adverse health and safety impacts associated with ice throw, blade throw, and tower collapse will be addressed in Exhibit 15 of the Application.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	Have you looked at World Health Organization Recommendations?	For siting wind turbines, we have looked at our own standards, industry standards, and proposed and operating projects in New York.

2.16 Pollution Control Facilities – Exhibit 16

This Exhibit will contain completed copies of CVWP's applications or notices for authorizations that will be issued by the NYSDEC pursuant to federally delegated authority in accordance with the Clean Water Act. These will include a Section 401 Water Quality Certification, and a Section 402 State Pollutant Discharge Elimination System ("SPDES") General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-10-001, which will be required for construction. A SPDES permit will not be required for operations of the proposed Project.

This Exhibit will also contain a completed Application for a state Water Withdrawal Permit pursuant to Section 15-1503.

Fuel waste byproducts are not anticipated to be produced as a result of construction and operation of the proposed Project including its interconnections and ancillary facilities.

2.17 Air Emissions – Exhibit 17

This exhibit is not applicable to the proposed Cape Vincent Wind Farm.

2.18 Safety and Security – Exhibit 18

Security issues will be addressed prior to mobilization. Site Security may include: security guards, cameras, and tool box or lunch box inspections upon entering or leaving the work site.

2.18.1 Construction Security and Features

- Prior to start of the project, a Security Review may be conducted by the Project SPA (Single Point of Accountability) for security, and recommendations provided will be implemented.
- Commercially reasonable efforts will be made to place the work site in an orderly condition, so as to reduce safety risk to members of the public on the site (whether authorized or unauthorized) and to protect materials, equipment, and the completed work against theft and vandalism.
- Workers will report observed or suspected suspicious activity or theft immediately. In the event of a security breach which results in immediate danger, local law enforcement officials will be summoned in accordance with the site's Emergency Response Plan (to be developed with local input).
- The Project would be managed to the following site-security guidelines:
    - All visitors will be required to check in before proceeding with their business. All visitors will be orientated on the General Job Site Safety Rules. All visitors must be escorted at all times, until the Site Orientation Training is complete. There will be a prominent sign posted at the laydown yard entrance which instructs all visitors where to report.
    - Workers shall approach visitors or unfamiliar persons that are in unauthorized areas, and/or those visitors without the appropriate personal protective equipment ("PPE"), and direct such visitors to the office trailers.
    - All gang boxes, pickups, equipment, turbines, fuel sources and fenced areas will be locked when not in use and during off-shift hours.
    - A roaming Security Officer will be employed during off-shift hours.
    - Copper materials will be stored in a secured location where possible.
    - No photos will be allowed without proper clearances from project management.
    - All security events will be reported immediately.

- The site laydown yard may be fenced in during construction. The project substation and O&M building facility will be fenced in at a designated time during construction.
- Access roads will not be fenced in. A gate shall be installed if an access road crosses an existing fence on the property.
- Turbine pads will not be fenced in but must be kept in compliance with site housekeeping rules.
- The construction laydown yard will have lighting for the areas immediately around the office trailers, which will be directed downward and towards the yard.

2.18.2 Operations Security

- The project substation will be fenced in and lighting provided at the entrance to the facility. Lighting of the facility will be directionally downward and towards the center of the facility when lit.
- The Operations and Maintenance building facility will be fenced in and lighted. Outdoor lighting will be reduced while ensuring that health, safety, security, environment, and functionality issues are accounted for. Lighting at the building will be in compliance with code requirements for ingress and egress during emergency situations.
- The wind turbines will be key locked and may include a motion light at the entrance to the turbine.
- The wind farm will be lit in accordance with Federal Aviation Administration ("FAA") regulations.
- Regarding cyber security, CVWP will be able to leverage a robust cyber security strategy that is underpinned by an Information Security Management System which is aligned to ISO 27001. The strategy, supported by a dedicated Digital Security team, consists of the following seven elements:
-
    - Maintain agile, intelligence led security defences
    - Implement integrated, usable and secure baseline controls
    - Specifically protect critical assets
    - Make cyber security part of everyone's job
    - Establish rapid and adaptable response
    - Regularly test and assure the defences and response
    - Develop best-in-class people and capability

2.18.3 Safety Response Plan

Prior to the start of construction, project construction staff will complete development of a comprehensive Emergency Response Plan that comports with the minimum philosophy below:

- Method and plan for response to all injury incidents
- Method and plan for response to all environmental incidents
- Plan for an on-site Medical Provider through the life of the construction project

Designation of GPS coordinates for med-flight pickups for injuries of a serious nature, where ambulance transportation is not prudent.

- To establish these coordinates, a meeting will be held with the nearest med-flight trauma center, including an on-site visit by the operations manager or designee.

Emergency response drills shall be conducted periodically, with a minimum of one drill during civil activities and one drill during erection activities.

The emergency response plan should include, at a minimum:

- Medical Emergency
- Property Damage
- Fire
- Chemical Release or Spill
- Pipeline Release
- Tower Rescue
- Weather
- Evacuation Procedures
- Bomb Threats
- Suspicious Packages / Mail

2.18.4 New York State Division of Homeland Security and Emergency Services Review

A preliminary site security and safety response plan will be submitted to the New York State Division of Homeland Security and Emergency Services when the Application is submitted.

2.18.5 Local Office of Emergency Management Review

A review of plans by the local office of emergency management is not required for towns less than one million people.

2.18.6 Fire Response plans and Emergency Response plans

The project will have a Fire Protection and Prevention Plan. The objective of the plan is to eliminate the causes of fire, prevent loss of life and property by fire, and to comply with Occupational Safety and Health Administration's ("OSHA") standard on fire prevention, 29 CFR 1926.24.

- Each company pickup truck will be equipped with first -aid kits and fire extinguishers.
- Project personnel are not trained firefighters and are not to fight fires beyond the incipient or initial stages, or as required to facilitate personal safety/egress. Personnel will be trained to summon professional help and evacuate to designated zones of safety.
- Personnel will not be equipped with or trained in the use of professional firefighting equipment.
- The O&M building will have fire detection, no suppression.
- All trucks will have a spill kit for a small hazardous leak.
- Propane may be used as heating fuel in the Substation Control and O&M buildings and tanks will be located in the yard and secured with bollards and chains.

The Site Specific Fire Prevention Plan will include applicable procedures relating to fire prevention and protection. These procedures will include topics such as:

- Emergency reporting – Fire, spills & releases
- Fire equipment and extinguisher
- Control of smoking
- Warning signs
- Flammables and combustibles - storage, dispensing, and use
- Waste collection and removal
- Electrical fire prevention

2.18.7 Contingency Plans for Fire Emergency or Hazardous Substance Instance

The Application will include a contingency plan(s) to be implemented in response to the occurrence of a fire emergency or a hazardous substance incident.

2.18.8 Review by Local Emergency First Responders

The Emergency Response plans in Section 2.18.3 will be provided to the local emergency first responders.

2.19 Noise and Vibration – Exhibit 19

A noise impact assessment will be carried out to determine existing environmental sound levels within the current project area, what the expected operational sound levels from the project are likely to be, and how they compare to pre-construction levels. Components of the assessment include the mapping of all potentially sensitive noise receptors, field measurements of current sound levels, an analysis of construction sound levels, the modeling of operational sound emissions, and the determination of the various statistical quantities detailed in Section 1001.19(f) of Article 10.

Surveys of existing sound levels within the original project area were carried out in 2007 and 2008 but, because the project layout and size have changed sufficiently, a new survey and assessment will be conducted for the current Application.

2.19.1 Potentially Significant Adverse Impacts

Construction noise may be audible on a temporary basis at residences close to turbine sites, trenching operations, or road building activities. An analysis will be performed to quantify the maximum exposure levels.

Sound emissions from the turbines once the project is operational could be audible at residences and other potentially sensitive receptors within the project area and a potential will exist for annoyance and complaints. Analyses will be carried out to tabulate the sound levels at each residence due to the project alone and the cumulative level as stipulated in Section 1001.19(f) of Article 10. Impacts from low frequency noise, amplitude modulation, or tones are not expected to be significant but will be evaluated in the study.

2.19.2 Extent and Quality of Information Required

The field measurements associated with the antecedent projects fulfill many but not all of the Article 10 requirements so new survey work will be carried out on a larger scale, including much more extensive frequency analysis, to meet the new guidelines. The specified statistical parameters for background noise (L90, L50 and Leq) will be measured in the updated survey and compared with new model predictions of project noise associated with the latest project layout.

2.19.3 Proposed or On-going Studies during Pre-construction Activities

The noise assessment study will follow the requirements outlined in Subsections (a) through (n) of Section 1001.19 of the Article 10. More specifically, the following tasks are anticipated.

- The development of a map showing all potentially sensitive noise receptors in proximity to proposed turbine locations – primarily consisting of residences and churches.
- A survey of existing background sound levels in dBA conducted under wintertime conditions. Frequency analysis will also be used to illustrate the presence or lack of any discrete tones in the environment. Although stipulated in Sections 1001.19(b), (f)(2) and (f)(5) there are no plans at this time to carry out a survey of background sound levels during summertime conditions. Such a survey was conducted for the antecedent projects but, because of overwhelming contamination from nocturnal insects and other sources, did not prove to be useful for or relevant to the purpose of evaluating the potential noise impact of the Project. Based on the foregoing CVWP does not intend to carry out any further summertime noise studies. As a general rule, winter sound levels capture annual minimum conditions because interfering noise from insects, foliage, birds, farming activities, etc. is not as high as during spring, summer, or fall. Consequently, the results from a winter survey (only) constitute a more conservative approach and sufficient representation of existing pre-construction environmental sound levels.
- An evaluation of construction sound levels at potentially impacted and representative noise receptors will be carried out.
- The average (Leq) sound emissions from the operational project will be conservatively modeled and an estimate of the L10 project sound level will be made. While the L10 statistical level (the level exceeded for only 10% of the measurement period) is specified for project noise in Sections 1001.19(f)(4), (5), and (6), such a level cannot actually be calculated or modeled because the only turbine sound power levels available for use in modeling stem from IEC 61400-11 testing and are expressed as Leq, or average values. To overcome this, the typical increase over the mean sound level will be estimated from long-term field measurements of actual wind turbine sound emissions and added to the average source sound power level.
- An evaluation of the potential for tonal noise, amplitude modulation and excessive levels of low frequency and infrasonic sound will be carried out.
- Sound level contour maps, along with accompanying tables, will be developed showing the following sound levels over the entire site area relative to property lines and residences:

- The daytime L90 background level (based on the winter survey results) plus the estimated L10 project sound level
- The nighttime L90 background level (based on the winter survey results) plus the estimated L10 project sound level
- The daytime average (Leq) background level (based on the winter survey results) plus the estimated L50 project sound level
- The local noise standards relevant to the project will be discussed along with design goals for the project and compared to the modeling results.
- Noise abatement options during project construction will be discussed in the assessment report.
- Noise abatement options for the operational project will be discussed in the assessment report.
- The potential for hearing damage, indoor and outdoor speech interference, interference with the use of outdoor public facilities, community complaints and structural damage will be discussed.
- The methodology for a post-construction study to test and evaluate the project's sound emissions will be described.
- A potential complaint handling procedure will be outlined in the assessment report. .
- Modeling inputs, such as the turbine sound power level and modeling assumptions, will be described.

2.19.4 Avoidance and Minimization Measures

Planned measures to avoid or minimize the noise impacts from the project include the following:

- CVWP will evaluate noise in relation to potentially sensitive receptors and use such information to help optimize the layout.

2.19.5 Proposed Measures to Mitigate Unavoidable Impacts

If reasonably unavoidable noise impacts from the project are identified, the nature of such impacts will be described in the assessment report. Although it is a possibility, it is unlikely that the sound emissions from a project of this type will go completely unnoticed at all times by everyone in the project area; consequently, an unavoidable impact of some degree is anticipated. The extent of any adverse reaction to project noise depends on more than just the sound level, including attitudinal factors that have no direct association with noise, and cannot be precisely known ahead of time. Should complaints arise

once the project is operational they will be dealt with on a case by case basis through the project's complaint resolution process, which will be outlined in the Application.

2.19.6 Local Laws and Regulations

Existing local laws, ordinances and regulations pertaining to noise will be described in the assessment report.

2.19.7 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received several comments to date expressing concerns about potential noise impacts from the Project. These are summarized in Table 2.19-1.

Table 2.19-1 Comments and Responses on Potential Project Noise Impacts

Date	Commenter	Issue/Comment Summary	Response
25-Sep-12	Town of Cape Vincent	Provide maps showing turbines and the 35 dBA sound emission contour, since Cape Vincent's nighttime sound limit is 35 dBA.	Noise contour maps are normally projected out to the 35 dBA contour.
25-Sep-12	Town of Cape Vincent	Information on noise levels of turbines to be used.	The modeling input will be taken from the original equipment manufacturer's field testing per IEC 61400-11.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	General concern about noise impacts	Potentially significant adverse health and safety impacts associated with noise will be addressed in Exhibit 19 of the Application.
12-Nov-12	Town of Cape Vincent	What are the wind turbine noise limits based on turbines to be used	A specific turbine model has not been selected at this time due to uncertainty regarding availability of turbine models, although potentially significant adverse health and safety impacts associated with noise will be addressed in Exhibit 19 of the Application.
5-Dec-12	Town of Cape Vincent	General concern about excessive noise	Potentially significant adverse health and safety impacts associated with noise will be addressed in Exhibit 19 of the Application.
14-Dec-12	Town of Lyme	General concern about excessive noise	Potentially significant adverse health and safety impacts associated with noise will be addressed in Exhibit 19 of the Application.

Table 2.19-1 Comments and Responses on Potential Project Noise Impacts

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	Turbine noise is likely the issue that has the greatest potential for annoyance and adverse health impacts on Cape Vincent's population.	Potentially significant adverse health and safety impacts associated with noise will be addressed in Exhibit 19 of the Application.
20-Jan-13	Town of Cape Vincent	Furnish octave band sound pressure levels, based on worst case noise impacts. Modeling should provide an appropriate adjustment for model and turbine variability and Gs=0, Gm=0, and Gr=0.9.	Although we concur with Dr. Schomer's logic of using source, middle ground and receiver ground absorption coefficients of 0,0,0.9, such an analysis can only be done for the simplest case of a single turbine radiating noise to a single receptor because only then can the three different zones can be properly defined. In a contour map involving hundreds of receptors and many turbines these zones cannot be defined in any practical way. However, comparative analyses indicate that very similar results are obtained by using a universal coefficient of 0.5, so that is the anticipated approach.
20-Jan-13	Town of Cape Vincent	Provide map showing property lines.	The map provides information on lands that are leased, under easement, or have potential to be leased or under easement, as well as tax ID parcels. Property lines are visible on the maps.
20-Jan-13	Town of Cape Vincent	Include table with: predicted A-Weighted and C-Weighted sound levels for all residences and G2resident status (lessee, good neighbor, or nonparticipant).	This is already an Article 10 requirement.
20-Jan-13	Town of Cape Vincent	Include three operational scenarios in analysis: 1-noise levels at cut-in speeds, 2-noise levels at 1/2 power output; and 3- noise levels at full output of the wind turbine.	To be conservative, the use of only the maximum turbine sound power level at full output is anticipated.
20-Jan-13	Town of Cape Vincent	Provide number of Cape Vincent properties where turbine noise levels will exceed 35 dBA.	Information of this nature will be contained in tables of receptor sound levels required by the Article 10 guidelines.

Table 2.19-1 Comments and Responses on Potential Project Noise Impacts

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	Add the following to industrial and medical activities referenced in the rules: residences, schools and other facilities where people live, gather or congregate.	Schools, churches and other public facilities will be considered potentially sensitive receptors in addition to residences.
20-Jan-13	Town of Cape Vincent	Provide an evaluation of low frequency noise annoyance and epidemiological evidence that low frequency sound generated by selected turbine model is not, and will not be associated with the advent of adverse health effects such as sleep and mood disorders, inability to concentrate, tinnitus, Vestibular problems and hypertension; criterion should be 33.5 dBA, as suggested from the Wisconsin PSC report.	The actual finding of the Wisconsin PSC study was that the levels of infrasound from the project turbines were extremely low and most likely similar to or equivalent to the natural environmental sound level at those frequencies inside of each tested residence. In short, nothing was found that even suggested an explanation for the complaints about adverse health effects. The 33.5 dBA design goal was suggested by one of the team's investigators as an extreme precaution but others recommended 45 dBA as an adequate regulatory limit for the specific reason that the measured levels of infrasonic sound appeared to be utterly negligible.
20-Jan-13	Town of Cape Vincent	Compare predicted levels of infrasound with those referenced in the recent Wisconsin PSC study.	It is not possible to predict or calculate the infrasonic sound emissions from any wind turbine, since the source sound power levels at such frequencies are unavailable, being well outside the test range required by IEC 61400-11.

2.20 Cultural Resources – Exhibit 20

Studies of cultural resources, including archaeological sites and historic architectural resources, will be conducted to identify, assess, and address potential impacts of the construction and operation of the Project (OPRHP 12PR4316) on buildings, structures, objects, sites and districts that are listed in or eligible for inclusion in the National Register of Historic Places ("NRHP"). These studies involve a number of steps, which will be completed as appropriate prior to construction of the Project:

- Define the Area of Potential Effects ("APE") for archaeological sites and historic architectural resources;
- Perform Phase IA Literature Search and Sensitivity Study to establish the pertinent cultural-historical contexts for cultural resources in the study area, including information on previously-inventoried resources;
- Perform a Phase IB Field Investigation of the Project APE to identify archaeological sites;
- Perform Phase II Site Evaluations, as necessary, to determine NRHP-eligibility.
- Develop Project designs and other strategies to help reduce or avoid impacts to NRHP-eligible archeological sites, such as through micrositing of Project elements;
- Mitigate NRHP-eligible archeological sites that cannot be avoided through Phase III Data Recovery or other means with the exception of Native American burial sites. Native American burial sites will be left in place and not disturbed.
- Process, analyze, and curate archeological artifacts and records;
- Provide the Onondaga Nation the opportunity to have a Native American monitor(s) present during all archaeological fieldwork;
- Inventory architectural resources listed in or potentially eligible for listing in the NRHP located within the APE for architecture;
- Avoid or minimize impacts to architectural properties as possible;
- Devise mitigation strategies for any adverse impacts to NRHP-eligible architectural resources; and
- Develop an Unanticipated Discoveries Plan and Procedures to be followed during Project construction.

The Project APE for archaeology (n=1,445 acres) consists of two former proposed wind farms: the Saint Lawrence Wind Farm (northern Project section) and the Cape Vincent Wind Energy project (southern Project section). Cultural resources studies were previously performed when the potential environmental impacts of the two proposed former projects, St. Lawrence Wind Farm (OPRHP 06PR6711) and the former Cape Vincent Wind Energy Project (OPRHP 07PR0382) were evaluated under the New York State Environmental Quality Review ("SEQR"). To address the requirements of the SEQR process, various cultural resources studies were undertaken for the two previous Project layouts. Much of the prior cultural resources work is applicable to the current Project. However, additional or supplementary work is also required due to changes in the Project layout and the need to integrate prior work into unified study documents.

Phase IA background studies of the former St. Lawrence Wind Farm and the former Cape Vincent Wind Energy Project were completed in 2007. A Phase IB archeological field survey of the former St. Lawrence Wind Farm project was completed in 2008. The New York State Office of Parks, Recreation and Historic Preservation ("OPRHP"), which serves as New York's State Historic Preservation Office ("SHPO") indicated in 2008 that it had no further archaeology concerns with the St. Lawrence Wind Farm project.

Phase IB archeological field investigation work of the former Cape Vincent Wind Energy Project was conducted in 2010 and 2011, but work on the project and the Phase IB archeological survey report was suspended in late 2011. To date, there is no Phase IB report on this work.

Architectural reconnaissance inventories were completed for the 1-mile and 5-mile ("rings") APE for architecture for both previous wind farm layouts. Fieldwork for the former St. Lawrence Wind Farm took place in 2006-2007 and for the former Cape Vincent Wind Energy Project in 2008. OPRHP provided comments on both studies during 2008 and determined that no further analysis was needed.

These and any future cultural resource studies will be conducted in consultation with OPRHP. As part of the process of developing the design and application for the present Project, CVWP has met three times with OPRHP to discuss resource identification and impact assessment. The first of these meetings occurred on September 28, 2012, and also involved DPS. The second meeting occurred on November 7, 2012 and also involved DPS and the NYSDEC. The third meeting occurred on February 5, 2013. The assessment of data quality and needs and the approach for filling potential data gaps presented below reflects guidance received from OPRHP during those meetings.

CVWP has also met with representatives of the Onondaga Nation of New York (Onondaga Nation), a federally-recognized Indian tribe, to afford them an opportunity to gain a firsthand understanding of the Project and its potential impacts on cultural resources of particular concern to this community. An in-field meeting took place between CVWP and representatives of the Onondaga Nation on November 9, 2012, during which Project plans were reviewed, potential impacts discussed, and possible strategies for impact avoidance explored.

On January 22, 2013, CVWP also met with elected and appointed officials from the towns of Cape Vincent and Lyme to discuss various project-related matters. Town officials raised several issues related to potential Project impacts on significant historic architectural resources. These concerns have been considered in developing this Exhibit of the PSS and are specifically addressed in Section 2.22.5.

Cultural resources studies have been and will be, performed in accordance with applicable state and federal guidelines, including the New York Archeological Council's (NYAC) *Standards for Cultural Resource Investigations and the Curation of Archeological Collections in New York State* (1994), the *New York State Historic Preservation Office Phase I Archeological Report Format Requirements* (2005), OPRHP's *Guidelines for Wind Farm Development Cultural Resources Studies* (2006), and the agency's *Recommended Standards for Historic Resources Surveys* (2010). Several sections of Title 36 of the *Code of Federal Regulations* (36 CFR) are also applicable, including "Determinations of Eligibility for Inclusion in the National Register of Historic Places" (36 CFR 63) and "Protection of Historic Properties" (36 CFR 800).

2.20.1 Potentially Significant Adverse Impacts

Cultural resources include Precontact and Historic-period archeological sites, buildings, structures, objects, and districts. By altering the landscape, many construction projects, including wind energy developments, have the potential to impact cultural resources. Some Project impacts result directly from the construction, such as ground disturbances or the removal of existing structures. Other impacts result from changes to the setting of the resources through the introduction of structures and other elements that were not part of the historical landscape.

2.20.1.1 Archeological Resources

Potential Project impacts to archeological resources could result from excavation and earthmoving during construction. They may also occur as a result of prolonged or extensive vehicle traffic on unprotected ground surfaces. Consequently, the Project APE for archeological resources is defined as the designed limits of temporary and permanent ground disturbance from the construction of all Project elements, including turbines, access roads and intersections, collection lines, laydown and storage areas, O & M facilities, substations, and transmission lines.

The combined footprint for the limits of disturbance, and therefore the archeological APE, is currently estimated to be 1,445 acres. Archaeological site file research and field investigations of portions of the previous Project design have identified 69 archeological sites in the vicinity (approximately 1 mile) of the current footprint (Table 2.20-1). As designed, the current footprint avoids all known archeological sites.

Table 2.20-1 Recorded Archeological Sites in Project Vicinity

	Period				
	Precontact	Historic	Modern	Unknown	**Total**
Phase IA Review of OPRHP Files					
Northern section*	6	1	0	0	7
Southern section*	24	7	0	2	33
Subtotal	*30*	*8*	*0*	*2*	*40*
Phase IB Surveys of Previous Project Designs (Newly-Identified Sites)					
Northern section (StL survey)	1	0	0	0	1
Southern section {CV survey	11	12	1	3	27
{StL T-line survey	0	1	0	0	1
Subtotal	*12*	*13*	*1*	*3*	*29*
Total	**42**	**21**	**1**	**5**	**69**

Key: CV—former Cape Vincent Wind Energy Project; StL—former St. Lawrence Wind Farm; T-line—transmission line

**Note:* As defined here, the dividing line between sites in the vicinity of the northern section of the current design and those in the vicinity of the southern section is a line that begins at the head of Wilson Bay on Lake Ontario in Cape Vincent and ends at the head of French Creek Bay in Clayton on the southern shore of the St. Lawrence River in Clayton; the line generally follows the main (named) channels of Kent's Creek and French Creek.

Sources: Phase IA searches of OPRHP files; field data from Phase IB surveys of previous Project layouts

Phase IA background study of the previous Project layouts documented that the archeological record of Cape Vincent area spans over 10,000 years of Native American and Euroamerican occupancy. Background research and field surveys recorded 42 Precontact to Contact period Native American archeological sites in the Project vicinity (Table 2.20-1). Identified site types include isolated finds, low-density artifact scatters, campsites, villages, and possible burial places. The potential significance of the sites, as indicated by potential eligibility to the National Register of Historic Places (NRHP), has not been evaluated for most, and there are no designated NRHP-listed or -eligible Precontact period sites in the Project vicinity. The current Project layout avoids all known Precontact to Contact period Native American sites. Consultations took place in 2009 and 2012 between representatives of the Onondaga Nation, OPRHP, and CVWP or its predecessors concerning the possible impacts of the Project on Native American cultural heritage. The Onondaga regard Jefferson County as part of their ancestral homeland and have expressed concerns that construction of the Project might inadvertently damage burial areas or culturally significant archeological sites. The Onondaga Nation has requested that a Native American monitor be present during all archaeological fieldwork.

Permanent Euroamerican settlement of the Cape Vincent mainland began in 1801 and accelerated after the War of 1812. Lyme was organized as a township in 1818, and Cape Vincent became a separate town in 1849. Historically, the local economy was based on lumbering, farming, shipping, ship-building, and fishing. Tourism began to grow in importance around the end of the nineteenth century. Background research and field survey record 21 historic period archeological sites in the Project vicinity, most of which date to the nineteenth century (Table 2.20-1). Identified site types include field scatters of historic artifacts, farm dumps, building foundations and site complexes that include foundations, and extant historic buildings with accompanying archaeological deposits. Many of the inventoried historic archeological sites are associated with farmsteads and rural dwellings, but there are also commercial structures, early military barracks, and a church foundation with a still-extant cemetery. Most of the sites have not been evaluated for their potential eligibility to the NRHP, but two sites in the hamlet of Three Mile Bay (OPRHP USNs 04513.000098 and 04513.000099) occur on the grounds of NRHP-listed properties, the Menzo Wheeler House (NR 90001335) and Old Stone Shop (NR 90001328). These two sites are located approximately 1 mile from the Project's proposed transmission line right-of-way ("ROW"). Available information indicates that OPRHP has not formally evaluated the eligibility of the archeological deposits associated with these listed buildings. The current Project layout avoids all known historic archeological sites.

2.20.1.2 Historic Architectural Resources

There will be no direct impacts to architectural resources. Impacts to historic architectural resources are expected to be visual and therefore limited to potential alterations in setting. Changes in the existing visual setting of historic properties that are listed because of, or partially due to, scenic quality or adding to scenic quality may affect the historical integrity of the property. The extent, or footprint, of such potential impacts depends upon the height, massing, and surface characteristics of Project structures and buildings, as discussed in greater detail in Exhibit 24 (Visual Impacts). Based on OPRHP recommendations and in consideration of the design heights of Project elements, the APE with respect to historic architectural resources is defined as comprising an area extending 5 miles from turbines and 0.75 mile on either side of each transmission line alignment centerline. The combined impact areas associated with the individual elements encompasses approximately 200 square miles, based on the current Project design. The APE encompasses all of the Town of Cape Vincent, including the Village of Cape Vincent; most of the Town of Lyme from approximately the Chaumont River north, including the hamlet of Three Mile Bay and a portion of the Village of Chaumont; and the western end of the Town of Clayton. The APE also encompasses bays, islands, and open water in Lake Ontario and the head of the

St. Lawrence River. The northern extent of the 5-mile APE extends across the U.S.-Canadian border and is not subject to federal and state historic preservation laws.

Surveys of the historic architectural APEs of the former St. Lawrence Wind Farm and the formal Cape Vincent Wind Energy Project inventoried 670 properties to identify those historic buildings, structures, and other landscape features meeting the criteria of eligibility for NRHP. The surveys evaluated 190 properties determined to be of historic age—i.e., greater than 50 years old—for possible eligibility to the NRHP. Seventy-four of these properties, including three multi-element historic districts, were already listed on the NRHP. Based on information provided to it, OPRHP concurred with consultant recommendations that another 111 properties were eligible for the NRHP. OPRHP categorized 7 properties as unevaluated, indicating that further documentation would be required to reach a definitive opinion about the eligibility of the property (Table 2.20-2). For assessment and management of impacts, the status of the NRHP-eligible and unevaluated properties is the same as those properties that have been formally listed.

Table 2.20-2 Inventoried Historic Architectural Properties in Project Vicinity

NRHP Status	Number of Properties
Listed	74 (31*)
Eligible	111 (7*)
Unevaluated**	7
Not Eligible	36
Total	**190**

*Number of properties for which OPRHP commented in 2008 that there was a "strong potential for visual impacts."
**OPRHP policy is to treat unevaluated properties as NRHP eligible when analyzing potential Project impacts.
Sources: Architectural surveys of previous Project designs and ORPHP letters of comment dated May 28 and December 17, 2008, on the survey reports.

OPRHP provided comments on the historic architectural surveys of the previous project designs in May and December 2008. In both cases, the agency recommended creating some visual simulations (see Exhibit 24) to assist in assessing the impacts of the Project on historic architectural properties. Simulations were prepared for a subset of identified NRHP-listed structures. Nonetheless, based on the available information OPRHP determined that, under Section 14.09 1(c) of the New York State Parks and Recreation Law, the undertaking "will have an Adverse Impact on cultural resources. The introduction of the [tall,] sleek, ultramodern, … kinetic wind turbines… throughout this scenic landscape forever

alters and changes the rural setting, which itself is a significant element in much of the survey area and serves as the backdrop for the architectural, cultural and scenic tourism heritage of these communities."

Comments on the proposed Project received by CVWP from the Town of Cape Vincent on January 22, 2013, indicated similar concerns. Specifically, the Town expressed concern that CVWP make a full, good-faith effort to minimize potential impacts to NRHP-listed and -eligible historic buildings, structures, and districts in the Project APE.

2.20.2 Extent and Quality of Information Required

2.20.2.1 Archeological Resources

Archeological investigation of the Project to date includes Phase IA Literature Search and Sensitivity Study reports for both the former St. Lawrence Wind Farm (OPRHP 06PR6711) and the former Cape Vincent Wind Energy Project (OPRHP 07PR0382) sections of the current Project area (completed 2007); Phase IB archeological field investigation survey and report for the former St. Lawrence Wind Farm and an overhead generator interconnection line alignment (completed 2008); and Phase IB field investigation (but no report) in 2010-2011 for the Cape Vincent Wind Energy Project .

Regarding the St. Lawrence Wind Farm, the previous archeological survey work and report was completed in 2008 and accepted by OPRHP. Following discussions with OPRHP on February 5, 2013, several factors support the proposition that no further subsurface archeological investigation of the northern section of the current Project is necessary. These factors are:

- The 2008 survey of the former St. Lawrence Wind Farm employed an environmentally-based sensitivity model to identify Native American archaeological sites.
- The 2008 survey involved the excavation of a large number of shovel tests (n=3,298) to ground-truth the model.
- The 2008 survey identified only two archeological sites. A04505.000177 is a single Native American pottery sherd find spot. The remains of an early 20th century house foundation, associated outbuilding locations and scattered architectural debris were also identified. Neither of these sites were determined to be NRHP-eligible. These results indicate that archaeological sites are rare in the northern section of the Project due to the relative lack of topographic relief and the small number of streams and wetlands.

The 2008 Phase IB field investigation indicates that the area occupied by the current design in the former St. Lawrence Wind Farm (northern section) of the Project has a relatively low sensitivity for

archeological sites. Based on the foregoing, CVWP would propose that no further Phase IB survey of this portion of the archeological APE is warranted.

Regarding the former Cape Vincent Wind Energy Project (southern section) of the present Project design, the natural environment in this area is more variable. The Phase IA background research and the as-yet unreported Phase IB archeological survey of the former Cape Vincent Wind Energy Project identified the following sites: eleven (11) Precontact, twelve (12) historic, 1 modern, and 3 unknown as per table above (Table 20.2-1). In the September 28, 2012 meeting with CVWP and other parties, OPRHP agreed that the portions of the current Project design covered by or within 50 feet (15 meters) of previously surveyed areas could be excluded from the archaeological APE. Following additional discussions on February 5, 2013, OPRHP further agreed that the 2008 Native American site sensitivity model could be applied to the southern section of the current Project and that the number and location of Phase IB shovel tests would be determined by this model. The stratification and allocation approach is consistent with the survey methodology put forth in OPRHP's 2006 Guidelines for Wind Farm Development Cultural Resources Studies.

CVWP proposes that the Project's archaeological APE be calculated by subtracting the former St. Lawrence Wind Farm APE (northern Project section) and any areas covered by or within 50 feet (15 meters) of previously surveyed areas in the former Cape Vincent Wind Energy Project APE (southern Project section) from the total overall Project APE of 1,445 acres. Following this formula, the number of acres to be included in the Phased IB field investigation for the Project is 407. As required by the New York Archaeological Standards, the total number of required shovel tests is calculated by multiplying the number of acres in the APE (n=407) by 16 shovel tests per acre for a total of 6,512.

Following February 5, 2013 discussions with OPRHP, CVWP would propose that the total number of shovel tests be divided between high- and low-sensitivity areas, with half of the total (n=3,256) allocated to high-sensitivity areas. CVWP would also propose that in the low-sensitivity areas, a smaller number of tests (25 percent of that for high sensitive areas) would be excavated (n=814) because of the demonstrated lower potential for archaeological sites. A 16-foot (5-meter) shovel test interval is proposed for both high- and low-sensitive areas. Please note that the total number of shovel tests may change due to changes in Project size.

The 2008 Native American site sensitivity model utilized for the former St. Lawrence Wind Farm is described below. Table 2.20-3 lists the environmental attributes that will be used to define the Native American archaeological sensitivity of the APE.

Table 2.20-3 Scoring Matrix for Archeological Sensitivity

Variable (Terrain Feature)	State (Characteristic)	Score
Topography	Flat or sloping	1
	Ridge or spur	2
	Stream/wetland	3
Soil Type	Clay	1
	Silt	2
Distance to water	More than 300 feet	1
	Less than or equal to 300 feet	2

Sensitivity scores would be assigned to landforms with different physical characteristics. The sensitivity scores reflect accepted professional practice in the Northeast and are derived from research conducted by former State Archeologist Robert Funk and others in New York. First, stream and wetland margins are scored highest (3) when compared with either ridge or crest spurs (2), or flat or sloping areas (1). Second, silt is scored higher (2) than clay (1), based on reasoning that drainage and agricultural potential would be greater in silt than clay sediments. Third, scoring for proximity to water, either 300 feet or less (2) or more than 300 feet (1) is derived from Native American site distribution patterns observed in the Northeast. Table 2.20-4 presents the possible variable states that result in a scoring matrix with values ranging from 3 (lowest) to 7 (highest).

Table 2.20-4 Results of Sensitivity Scoring for Native American Sites, Based on Terrain Characteristics

Terrain Features and Characteristics, with Assigned Scores			Total Score (Sensitivity Rating)
Topography	Soil	Distance to Water, feet	
Stream/Wetland (3)	Silt (2)	Less than 300 (2)	7 (High)
Stream/Wetland (3)	Clay (1)	Less than 300 (2)	6 (High)
Stream/Wetland (3)	Silt (2)	More than 300 (1)	6 (High)
Stream/Wetland (3)	Clay (1)	More than 300 (1)	5 (High)
Ridge/Spur (2)	Silt (2)	Less than 300 (2)	6 (High)
Ridge/Spur (2)	Silt (2)	More than 300 (1)	5 (High)
Ridge/Spur (2)	Clay (1)	Less than 300 (2)	5 (High)

Table 2.20-4 Results of Sensitivity Scoring for Native American Sites, Based on Terrain Characteristics

Ridge/Spur (2)	Clay (1)	More than 300 (1)	4 (Low)
Flat/Slope (1)	Silt (2)	Less than 300 (2)	5 (High)
Flat/Slope (1)	Silt (2)	More than 300 (1)	4 (Low)
Flat/Slope (1)	Clay (1)	Less than 300 (2)	4 (Low)
Flat/Slope (1)	Clay (1)	More than 300 (1)	3 (Low)

This model would be employed to analyze the 407 acres of the APE not previously surveyed in the southern section of the current Project. The model would be built in two stages. First, a desktop analysis would be completed, using map data on streams, slopes, etc. Second, the model would be refined through a walkover survey of the APE. The field inspection will verify that map information accurately reflects ground conditions including areas of excessive ground disturbance, differentiation between artificial drainages and natural stream courses, and identification of any historic architectural features (e.g., foundations and cellar holes) or surface debris scatters, whether associated with known historic map-documented structures ("MDSs") or not.

As mentioned above, potential historic archaeological sites will be identified during the walkover survey and through the analysis of historic maps. Locations of MDSs will total twenty five (25) shovel pit tests and will be tested at intervals of 15 meters or less at the discretion of the archeologist. These shovel tests will be added to the 3,256 shovel tests already allocated for high sensitive areas.

Field investigations will follow OPRHP guidelines, described in the introductory section of this Exhibit. The Phase IB survey will be conducted in accordance with applicable OPRHP guidelines and generally-accepted professional practice. If burial sites are identified, the Haudenosaunee Protocol for Handling Discovery of Human Remains and the SHPO's Human Remains Discovery Protocol will be followed.

In addition to the archeological survey of the southern section of the current layout, CVWP also anticipates that it will finalize the technical report on the Phase IB archeological survey work of the previous design (OPRHP 07PR0382) for the Cape Vincent Wind Energy Project. As noted earlier, this report was not completed because design and permitting work was suspended.

CVWP is also committed to communicating cultural resources survey plans and results with representatives of the Onondaga Nation, who may be able to offer refinements to the sensitivity model to increase its effectiveness for the discovery of sites of particular concern to the Nation.

2.20.2.2 Historic Architectural Resources

Historic architectural surveys of 5-mile APEs have been completed for both previous Project designs. OPRHP has commented on the resulting survey reports and issued letters of concurrence for consultant recommendations on the NRHP eligibility of inventoried architectural resources.

It is anticipated that the 5-mile APE for the current Project will largely or entirely overlap with the APEs for the previous designs. Additional geographic analysis must be conducted to identify any possible gaps in coverage. If gaps are identified, CVWP will perform additional historic architectural field inventory. Any new information will be incorporated into assessments of potential Project impacts and the visual impact assessment for the current Project layout. As part of the technical documentation for the Article 10 Application, a consolidated technical study for the architectural resources inventory will be prepared, in accordance to a request of September 28, 2012 from OPRHP.

2.20.3 Avoidance and Minimization Measures

2.20.3.1 Archeological Resources

Planned measures to avoid or minimize the impacts on archeological resources from the Project include the following:

- The Project design will be adjusted in an attempt to avoid identified archeological resources that are potentially eligible to the NRHP.
- Known Native American burial sites will be avoided.
- Available data will be analyzed to identify landscape features that may have an elevated potential for containing archeological resources, and efforts will be made to avoid such areas in the Project design or to ensure that appropriate archeological survey is conducted within them.
- If an archeological site cannot be avoided, the Project will consider undertaking a Phase II archeological investigation or other study (after consultation with OPRHP) to assess the site's NRHP potential, evaluate potential Project impacts in detail, and identify possible alternatives for impact avoidance, minimization, or reduction.
- An Unanticipated Discoveries Plan will be created to describe the response process in the event of the unexpected discovery of cultural resources during construction.

- Monitoring during construction activities involving earth excavation may be conducted by a professional archeologist and/or a Native American monitor to identify and record any archeological deposits encountered.
- CVWP will maintain contact with representatives of the Onondaga Nation to address concerns about potential Project impacts to the Native American cultural heritage.

2.20.3.2 Historic Architectural Resources

CVWP notes that many of the concerns raised by the Town of Cape Vincent during the meeting of January 22, 2013, and at other meetings were resolved through the SEQR process for the former St. Lawrence Wind Farm. The issues are addressed in the FEIS for that project and in the Declaration of Findings. CVWP expects to be guided by the precedents in those documents to address concerns for the current design and Application process. Planned measures to avoid or minimize the visual impacts from the Project on NRHP-listed or eligible historic architectural resources include the following:

- Other than manufacturer's standard markings, Project infrastructure will be free of advertising and high-visibility commercial markings.
- Subsurface routing of collection lines will be employed to the extent practicable.
- To the extent feasible, ancillary facilities and transmission corridors will be sited away from historic architectural resources. If not possible, screening may be considered.
- Operators will maintain the Project constituent with industry standards over the life of the Project.
- The wind turbine towers and other above-ground elements of the Project will be removed during decommissioning (excepting interconnection facility equipment owned by the interconnection utility).

2.20.4 Proposed Measures to Mitigate Unavoidable Impacts

2.20.4.1 Archeological Resources

If reasonably unavoidable impacts to NRHP-eligible archeological resources from the Project are identified, CVWP will consult OPRHP and the Onondaga Nation, as appropriate, other concerned agencies or pertinent stakeholders to identify specific measures to mitigate the impacts. Among the possible measures to be employed are:

- Phase III archeological data recovery investigations to collect information from NRHP-eligible archeological sites that will be altered or destroyed by construction.

- Public outreach or similar activities that will offset a loss of archeological resources.
- Recordation by a professional archeologist of archeological objects or deposits encountered during construction in accordance with the Unanticipated Discoveries Plan.

2.20.4.2 Historic Architectural Resources

If reasonably unavoidable impacts to NRHP-listed or -eligible architectural resources are identified, CVWP will consult with OPRHP, other concerned state or federal agencies, local authorities, and pertinent stakeholders to identify specific measures to mitigate the impacts. Among the possible measures to be employed are:

- CVWP will enter into discussions with the OPRHP to determine an appropriate, mutually agreed upon mitigation alternative for those resources most affected.

2.20.5 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received several comments to date expressing concerns about potential project impacts to cultural resources. These are summarized in Table 2.20-5.

Table 2.20-5 Comments and Responses on Potential Project Impacts to Cultural Resources

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	In addition to the concerns for historic and cultural resources outlined in Section 12 past reviews associated with the Town's SEQR process stated that industrial wind turbine development had a very substantial visual impact on historic and cultural resources. More attention has to be directed to minimizing these impacts.	Visual impacts to the rural landscape will be reduced through the use of plain materials free of advertising and high-visibility commercial markings, other than standard manufacturer markings. Unavoidable adverse impacts, if any, would be addressed through potential mitigation measures.
20-Jan-13	Town of Cape Vincent	Based on PSC 06/13/07 SLWF the DEIS indicates the location of the Project substation on four acres near Swamp Road. The location indicated on the project facilities layout map is within or directly adjacent to the Warren Wilson House Historic District which is listed on the Register of Historic Places. This location presents a potential conflict with the Historic District, is likely to adversely	Potential effects of the revised Project on the Warren Wilson House will be addressed as part of the proposed Visual Resource Assessment.

Table 2.20-5 Comments and Responses on Potential Project Impacts to Cultural Resources

Date	Commenter	Issue/Comment Summary	Response
		affect that District. Alternative locations should be explored.	
20-Jan-13	Town of Cape Vincent	Based on PSC 06/13/07 SLWF adverse effects (turbines in view) on the Cape Vincent Village Broadway Historic District will conflict with Coastal Zone Management Policies. Supplemental Surveys should include all component resources and landscapes within listed eligible or potentially eligible historic properties or districts as appropriate to demonstrate the extent of impacts of the project on those resources. The discussion of Visual Resources and Community Character does not adequately address the scale and scope of the project impacts on the project area the affected community or several resources of regional and statewide significance.	Potential effects of the revised Project on the Broadway Historic District will be addressed as part of the proposed Visual Resource Assessment and will also be addressed in the assessment of potentially applicable coastal policies and consistency measures. In addition, revised discussions of visual resources and community character will be prepared following Article 10 § 1001.24 Exhibit 24: Visual Impacts requirements.
20-Jan-13	Town of Cape Vincent	Based on Mentor, Rubin & Trivelpiece 6/13/07 SLWF Review Determine how presence of each turbine affects each building that meets criteria for inclusion in the National Historic Register.	A visual resource assessment will be undertaken to determine the extent and assess the significance of Project visibility.

2.21 Geology, Seismology and Soils – Exhibit 21

This exhibit will include a study of the geology, seismology, and soils impacts of the facility consisting of the identification and mapping of existing conditions, an impact analysis, and proposed impact avoidance and mitigation measures as determined by studies included in Appendices to this Exhibit, which will be submitted as part of the Application.

2.21.1 (a) Existing Surface Slopes

To the extent practicable, the proposed facilities will be sited in relatively flat areas. A small amount of the study area has been identified as having steep slopes. Detailed maps delineating existing slopes (0-3%, 3-8%, 8-15%, 15-25%, 25-35%, 35% and over), as applicable, on and within the drainage area

potentially influenced by the Project and interconnections will be included in an Appendix to the Application.

2.21.2 (b) Project Plans

Proposed site plan drawings showing existing and proposed contours at two-foot intervals, for the facility site and interconnections, depicting all proposed buildings, structures, paved and vegetative areas, and construction areas will be included in an Appendix to the Application.

2.21.3 (c) Excavation and Backfill Analysis

Prior to placing fill for crane pads, site access drives, and other site features, the contractor will remove vegetation, topsoil, organic subsoils, and other unsuitable materials. Unstable subgrades will be removed and replaced with compacted structural fill or crushed stone as necessary; and the subgrade will be compacted. Structural or common fill may be placed to reach the required grade.

Detailed descriptions and preliminary calculations of the quantity of cut and fill necessary to construct the facility, including separate calculations for topsoil, sub-soil and rock will be included in the Application.

Weeds and other invasive species may be introduced to croplands during movement of heavy equipment across the Project. Generally, equipment staging and operations will occur on cleared, graded, gravel construction roads free of debris. However, the equipment used to originally clear, grade, and excavate at the Project might collect various invasive plants and seeds and transport them to other areas. Equipment coming from other project sites will also need to be monitored and cleaned as needed.

Accordingly, an Invasive Species Plan will be developed specific to the Project construction activities for identifying the presence of invasive species in spoil material and to prevent the introduction and/or spread of invasive species by the transport of fill material to or from the site. The Invasive Species Plan will detail procedures to reduce the introduction of invasive vegetation to all areas disturbed during construction.

2.21.4 (d) Fill and Construction Materials

The construction/access roads for the Project will be 16-foot wide gravel roads designed to meet the load-bearing requirements of truck traffic transporting concrete, gravel, and turbine components to the wind turbine sites over the life of the Project.

Native soil/fill will be separated from the base material to prevent fine soil particles from migrating into the gravel base material and preserve road base integrity. During construction, additional area will be compacted on each side of the gravel roads to allow for the additional construction traffic and crane movement. Following construction, these compacted areas will be de-compacted and seeded, leaving permanent access roads with 16 foot wide travel lanes, plus required shoulder and side slope.

An evaluation will be conducted and, if necessary, improvements to public roadways will be made consisting of gravel and asphalt to facilitate the transport of turbine and construction equipment. Temporary staging/storage areas, which will include construction offices and trailers, as well as areas for concrete batch plant sites will also be constructed with gravel.

Concrete will be used for foundations including wind turbine towers, the O&M building, electrical interconnection switching station, pads for each electrical transformer, and any other on-site material storage buildings. It is expected that all on-site buildings would be of modest proportion and require only slab-on-grade foundations, at the most augmented by frost-resistant perimeter footings.

Each turbine foundation is anticipated to be approximately 11 feet deep, approximately 55 to 65 feet in diameter, each requiring approximately 580 cubic yards ("cy") of concrete. Once the foundation concrete is sufficiently cured, the excavation area around and over it will be backfilled with the excavated on-site material. The top of the foundation pedestal measures approximately 18 feet in diameter, and typically extends 6 -12 inches above grade.

Detailed descriptions and preliminary calculations of the amount of fill, gravel, asphalt, and surface treatment material to be brought in to the facility site and interconnections will be included in the Application.

2.21.5 (e) Material to be Removed from the Project Area

Unless contaminated soil or any other undesirable material is encountered during construction, excavated soils are typically reused on site for backfill and contour smoothing with the goal of not removing soil from a particular area. Large stone and bedrock will be crushed for use in the immediate project area. Area surveys and geotechnical investigations will likely be conducted to determine if these conditions exist within the limits of disturbance. A detailed description and preliminary calculations of the proposed type and amount of cut material or spoil to be removed from the facility site and interconnections will be developed as needed.

2.21.6 (f) Excavation Techniques

The following is an overview of excavation techniques that could be employed by the contractor. The contractor will ultimately be responsible for the equipment and methods used during construction.

Following topsoil removal by dozer and pans, excavators will be used to excavate a foundation hole. Excavated subsoil and rock will be segregated from stockpiled topsoil. If bedrock is encountered and it is anticipated to be able to be ripped, it will be excavated with a backhoe. If the bedrock could not be ripped, it will be excavated by pneumatic jacking, or blasting. Blasting will be utilized only if ripping or hammering are not practicable.

Direct burial methods via cable plow, rock saw and/or trencher will be used during the installation of underground interconnect lines whenever possible. In general, cable may be buried 36 to 48 inches deep depending on soil conditions, depth to bedrock, and land use. A temporary footprint of vegetation and soil disturbance of up to 50 feet will result due to machinery dimensions and backfill/spoil pile placement. Agricultural topsoil within the work area will be stripped and segregated from excavated subsoil. Subgrade soil will be replaced around the cable, and topsoil will be replaced at the surface, immediately after installation of the cable.

Open trench installation may be required where there are unstable slopes, excessive unconsolidated rock, or standing or flowing water. Open trench installation is performed with a backhoe and will generally result in a disturbed trench 36 inches wide. Similar to a trench cut by a trencher or rock cutter, a Bobcat or small bulldozer will be used to replace soils and restore the grade.

To avoid or minimize impacts to specific environmental or archaeological features, directional drilling may be used at specific locations following discussions with the USACE, NYSDEC, and SHPO.

At certain locations within the Project the 34.5kV interconnects may be routed aboveground due to engineering or environmental constraints. In these cases the collection cables will be strung along either wooden or steel pole structures. Above ground line wooden poles will be delivered from the staging area and installed in augured holes, backfilled with gravel, guyed where needed and anchored.

2.21.7 (g) Temporary Storage Areas

Anticipated cut or fill storage areas will be described and depicted on a site plan will be included in an Appendix to the Application.

2.21.8 (h) Existing Soils for Construction

A preliminary geotechnical study has been conducted of the existing soil conditions for a portion of the area, which provides preliminary information for foundation level, soil corrosivity, and bedrock competence. Additional geotechnical investigation will be conducted for the entire Project area including borings, test pits, laboratory resistivity testing, thermal resistivity testing, in-situ electrical resistivity testing and geophysical investigations.

The Application will include a description of the characteristics and suitability for construction purposes of the material excavated for the facility and of the deposits found at foundation level, including factors such as soil corrosivity, bedrock competence, and subsurface hydrologic characteristics.

2.21.9 (i) Blasting Plan

If bedrock is encountered and it will generally be excavated with a backhoe. If the bedrock is not anticipated to be able to be ripped, it will be excavated by pneumatic jacking, or blasting. Blasting will be utilized only if the other potentially available methods of excavation are not practicable. CVWP anticipates that few, if any, turbine sites will require blasting. If blasting is required, it will be conducted in compliance with a Blasting Plan, and in accordance with all applicable laws and good engineering practices to avoid impacts to sensitive receptors.

After further geotechnical studies are conducted, a preliminary plan describing all blasting operations including location, minimum blasting contractor qualifications, hours of blasting operations, warning measures, measures to ensure safe transportation, storage and handling of explosives, use of blasting mats, conduct of a pre-blasting condition survey of nearby buildings and improvements, and coordination with local safety officials will be included.

2.21.10 (j) Impacts from Blasting

The blasting plan will provide an assessment of potential impacts of blasting to environmental features, above-ground structures and below-ground structures such as pipelines and wells.

2.21.11 (k) Blasting Mitigation Measures

Information generated from a blasting plan and geotechnical study will be used to identify and evaluate any reasonable mitigation measures regarding blasting impacts, including the potential use of alternative technologies and/or location of structures.

2.21.12 (l) Regional Geology, Tectonic, and Seismology

This section will include a description of the regional geology, tectonic setting and seismology of the project area.

Jefferson County and other areas surrounding Lake Ontario are part of the Ontario Lowlands physiographic province. Elevations in the area range from approximately 250 feet above mean sea level near Lake Ontario and St. Lawrence River to approximately 650 feet above mean sea level near the southern boundary of the physiographic province (southern terminus of former glacial Lake Iroquois). The surficial geologic deposits in the Ontario Lowlands consist primarily of glaciolacustrine lake silts, clays, and fine-grained sands, with major areas overlain by glacial till or ground moraine.[5]

The surficial geology in the in the Project area is composed predominantly of glaciolacustrine silt and clay with smaller amounts of more recent deposits of alluvium, organic-rich swamp deposits, and glaciofluvial sand deposits. Depth to bedrock within the Project boundaries varies from exposed at the surface to an estimated maximum of approximately 22 feet below ground surface. Depth to bedrock in much of the Project area is generally less than 6 feet. Near the shore of Lake Ontario southeast of Kents Creek and in the northeastern portion of the Project area, bedrock is either exposed or within 3 feet of the surface. Recent alluvium in the Project area is confined to active stream channels and is generally less than one meter thick. Organic-rich swamp deposits in wetland areas are generally less than 6 feet thick.

Bedrock is composed predominantly of Ordovician period limestones, shales, sandstones, and dolostones. The Project area is underlain by three lithostratigraphic units listed in descending order (i.e., youngest to oldest):

1. the Kirkfield Limestone (also called the Kings Falls Limestone);
2. the Rockland Limestone; and
3. the Chaumont Limestone.

The Chaumont Limestone is the uppermost formation within the Middle Ordovician Black River Group. The Chaumont Limestone consists predominantly of massive, gray, fine-textured limestone that commonly contains silicified (i.e., “petrified”) fossils. It is a high-calcium limestone that weathers light

[5] NYS Office for Technology. 2004. Geologic Resources, Appendix A, https://www.oft.state.ny.us/SWNdocs/docs/Geologic%20Resources.pdf.

gray and is more susceptible to karst formation that other limestones in the Project area. The Chaumont Limestone is exposed at the surface only in the far northeastern portion of the Project area.

The younger Rockland and Kirkfield (Kings Falls) Limestones are the two lowermost formations within the Middle Ordovician Trenton Group. Most of the Project area is underlain at the surface by the Rockland Limestone. The Rockland Limestone consists predominantly of thin-bedded, argillaceous, medium- to dark-gray fine-textured limestone with calcareous shale interbeds. The Kirkfield Limestone consists predominantly of medium- to thick-bedded, medium- to coarse-textured limestone that is abundantly fossiliferous. Both the Rockland and the Kirkfield Limestones can contain up to 25 percent by volume of the mineral dolomite, which makes these bedrock formations less susceptible to karst formation than the relatively pure Chaumont Limestone (contains 0 to less than 5 percent dolomite).

The structure of the bedrock in the Project area is relatively uniform. Bedrock structure has a strike that is generally northwest-southeast with a regional dip of 1 to 2 degrees towards the southwest. All three bedrock formations exposed in the Project area are regularly fractured by joints. The predominant joint sets in order of abundance are oriented approximately N70°E, N50°W, N30°E, and N15°W. Joint spacing is variable and generally ranges from 6 to 30 feet. Observed joint apertures generally range from 0.4 to 0.12 inches. Some solution enlargement of joints has been observed in the far northeastern portion of the Project area in areas underlain at the surface by Chaumont Limestone. Solution enlarged joints with apertures up to 12 inches have been observed in the extreme northeastern part of the Project area. Large structural folds or faults in bedrock have not been observed in the Project area.

A preliminary geotechnical investigation was conducted for the former Cape Vincent Wind Energy Project during which eight soil borings were drilled throughout the Project area to depths up to 50 feet below ground surface. Bedrock was encountered at depths of 8 feet below ground surface or above in four of the eight borings. Soil and rock samples were submitted for laboratory analysis of moisture content, Atterberg limits, grain size distribution, and unconfined compressive strength of rock. Results of this investigation will be included in an Appendix to the Application.

In general, subsurface conditions at the Project area can be generalized as described in Table 21-1.

Table 2.21-1 Geotechnical Boring Study Results at the Previous Cape Vincent Wind Farm

Description	***Approximate Depth to Bottom of Stratum (feet)***	***Material Encountered***	***Consistency / Relative Density***
Stratum 1	2 to 18.5	Lean clay, zones of high plasticity, grey	Stiff to very stiff, occasionally soft
Stratum 2	19	Silty gravel, with sand, grey-brown (Glacial Till) (2)	Medium dense to very dense
Stratum 3	N/A (3)	Limestone, fresh to slightly weathered, slightly to moderately fractured, medium hard, fine grained, gray to dark gray	N/A

1. Topsoil and/or subsoil were encountered at the surface in each boring.
2. Glacial till encountered in JB-21 only. Occasionally, weathered bedrock was encountered above the competent bedrock surface.
3. Subsurface conditions were explored to a maximum depth of 50 feet below existing grade.

According to the United States Geological Survey ("USGS"), which maintains records extending back to 1638, the most recent nearby earthquake occurred on August 24, 1998 southeast of Watertown, approximately 30 miles southeast of the Project area. This earthquake was measured at approximately 3.0 on the Richter scale, centered. The nearest recorded earthquake of this magnitude occurred on December 7, 1818, approximately 10 miles offshore in Lake Ontario, registering 3.3 on the Richter scale[6].

Seismic Hazard Maps of the conterminous U.S. indicate that the Project area has a low probability for seismic activity and bedrock shift during seismic events would be minimal[7]. The Seismic Hazard Map for New York State prepared by USGS rates the seismic hazard near the Project area as a 2% or less probability over 50 years of peak acceleration exceeding 8-10% of the force of gravity ("g").

Although the risk of seismic activity adversely affecting the Project area is relatively low, the potential for a significant seismic event should be accounted for during the design of a facility. Proposed tower

[6] Russell L. Wheeler, Nathan K. Trevor, Arthur C. Tarr, and Anthony J. Crone. 2001. Earthquakes of the northeastern United States and adjacent Canada, 1638-1998, published by the USGS
[7] USGS, Seismic-Hazard Maps for the Conterminous United States, Map 2883, Sheet 1 of 6, Version 1.0

locations should be set back from private residences, other structures, and non-project related overhead power lines at a distance greater than the maximum height of the tower. This would ensure that, in the unlikely event of structure failure due to significant seismic or other unanticipated activity, damage to adjacent residences or other structures would not occur. Similarly, the potential earthquake hazards for the region should be accounted for when designing the anchoring system for the towers.

Soil liquefaction is a phenomenon often associated with seismic activity in which saturated, cohesion-less soils temporarily lose their strength and liquefy (i.e., behave similar to a viscous liquid) when subjected to forces such as intense and prolonged ground shaking. According to the Federal Energy Regulatory Commission, areas with the potential for soil liquefaction are "underlain by Holocene deposits which are likely to be non-cohesive, such as alluvial, lacustrine, and littoral deposits, and where the ground water table occurs within 10 feet or less of the ground surface, and where the USGS Open File Report 82- 1033 indicates the area has a 90% probability that horizontal ground accelerations of 10% of gravity or greater would be exceeded in 50 years." The USGS Open File Report 82-1033 indicates that, for the entire Project area and surrounding region, there is a 90% probability that horizontal ground accelerations of greater that 4% g would not be exceeded in 50 years[8]. In addition, according to the USGS (Map MF-2329, version 1.0, 1999), landslides are not known to occur in Jefferson County. The Project area is composed mostly of less than 10 percent slopes (often less than 5 percent) and the glaciolacustrine silt and clay units tend to be very thin. These data suggest that it is unlikely that soil liquefaction will occur in the Project area.

Additional geotechnical investigations, consisting of subsurface exploration, laboratory analysis, and seismic refraction testing will be conducted to encompass the entire Project area. Exhibit 21 will be updated with the results of these studies.

2.21.13 (m) Impacts to Regional Geology

Based on the limited spatial scale of the Project, construction and operation of the Project is not expected to result in negative impacts on geology and topography on a regional scale. No significant impacts on geology are anticipated from construction and operation of the Project. Minor alterations to the turbine sites for grading and other construction activities will be required and it is anticipated that

[8] Algermissen, S.T., D.M. Perkins, P.C. Thenhaus, S.L. Hanson, and B.L. Bender. 1982. Probabilistic estimates of maximum acceleration and velocity in rock in the contiguous United States. U.S. Geological Survey. Open-File Report 82-1033

rock anchoring or blasting may be required in areas of thin soil over bedrock. However, these activities should not have a significant impact on Project area geology.

Karst conditions exist in the Project area and their development may be accelerated by significant infiltration of water. Site specific preliminary Karst condition assessments will be conducted to assess the potential of each site for Karst formation. A SPDES permit will be obtained prior to construction initiation in which stormwater best management practices will be developed specifically to protect the karst features at the site. Precautions will also be taken to seal potential pathways for water with concrete over exposed bedrock subgrades.

Construction and operation of the Project could impact small portions of the Project topography where construction occurs in the following situations:

- Surface soil could be compacted during construction of the turbines, crane pads, and support structures (i.e., access roads and underground power lines).
- Local topography around the turbines sites and roads may be changed to accommodate the requirements to construct and operate the turbines.

Local drainage patterns may be impacted as a result of construction activities. The Stormwater Pollution Protection Plan ("SWPPP") required as part of the SPDES permit will address these impacts. The SWPPP will take into consideration karst features in relation to the drainage patterns to ensure that karst development is not accelerated.

As additional geotechnical subsurface investigations/data and construction plans are advanced, this section will be updated to reflect any specific impacts to regional geology due to the construction and operation of this Project.

2.21.14 (n) Seismic Analysis

As described above, the USGS states that no significant earthquake epicenter has been recorded within 50 miles of the Project and that the Project Area is not located within an active seismic region. No significant tectonic faults have been mapped in Jefferson County, and there are no known active faults (i.e., younger than 1.6 million years) in this region[9].

[9] USGS. Geological Survey Earthquake Hazards Program - New York Earthquake Information. United States Geological Survey, 2002. http://earthquake.usgs.gov/regional/states.php?regionID=32&region=New%20York.

The Application will include any additional analysis of the impacts of typical seismic activity experienced in the facility area based on current seismic hazards maps, on the location and operation of the facility identifying potential receptors in the event of failure, and if the facility is proposed to be located near a young fault or a fault that has had displacement in Holocene time, demonstration of a suitable setback from such fault.

2.21.15 (o) Soils Map

A map delineating soil types on the Project will be included in an Appendix to the Application.

2.21.16 (p) Soils Analysis

This section will include a detailed description of the characteristics and suitability for construction purposes of each soil type identified above, including a description of the soil structure, texture, percentage of organic matter, and recharge/infiltration capacity of each soil type and a discussion of any de-watering that may be necessary during construction and whether the facility shall contain any facilities below grade that would require continuous de-watering.

Additional geotechnical investigations, consisting of subsurface explorations, laboratory analysis, and geotechnical design recommendations will be conducted to provide the required information.

2.21.17 (q) Subsurface Analysis and Impacts

This section requires maps, figures, and analyses delineating depth to bedrock and underlying bedrock types, including vertical profiles showing soils, bedrock, water table, seasonal high groundwater, and typical foundation depths on the facility site, and any area to be disturbed for roadways to be constructed and all off-site interconnections required to serve the facility, including an evaluation for potential impacts due to facility construction and operation, including any on-site wastewater disposal system, based on information to be obtained from available published maps and scientific literature, review of technical studies conducted on and in the vicinity of the facility, and on-site field observations, test pits and/or borings as available. The following is a preliminary analysis while additional geotechnical investigations will provide further information and mapping.

Construction activities such as clearing and grubbing, grading, trenching, excavation, movement of heavy equipment, and cleanup activities may affect soil. Potential soil and agricultural productivity-related impacts in the portion of the Project area on which construction will occur include:

- permanent removal from cultivation (as part of turbine site, O&M site, substation, or permanent access roads);
- soil compaction and rutting;
- erosion and sediment runoff during precipitation events;
- introduction of rocks into the topsoil, impeding agricultural practices;
- contamination due to leaks and spills from construction vehicle operation and maintenance;
- introduction of weeds or other invasive species; and
- loss of productive agricultural land

The following paragraphs describe soil constraints, potential impacts of Project components on soil resources and agricultural productivity, and the measures that will be implemented during construction and operation to avoid or minimize impacts on soil resources.

Compaction and Rutting

Rutting and compaction of soils due to travel of heavy equipment may occur on the proposed construction areas. These impacts are of particular concern in cultivated fields and may be more likely to occur when soils are saturated, moist, or poorly drained. To prevent this, grading and compacting will take place prior to transporting larger pieces of equipment to the Project.

The Project construction contractor will minimize rutting and compaction by maintaining construction equipment and materials on Project access roads. .

Impacts during operation and maintenance of the Project are expected to be minimal, because activities will generally be limited to areas where Project roads exist. CVWP will conduct yearly inspections and complete any needed maintenance and/or repairs. In the case of necessary major turbine repairs, some work outside the boundary of permanent access roads and turbine sites could cause damage to soils. Such work would be called for if heavy components needed to be replaced, for instance. The Application will discuss potential measures that could be implemented to reduce soil compaction or rutting during maintenance activities.

Stony/Rocky Soils or Shallow-Depth-to-Bedrock Soils

Introduction of stones or rocks into surface soil layers may damage agricultural equipment resulting in reduced productivity. Rock fragments and stones at the surface and in the surface layer may be encountered during grading, trenching and excavation, and backfilling. In addition, ripping of shallow bedrock during construction could introduce rock fragments or stones into the topsoil.

Erosion and Sedimentation

Short-term increases in erosion can occur as a result of the removal of vegetation during clearing and grading activities and the subsequent exposure of topsoil to precipitation and high winds. In addition, in areas where vegetation is slow to become reestablished, increased erosion can occur. Increased erosion of soils is of special concern adjacent to water bodies, where it can result in increased sedimentation.

The potential for erosion is influenced by the grain size, slope, and drainage characteristics of the soils. Areas with level to nearly level slope and coarse-grained, well-drained soils are less likely to be eroded than areas with steep slopes or fine-grained, poorly drained soils.

Construction activity is expected to have minimal erosion and sedimentation impacts on soil in the Project area.

Standard erosion control measures will be specified in the SWPPP to prevent the loss of soils through erosion, and the sedimentation of surrounding drainages and waterways with runoff from the construction site.

Soil Contamination

There is also a potential for soil contamination to occur during construction and operations as a result of spills or leaks of vehicle lubricants and fuels, as well as the lubricating oils contained in the nacelle of each turbine. This potential impact should be minor due to requirements for spill prevention, countermeasures, and control that will be required as part of Applicant's internal business policies and EPA's Spill Prevention, Control and Countermeasure regulations in 40 CFR 112, along with the limited occurrence of such situations.

Soils can be contaminated by improper disposal of construction related materials as well. These may include pieces of wire, bolts, and other unused metal objects from the packing of turbine components, as well as excess concrete. CVWP will implement a Waste Management Plan, in accordance with the Applicant's internal business policies. These materials will be collected and removed from the project area.

Agricultural Productivity

Another impact on agricultural land during construction activities includes the direct loss of any crops and pastureland grown at the time of construction. Because of the timing of some construction (spring through fall) of construction, some yields of crops grown within the Project area will be reduced due to

the temporary disruptions due to the workspaces and access roads needed to support the construction activities.

A potentially significant long-term impact of the Project on agricultural lands would include the loss, by conversion to nonagricultural uses, of prime farmland soils (USDA Prime Farmland) or soils of statewide importance (Farmlands of Statewide Importance) and the loss of land within agricultural districts. Impacts to these soils are a major concern of the New York State Department of Agriculture and Markets (Ag & Mkts.) and the Project will endeavor to adhere to the guidelines provided by Ag & Mkts.

These totals represent a small fraction of the USDA prime farmland soils and farmlands of statewide importance in Jefferson County, and therefore this impact is not considered to be significant.

As indicated previously, other soil impacts that can affect agricultural productivity include the introduction of rocks and weeds into the soil, the latter of which compete with the farmed crops for soil moisture and fertility, leading to lower crop yields.

Soil fertility may decrease if mixing of soil layers occurs in areas graded or excavated during construction activities.

Drainage Features

Surface drainage features that may be encountered during construction include watercourses that may be located within the Project area and solution-enlarged joints (Karst conditions) in the far northeastern portion of the Project area. Information on watercourses that may represent conduits for surface water flow are discussed in Section 2-23. Other potential impacts that may occur include changes to the natural drainage patterns of agricultural lands.

If areas of potential subsurface drainage including drainage tile or solution-enlarged joints (Karst conditions) are encountered during construction, they will be avoided, protected, or completely restored. CVWP will mitigate these potential impacts where necessary, including installation of culverts and water bars to maintain natural drainage patterns. In addition, where Project roads are constructed or existing roads are improved, design of these roads will include drainage systems.

2.21.18 (r) Foundation Evaluation

CVWP will conduct an evaluation to determine suitable building and equipment foundations, including:

(1) a preliminary engineering assessment to determine the types and locations of foundations to be employed. The assessment will investigate the suitability of such foundation types as spread footings, caissons, or piles, including a statement that all such techniques conform to applicable building codes or industry standards;

(2) if piles are to be used, a description and preliminary calculation of the number and length of piles to be driven, the daily and overall total number of hours of pile driving work to be undertaken to construct the facility, and an assessment of pile driving impacts on surrounding properties and structures due to vibration will be conducted; and

Results from the final geotechnical investigations conducted for the Project area will be used to inform this section for the Application submission.

2.21.19 (s) Facility Vulnerability to Earthquake and Tsunami

Further geotechnical research and evaluations will include a determination of the vulnerability of the facility site and the operation of the facility to an earthquake event and a tsunami event.

2.21.20 (t) Other Material Issues Raised by the Public and Affected Agencies

CVWP has received comments concerning geology. These are summarized in Table 2.21-2.

Table 2.21-2 Comments and Responses on Potential Project Impacts to Geology

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	Conduct a comprehensive assessment of the karst geology in the Town of Cape Vincent	See discussion above regarding karst geology.
20-Jan-13	Town of Cape Vincent	Town consultant recommended an evaluation of the bedrock geology	The Project will take the comment under advisement.
20-Jan-13	Town of Cape Vincent	Dissolution cracks, caves and caverns provide heretofore unknown hibernacula for bats ... these areas should be avoided.	The Project will take the comment under advisement.

Table 2.21-2 Comments and Responses on Potential Project Impacts to Geology

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	DEC recommended that the SDEIS for CVWF include: 1) a more complete discussion of karst features. 2) A detailed construction plan needs to be developed to incorporate stringent containment of construction materials, particularly concrete slurry. This would include such practices as the use of watertight forms, silt/stormwater fencing, controlled concrete truck washout areas, and covered storage of equipment and construction chemicals. Engineering specifications to describe these proposed practices need to be detailed in this plan.	See discussion above regarding karst geology.
20-Jan-13	Town of Cape Vincent	For the SLWF SDEIS, DEC recommended that a plan be prepared that specifies procedures for conducting detailed subsurface investigations at turbine site locations and other project components that may interface with limestone/karst features. The plan should specify actions to be taken if karst features are identified or suspected, including further investigation (e.g., dye testing), turbine relocation, determination of the effects of blasting, or engineering construction controls.	See discussion above regarding karst geology.
20-Jan-13	Town of Cape Vincent	The SDEIS included an outline of proposed karst investigations, but DEC recommends the studies be completed prior to construction to assess the adequacy of proposed mitigation measures.	See discussion above regarding karst geology.

Table 2.21-2 Comments and Responses on Potential Project Impacts to Geology

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	The DEIS provides to construction, a geotechnical investigation "would be performed" to identify subsurface conditions necessary for engineering the final design of the Project. DEIS contains no technical investigation.	See discussion above regarding plan for geotechnical investigation.
20-Jan-13	Town of Cape Vincent	The potential to impact receptors, e.g., domestic wells, springs etc. , will be increased due to the presence of karst limestone bedrock across the project area and the need to construct large concrete foundations.	See discussion above regarding plan for geotechnical investigation.

2.22 Terrestrial Ecology and Wetlands - Exhibit 22

2.22.1 Potentially Significant Adverse Impacts

The determination of potentially significant adverse impacts to terrestrial ecology and wetland resources is based on compiled state and federal resource information, results of extensive onsite multi-season studies, and discussions with various state and Federal agencies on the wildlife species and habitat types documented or expected to exist within the Project and the likely impacts of the construction and operation of the Project on wildlife. These impacts are grouped below as follows: general wildlife habitat, mammals (other than bats), avian and bat resources, state and federal endangered and threatened species, and wetlands.

General Wildlife Habitat

A total of approximately 1,445.5 acres will be disturbed for the construction of the Project. This includes variety of cover types that potentially provide habitat for wildlife. Table 2.22-1 summarizes the acreage to be removed or disturbed by cover type based on characterization at the ecological system level. Less than 10 percent (less than 145 acres) of the total area removed or disturbed will be converted to permanent features associated with the Project facility such as turbine foundations, turbine pads, access roads, and ancillary features such as meteorological towers, an operations and maintenance building, and a substation. An additional potential impact to general wildlife habitat resulting from construction of the Project is the introduction and/or spread of invasive plant species.

Table 2.22-1 Land Cover with Limits of Disturbance

Ecological System	Acres	Percent
Eastern North American Cool Temperate Forest	44.4	3.1
Eastern North American Flooded & Swamp Forest	149.2	10.3
Eastern North American Grassland, Meadow & Shrubland	5.7	0.4
Cultivated Cropland	268.8	18.6
Pasture/Hay	865.0	59.8
Introduced Riparian and Wetland Vegetation	0.8	0.1
Recently Harvested Forest	39.7	2.7
Open Water	1.4	0.1
Developed, Open Space	25.5	1.8
Developed, Low Intensity	45.0	3.1
Total	**1,445.5**	

Mammals, other than bats

The most likely impact to mammals other than bats from the Project would be indirect impacts in the form of habitat loss or degradation resulting from addition of the Project to the landscape. No potentially significant adverse impacts are expected to mammals other than bats and no state or federal protected terrestrial mammals occur within the Project. Project related impacts are expected to be temporary and minor such as: temporary displacement of disturbance-tolerant species into adjacent suitable habitat during construction and minor wildlife mortality of less mobile species due to interactions with machinery during construction.

Avian and Bat Resources

Wind energy facilities such as the Project may result in direct and indirect impacts to birds and bats. Direct impacts of wind energy facilities refer to fatalities resulting from flying birds and bats being killed by collisions with wind turbine rotors or towers, Project meteorological towers or other means such as barotrauma, electrocution or vehicle collision. Indirect impacts of wind energy development refer to disruptions of foraging behavior, breeding activities, and migratory patterns resulting from presence of the Project facilities in landscapes used by birds and bats.

The most likely direct impact to birds and bats from wind energy facilities is mortality or injury due to collisions with turbines, which may occur with residents foraging and flying within the project area or with migrants seasonally moving through the project area. Direct impacts to birds and bats are not equal across seasons. CVWP has conducted pre-construction studies to estimate the species composition and levels of use by birds and bats within the Project area (see section below). Information

collected during those surveys has been used to inform project design to avoid and minimize direct impacts resulting from construction or operation of the Project to the extent practicable. CVWP will conduct post-construction fatality monitoring studies to determine the direct impact of operating wind turbines on birds and bats and confirm the estimated impacts of the Project.

Indirect impacts to grassland bird populations using portions of the Project may result from Project construction and/or operation. Indirect impacts to grassland birds may include behavioral alterations or avoidance of areas close to Project facilities. CVWP has conducted pre-construction surveys specifically for grassland birds. Information collected during those surveys has been used to inform project design to avoid and minimize indirect impacts resulting from construction or operation of the Project, to the extent practicable. CVWP will conduct post-construction fatality monitoring studies to determine the direct impact of operating wind turbines on grassland birds as well as studies designed to estimate the indirect impact of operating wind turbines on grassland birds.

Concern for nesting bald eagles, has been expressed by state and federal agencies. CVWP conducted pre-construction bald eagle nest surveys and avian use studies. No bald eagle nests are within the Project area and use by bald eagles of the Project area was low. CVWP will conduct post-construction fatality monitoring studies to determine the direct impact, if any, of operating wind turbines on bald eagles.

State and Federal Endangered or Threatened Species

Based on information compiled during pre-construction field studies, review of publically available information on range and distribution, and consultation with the USFWS and NYSDEC, the following state and federal endangered or threatened species have been documented within or immediately adjacent to the Project's limits of disturbance.

- Indiana Bat – Federal & NY Endangered
- Short-eared Owl – NY Endangered
- Bald Eagle – NY Threatened & Federal Bald and Golden Eagle Protection Act
- Northern Harrier – NY Threatened
- Henslow's Sparrow – NY Threatened
- Sedge Wren – NY Threatened
- Upland Sandpiper – NY Threatened
- Blanding's Turtle – NY Threatened

The Project may result in the potential incidental take of Indiana bats during operations. The Project may result in direct or indirect impacts to bald eagles, short-eared owl, northern harrier, Henslow's sparrow, sedge wren and upland sandpiper. The Project may result in indirect impacts to Blanding's turtle in the form of habitat loss or alteration. In addition, Blanding's turtle may be at risk of direct impacts from construction or collision with vehicles during project operations. The Project has conducted pre-construction studies to document the occurrence of these species and their habitats within the Project since 2006. The Project has consulted the USFWS and NYSDEC and is currently preparing avoidance, minimization and mitigation strategies for threatened and endangered species in compliance the federal Endangered Species Act (ESA 1973) and Part 182 of New York State Environmental Conservation Law Article 11. In addition, CVWP has consulted the USFWS in regards to bald eagles pursuant to the Bald and Golden Eagle Protection Act (16 USC 668-668d; 50 CFR 22) and is currently evaluating the potential for impacts to this species as a result of Project operations. CVWP will continue to consult the USFWS and NYSDEC on threatened and endangered species during the course of the Article 10 Application process.

Wetlands

Based on a review of the NYSDEC Freshwater Wetland Maps and the USFWS National Wetlands Inventory ("NWI") maps there are 70 NYSDEC mapped wetlands and 1,024 NWI mapped palustrine wetland polygons within the Towns of Cape Vincent and Lyme. Riverine and lacustrine wetlands were also identified within the two townships. Approximately 4 percent of the total area within the limits of these two towns is mapped by NYSDEC or the NWI as palustrine wetlands. Table 2.22-2 provides the number of mapped NYSDEC-regulated wetlands by class within the towns of Cape Vincent and Lyme. Table 2.22-3 provides a summary of the number and acreage, of the palustrine wetlands mapped by the NWI within the Towns of Cape Vincent and Lyme, by cover class. For the Application, field delineation of wetlands will be used along with desktop analysis to outline the wetlands in the project area, consistent with Article 10 regulations.

Table 2.22-2 Summary of Mapped NYSDEC Wetlands Within Towns of Cape Vincent and Lyme

Wetland Class	Number of Wetlands	Acreage
I	6	304
II	42	3666
III	18	470
IV	4	62
Total	**70**	**4,501**

Unavoidable fill of wetlands will result in the permanent loss of acreage and associated functions and values. Although wetland impacts will be avoided to the extent practicable, any clearing through forested wetlands could result in a change from tree species to shrub and herbaceous vegetation. Impacts to non-forested wetlands are expected to be short term and vegetation is expected to return to pre-construction conditions in one to two growing seasons.

Table 2.22-3 Summary of Mapped NWI Wetlands Within Towns of Cape Vincent and Lyme

Wetland Class[1]	Number of Wetland Features (Polygons)	Acreage
PFO	172	2396
PFO/PSS	20	228
PFO/PEM	31	358
PFO/PUB	2	31
PSS	105	265
PSS/PEM	69	515
PSS/PUB	1	2
PEM	336	863
PEM/PUB	10	12
PUB	253	181
PUS	4	2
Palustrine Farmed	21	66
Total	**1,024**	**4,919**

[1]PFO = Palustrine forested
PSS = Palustrine scrub shrub
PEM = Palustrine emergent
PUB = Palustrine unconsolidated bottom
PUS = Palustrine unconsolidated shore

2.22.2 Extent and Quality of Information Required

Extensive pre-construction wildlife studies and data relating to the presence, abundance, or distribution of wildlife species in the Project area have been conducted or compiled since 2006. These data provide area specific guidance for the nature and extent of potential direct and indirect impacts. These data address wildlife use of the Project that may be affected directly or indirectly by the Project including the Project's footprint and Project operation and maintenance. Combined, the studies and data also identify many of the wildlife species that likely will be of concern in assessing the Project's effects for the Article 10 Application. Data collection has been supplemented by available data from the New York Natural Heritage Program, New York State Amphibian and Reptile Atlas Project, the NYS Breeding Bird Atlas and range maps, Breeding Bird Survey Routes, Christmas Bird Counts and other similar reference

sources, including an identification and depiction of any Significant Coastal Fish and Wildlife Habitat Areas designated by NYS Department of State/NYSDEC and any unusual habitats or significant natural communities that could support state or federally listed endangered or threatened species or species of special concern. In addition, the Project has consulted the USFWS and NYSDEC for additional information on threatened and endangered species. The following sections discuss the extent and quality of information required to address impacts associated with construction and operation of the Project.

General Wildlife Habitat

Plant community and wildlife habitat characterization has been completed for the previous Project layout and will need to be updated to reflect the limits of disturbance for the revised Project. Updated information will be included in the Article 10 Application.

Mammals, other than bats

Jefferson County supports a large population of white-tailed deer and a moderate population of eastern cottontail. Documented mammals within the Project area indicate species generally adapted to human activities and associated with the largely agricultural land use. No field studies for mammals other than bats have been conducted and none are proposed.

Avian and Bat Resources

Extensive bird and bat studies have been conducted within the project area since 2006. The plans for these studies were developed in conjunction with the NYSDEC Division of Fish, Wildlife and Marine Resources staff and the USFWS New York State Field Office staff and followed the NYSDEC Draft (NYSDEC 2007)[10] and Final Guidelines for wind power project studies (NYSDEC 2009)[11] and guidance provided in the USFWS Indiana Bat recovery plan (USFWS 1999;[12] USFWS 2007). Studies for grassland birds and Blanding's turtle were conducted using work plans based on NYSDEC Region 6 protocols. Bald eagle nest surveys were conducted using protocols outlined in Draft USFWS Eagle Guidance (USFWS 2011)[13]. Pre-construction studies completed at the Project followed the framework identified in the

[10] U.S. Fish and Wildlife Service (USFWS). 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Department of Interior, Fish and Wildlife Service, Region 3, Fort Snelling, Minnesota. 258 pp.
[11] New York State Department of Environmental Conservation (NYSDEC). 2009. Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects. Prepared by: New York State Department of Environmental Conservation, Division of Fish, Wildlife and Marine Resources, Albany, New York. August 2009.
[12] U.S. Fish and Wildlife Service. 1999. Agency Draft Indiana Bat (*Myotis sodalis*) Revised Recovery Plan. Fort Snelling, MN. 53 pp.
[13] US Fish and Wildlife Service (USFWS). 2011. Draft Eagle Conservation Plan Guidance. January 2011. Available online at: http://www.fws.gov/windenergy/docs/ECP_draft_guidance_2_10_final_clean_omb.pdf

recent USFWS Land Based Turbine Guidelines for Tier 3 field studies (USFWS 2012)[14] as well as the NYSDEC Wind Guidelines (2009).

Studies completed included the following and a summary of the methods and data collected are presented in Exhibit E:

- Spring and fall radar surveys for nocturnal avian and bat migrants;
- Spring and fall surveys for migrant raptors;
- Winter surveys for raptors and waterfowl;
- Bald eagle nest surveys;
- Breeding bird surveys;
- Grassland bird surveys;
- Spring and fall acoustic bat surveys for migrant bats;
- Summer acoustic bat surveys for resident bats;
- Bat mist net and Indiana bat telemetry studies;
- Blanding's turtle habitat and presence/absence surveys, and;
- Habitat focused surveys for federal and state threatened or endangered species.

State and Federal Endangered or Threatened Species

Information on the distribution and abundance of known occurrences of state listed species in the Project area were compiled from documented occurrences recorded by the New York Natural Heritage Program and the USFWS, results of onsite surveys, as well as results of species specific surveys conducted by the NYSDEC. This information may be updated to include any more recent documented occurrences of known or previously unidentified state and federal listed species within the Project area. The Project has consulted the USFWS and NYSDEC and is currently preparing avoidance, minimization and mitigation strategies for threatened and endangered species in compliance with the federal Endangered Species Act (ESA 1973) and Part 124 of New York State Environmental Conservation Law Article 11. In addition, CVWP has consulted the USFWS in regards to bald eagles and is currently evaluating the potential for impacts to this species as a result of Project operations. CVWP will continue to consult the USFWS and NYSDEC on threatened and endangered species during the course of the Article 10 Application process.

Wetlands

[14] U.S. Fish and Wildlife Service (USFWS). 2012. U.S. Fish and Wildlife Service Land-Based Guidelines. March 2012. Available online at: http://www.fws.gov/windenergy/docs/WEG_final.pdf

Wetlands within the SLWF and CVWEP limits of disturbance were delineated during the period between 2007 and 2010 using methods described in either the 1987 the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987)[15] for delineations completed prior to 2010 or the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region for delineations completed after 2010. CVWP is in the process of delineating all wetlands within the revised limits of disturbance and within 500 feet of the areas to be disturbed by construction including the overhead generator interconnection line using methods described in the 2012 regional supplement. For the Application, consistent with the Article 10 regulations, CVWP will field delineate wetlands and perform desktop analyses for the revised limits of disturbance, up to 500' on either side of an area to be disturbed by construction (including the overhead transmission line).

2.22.3 Proposed or On-going Studies during Pre-construction Activities

General Wildlife Habitat

Habitat characterization within the revised Project will be based on identification and description of the type of plant communities present on the Project, including the overhead transmission line, and adjacent properties. Plant communities will be classified using the U.S. Geological Survey Gap Analysis Program ("GAP") national land cover data set (Version 2) and will be identified to ecological system level describing dominant species and subdominant associates. Wetland and aquatic habitats will be classified according to the USFWS Classification of Wetlands and Deep Water Habitats of the United States (Cowardin et al. 1979)[16]. Generated plant community maps will be field verified to corroborate accuracy of mapped cover types and adjusted for recent changes to the landscape. The extent of offsite field corroboration will be based on access availability to adjacent properties. A list of terrestrial invertebrate, amphibian, reptile, avian and mammal species likely to reside in habitats associated with the Project area will be compiled.

[15] Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Technical Report Y-87-1. Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station. (http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf).

[16] Cowardin, L.M., V. Carter V., F.C. Golet, E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service Report No. FWS/OBS/-79/31.Washington, D.C.

Mammals, other than bats

Habitat for large mammals currently hunted in the Project area will be identified and a qualitative discussion of how the Project may impact these species and the opportunity for continued hunting in the Project area will be provided.

Avian and Bat Resources

Based on extensive avian and bat studies completed within the Project area to date, additional studies for this group are not proposed. Potential avian mortality due to operation of the Project will be estimated using fatality rates derived from post-construction mortality monitoring studies conducted at operational wind energy facilities located in New York and the northeast U.S. Rates will be calculated based on the latest recommendations of the agencies for statistical methods and reporting. These rates will be applied to the number of turbines associated with the Project to estimate potential annual mortality resulting from operation of the Project.

Post Construction Monitoring

The CVWP will fund an operational (post-construction) monitoring program to estimate direct and indirect impacts of the wind farm on birds and bats. The objectives of the studies are to:

- Estimate direct impacts of the operating Project in terms of mortality rates of birds and bats caused by collisions with wind turbines.
- Estimate the potential avoidance or displacement effects of the Project on grassland birds.

The specific operational monitoring plan will be developed in consultation with the NYSDEC and USFWS and will meet the framework of the NYSDEC Guidelines (2009) and Tier 4 of USFWS Wind Energy Guidelines (USFWS 2012). At a minimum, the monitoring plan will consist of the following components:

- Fatality monitoring studies including standardized carcass searches, carcass removal and searcher efficiency trials, and calculation of adjusted per turbine and per megawatt estimates of bird and bat fatality rates; and
- Grassland bird displacement surveys.

This monitoring study will be designed to be consistent with the NYSDEC Guidelines for wind power project studies (NYSDEC 2009), the USFWS WEG (2012), and any requirements determined through the Endangered Species Act consultation process.

State and Federal Endangered or Threatened Species

Information on the distribution and abundance of known occurrences of state listed species in the Project area will be compiled from data available from the New York Natural Heritage Program and the USFWS, and results of the most recent species specific surveys conducted for the Project and by the NYSDEC. A spatial analysis of these data will be completed to assess potential impact of the project on identified listed species. CVWP will continue to consult the USFWS and NYSDEC in regards to threatened and endangered species during preparation of the Article 10 Application.

Wetlands

Wetland delineations will be completed using the 1987 the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (USACE 2012)[17]. The 500-foot buffered Project limits of disturbance within control of CVWP will be field inspected for the presence of hydric vegetation, soil, and hydrology indicators and areas meeting the criteria will be delineated. Hydric vegetation, soil, and hydrology indicators at representative sampling station locations will be recorded on the Corps of Engineers regional data forms for each delineated wetland. Wetland cover types will be characterized using the USFWS Classification of Wetlands. Observations supporting potential functions and values will be recorded at each wetland. Wetland boundaries will be recorded using a Trimble© GeoXT™, or equivalent, handheld unit. Photographs will be taken of each delineated wetland.

For adjacent properties without access, desktop delineations will be completed based upon analysis and interpretation of available remote-sensing and GIS data including NYSDEC Freshwater Wetlands maps, NWI maps, and U.S. Geological Survey (USGS) National Hydrography Dataset, and U.S. Department of Agriculture, Natural Resources Conservation Service soil survey data. Compiled information will be geo-referenced with USGS 1:24000 scale quadrangle maps and recent aerial photography. Based on an examination of previously mapped wetlands, hydric mapped soils, and photointerpretation of vegetation cover type, approximate wetland boundaries will be determined.

Functions and values will be assessed using procedures outlined in the Highway Methodology Workbook Supplement issued by the USACE New England District (USACE, 1995) that prescribes a descriptive approach. This method integrates wetland science and value judgment into the overall assessment of a

[17] U.S. Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

wetland. This method considers eight functions and five values. Principal and secondary, where applicable, functions and values will be designated to each wetland delineated within the 500-foot buffered Project limits of disturbance.

2.22.4 Avoidance and Minimization Measures

General Wildlife Habitat

CVWP will develop a plan to identify the presence of invasive species and to prevent the introduction and/or spread of invasive species within areas disturbed by construction of the Project. Elements in this plan can include:

- Identification
- Training
- Pre-Construction Plant Removal and Treatment
- Inspection of Fill Sources
- Invasive Species Vegetation Removal and Disposal
- Washing Machinery and Equipment
- Erosion Control
- Preservation and Restoration of Native Vegetation
- Post-Construction Control Methods
- Monitoring

Mammals, other than bats

The Project has been designed and will continue to be designed to reduce significant adverse impacts to wildlife. Project infrastructure is sited away from high quality wildlife habitat and forested clearing will be minimized to the greatest extent practicable.

Avian and Bat Resources

The proposed Project will continue to be designed to reduce impacts to birds and bats. CVWP will continue to evaluate design in relation to threatened and endangered species with the USFWS for federally listed species and with the NYSDEC for species included in the Article 11 Part 182 Application. Impacts associated with potential bird and bat collision with wind turbines have been minimized by spacing turbines apart, placing electrical collection lines between turbines and the collector substation underground rather than above ground, implementing the minimum FAA safety lighting requirements, and implementing turbine operational adjustments to be determined in consultation with the USFWS

over potential impacts to federally listed bat species. Any necessary above ground power lines will follow the Avian Power Line Interaction Committee suggested practices for protecting avian species (APLIC 2006 and 2012)[18,19].

The following conservation measures have been implemented during the design of the Project or will be implemented before or during construction to reduce potential bat mortality as a result of the construction and operation of the Project:

- Avoidance – the Project design will continue to take into consideration the distribution of potential Indiana bat habitat in the project area to avoid potential take of Indiana bats, and will continue to engage in avoiding, minimizing, or reducing placement of wind turbines in forested or wetland areas as determined in consultations with USFWS and NYSDEC,
- Avoidance –The Project design will endeavor to time the cutting of select trees to the winter season when Indiana bats would be hibernating.
- Project design – the Project will continue to engage in avoiding, minimizing, or reducing clearing of deciduous forest habitat as determined in consultations with FWS and NYSDEC.
- Project design - the Project design will endeavor to reduce exposure to Indiana bats by placing turbines at appropriate distances from known roost trees as determined in consultations with USFWS.
- Timing – the Project will endeavor to reduce tree clearing during the highest known usage times for the Project area.
- Preplanning with Agencies. CVWP is currently seeking technical assistance with the USFWS, USACE, and NYSDEC for potential impacts to Indiana bats and state listed species. The Project will comply with conditions and mitigation measures derived through this collaborative process.
- Post-construction monitoring studies will be implemented to estimate bat mortality as a result of the Project, to verify the environmental impacts estimated by pre-construction studies, and to provide supporting value to the overall package of conservation measures that ultimately benefit the species or population.

State and Federal Endangered or Threatened Species

[18] Avian Power Line Interaction Committee (APLIC). 2006. Suggested practices for raptor protection on power lines – the state of the art in 1996. Edison Electric Institute and Raptor Research Foundation, Washington DC, USA.
[19] Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C.

To reduce, minimize, and/or avoid potential impacts to Blanding's turtles and their habitats, CVWP will endeavor to:

- site roadways and staging areas, to the extent possible, away from potential nesting areas and the travel corridors between nesting areas and identified potential Blanding's turtle wetlands and suitable habitat areas. If it is not possible to re-site roads and staging areas, barriers and culverts/underpasses will be used to either prevent movement to or facilitate movement across these features.
- reduce construction clearance activities, to the extent practicable, during the peak nesting season in areas in and adjacent to Blanding's turtle habitat (June 1 – July 31).

To reduce potential impacts to bald eagle, Henslow's sparrow, upland sandpiper, sedge wren, short-eared owl and northern harrier, CVWP:

- Is currently evaluating the Project layout to avoid or minimize development in portions of the Project associated with documented occurrence of threatened and endangered bird species;
- Is currently developing a Part 182 Article 11 Incidental Take Permit for threatened and endangered grassland bird species which will include avoidance, minimization and mitigation strategies. In addition, the Article 10 Application will include a post-construction monitoring plan which will include a grassland breeding bird displacement study; and
- Will continue to consult the USFWS and NYSDEC in regards to bald eagle and state threatened and endangered species.

CVWP will conduct post-construction monitoring studies of birds and bats. Any identified or suspected threatened and endangered species found during post-construction monitoring studies or incidentally by operations staff will be immediately reported to the USFWS and/or NYSDEC. A specific plan for reporting data in regards to threatened and endangered species will be developed in consultation with the USFWS and NYSDEC.

Wetlands

The Project has been designed to avoid and minimize wetland impacts to the greatest extent practicable. Results of field delineations for revised Project areas will be used to further avoid or minimize impacts to wetlands. Avoidance and minimization strategies will be determined in consultation with ACOE and NYSDEC, but are generally expected to include the following items:

- Avoiding forested wetlands to the greatest extent practicable,

- Giving preference to existing crossings or narrow crossings when impacts are unavoidable,
- Crossing wetlands in the fewest locations possible,
- Crossing wetlands perpendicular to flow to the extent practicable, and
- Restoring temporary disturbed wetland areas to pre-construction contours and revegetating with native (noninvasive) plant material or seeds as soon as is practicable after completion of regulated activities.

2.22.5 Proposed Measures to Mitigate Unavoidable Impacts

General Wildlife Habitat

Mitigation options for wildlife habitat include:

- Restoring temporary disturbed areas, where practicable, to comparable pre-construction contours and reseeding with native (noninvasive) as soon as practicable following the completion of construction activities; and
- Implementing a comprehensive Invasive Species Management Plan that outlines management measures to identify invasive that may occur in the Project area, and control and monitor their spread during each phase of construction.

Mammals, other than bats

No significant adverse impacts to terrestrial mammals are anticipated; therefore, no mitigation is proposed for larger mammals.

Avian and Bat Resources

Impacts to non-listed avian and bat resources from the Project are not anticipated to be significantly greater than impacts that have been documented at other wind energy facilities in the region. Therefore, no mitigation is proposed for non-listed avian and bat species. However, mitigation measures that will be undertaken for listed avian and bat species are expected to also benefit non-listed avian and bat species.

Grassland Birds – CVWP will consider such mitigation options as funding and implementing a pre- and post-construction study to estimate the direct and indirect effects of Project operation as well as funding land management activities to increase grassland bird habitat. Specific mitigation plan development is on-going and includes consultation with the NYSDEC per Part 182 of New York Article 11.

State and Federal Endangered or Threatened Species

Blanding's Turtle – The Project will enhance, create, or avoid existing suitable Blanding's Turtle habitat areas, including nesting areas, as part of the mitigation requirements for compliance with the Article 11, Part 182 regulations.

Indiana Bat – CVWP is currently discussing potential impacts to Indiana bat and mitigation options with the USFWS through a consultation process under the Endangered Species Act. Mitigation options have not been finalized but may include funding of habitat protection measures, funding to the Emergency White Nose Syndrome Fund or Bat Conservation International for on-going research on white nose syndrome geared toward determining causes and corrective actions to offset the high levels of mortality, with the overall objective of species conservation. Another option may be annual contributions to Bat-Wind Energy Cooperative for a fixed period to fund studies on monitoring impacts from wind turbines and investigating mitigation strategies such as adjusting turbine cut-in speed and bat deterrent methods.

Wetlands

Compensation for unavoidable fills in wetlands will be consolidated in one or more locations as yet undetermined. A compensatory mitigation plan will be prepared for any unavoidable permanent fill of wetlands or permanent conversion of forested wetland covered types to non-forested cover types. Wetlands will be mitigated in kind at a ratio to be determined in consultation with the appropriate regulatory agencies. Mitigation plans will contain sections on grading, planting, and monitoring for success of the mitigation.

2.22.6 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received several comments to date expressing concerns about potential Project impacts to terrestrial ecology and wetlands resources. These are summarized in Table 2.22-4.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	Although past baseline studies of bird and bat populations associated with SEQRA efforts may appear extensive and complete,	The commenter provided this comment at a date (May 2009) earlier than publication of the final NYSDEC Guidelines (2009) and publication of the most recent USFWS

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		involved resource agencies considered the effort inadequate and recommended three years of study. Therefore, additional work is needed for nocturnal radar studies (1 yr. spring & fall) raptor migration (1 yr. fall) breeding birds (2 yrs.) and winter raptor & waterfowl (1 yr.) studies.	Guidelines (2012). Extensive bird and bat studies have been conducted within the CVWP since 2006. The plans for these studies were developed in conjunction with the NYSDEC Division of Fish, Wildlife and Marine Resources staff and the USFWS Region 5 staff and followed the NYSDEC Draft (NYSDEC 2007) and Final Guidelines for wind power project studies (NYSDEC 2009) and guidance provided in the USFWS Indiana Bat recovery plan (USFWS 1999; USFWS 2007) and included the studies requested by the commenter. All field study reports were provided to the USFWS and NYSDEC and the need for additional field studies was discussed with these agencies during in person meetings conducted between 2009 and 2012. Additional field studies were carried out for Blanding's turtle, grassland breeding birds and bald eagle nests based on agency comments. Studies for grassland birds and Blanding's turtle were conducted using work plans based on NYSDEC Region 6 protocols. Bald eagle nest surveys were conducted using protocols outlined in Draft USFWS Eagle Guidance (USFWS 2011). Pre-construction studies completed at the Project followed the framework identified in the recent USFWS Land Based Turbine Guidelines for Tier 3 field studies (USFWS 2012). Studies completed included the following and a summary of the methods and data collected are presented in Exhibit E: • Spring and fall radar surveys for nocturnal avian and bat migrants; • Spring and fall surveys for migrant raptors; • Winter surveys for raptors and waterfowl;

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
			• Bald eagle nest surveys; • Breeding bird surveys; • Grassland bird surveys; • Spring and fall acoustic bat surveys for migrant bats; • Summer acoustic bat surveys for resident bats; • Bat mist net and Indiana bat telemetry studies; • Blanding's turtle habitat and presence/absence surveys, and; • Habitat focused surveys for federal and state threatened or endangered species. CVWP recently met with the NYSDEC (November 2012) and the NYSDEC did not request any additional pre-construction studies be completed at the CVWP. Further information regarding overwintering raptors, migration birds and bats will be provided in the Article 10 Application.
20-Jan-13	Town of Cape Vincent	Based on USFWS Land Based Wind Energy Guidelines pre-construction studies need to occur over multiple years to establish a trend in site use and conditions that incorporates annual and seasonal variation in meteorological conditions, biological factors, and other variables. Three years of pre-construction studies may be appropriate in many circumstances. However, the level of risk and the question of data will be based on site sensitivity affected species and the availability of data from other	The commenter provided this comment at a date (May 2009) earlier than publication of the Final USFWS Guidelines (2012). The CVWP is meeting the framework of the USFWS 2012 Guidelines and has conducted field surveys recommended within the 2012 USFWS Guidelines. The 2012 Guidelines are not prescriptive and do not prescribe multiple years of field surveys. In certain cases such as for acoustic bat surveys, breeding bird surveys and raptor migration surveys, the CVWP conducted multiple years of study. The Article 10 Application will include evaluation of bird migration data for impact assessment.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		sources.	
20-Jan-13	Town of Cape Vincent	Based on NYSDEC Guidelines Conducting Bird Bat Studies 8/09 a proposal to site a wind energy project in proximity to an Indiana bat hibernaculum (40 miles), wildlife concentration area (2 miles), along a coastline (5 miles), or on a prominent ridgeline may result in a recommendation to conduct expanded pre construction studies. If a developer proposes to construct a wind energy project in or near one of the features or resources of concern identified in section 2(b) then two to three years of pre-construction study may be recommended incorporating one or more expanded preconstruction studies to provide in depth information on the bird and bat resources of the site.	See first response in this Table. In addition, expanded pre-construction studies as defined in the final NYSDEC Guidelines (2009) were conducted, including: multiple years of raptor migration surveys, nocturnal radar surveys for nocturnal bird and bat migrants, bat mist net surveys and telemetry of Indiana bats, surveys for threatened and endangered species including bald eagle nest surveys, Blanding's turtle habitat assessments and presence/absence surveys, and grassland breeding bird surveys. These surveys were conducted over multiple years –some of these efforts preceded drafting of either the Draft (2007) or Final (2009) NYSDEC Guidelines. The Project consulted the NYSDEC throughout the period in which pre-construction surveys were conducted (2006-2012) and provided work plans and reports for review by the agency. CVWP recently met with the NYSDEC (November 2012) and the NYSDEC did not request any additional pre-construction studies be completed at the CVWP.
20-Jan-13	Town of Cape Vincent	Based on NYSDEC R-6 4/17/07 SLWF Review only a one (1) year protocol is too short based on the USFWS guidelines and the local knowledge of the migratory birds and bats of the area. This plan should follow the USFWS guidelines of three (3) years as a minimum to establish pre construction base line data. The single year of data on migrating raptors is also inadequate: "The	See first response in this Table. The commenter provided this comment earlier than publication of the NYSDEC 2009 comments or the Final USFWS Guidelines (2012). The CVWP is meeting the framework of the USFWS 2012 Guidelines and has conducted field surveys recommended within the 2012 USFWS Guidelines. The 2012 Guidelines are not prescriptive and do not prescribe multiple years of field surveys. In certain cases such as for acoustic bat surveys, breeding bird surveys and raptor migration

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		number of points amount of time (i.e., 60 minutes) per point the number of days and duration of sampling period are all inadequate to capture the raptor (Migration) data needed to fully address potential impacts."	surveys, the CVWP conducted multiple years of study. The Article 10 Application will include evaluation of bird migration data for impact assessment.
20-Jan-13	Town of Cape Vincent	Based on SAVE THE RIVER 2/29/08 Letter the DEIS must include studies of at least three years in duration to account for natural annual variability of bird and wildlife habitat. Currently the DEIS includes only one year of study and data collection.	See first response in this Table for comprehensive response.
20-Jan-13	Town of Cape Vincent	Based on Rubin & Trivelpiece 6/13/01 SLWF Review in addition the proposed one year avian and bat study is not adequate to determine the value and usage of the area by wildlife. According to United States Fish and Wildlife Service a three year pre construction study should be conducted to assess such impacts.	See first response in this Table for comprehensive response.
20-Jan-13	Town of Cape Vincent	Based on Smith Ecologist 6/8/01 SLWF Review the studies to date must be considered pilot efforts requiring 3-5 years of intense further studies of many groups before any conclusions of value may be drawn.	See first response in this Table for comprehensive response.
20-Jan-13	Town of Cape Vincent	In the Joint Comprehensive Plan for the Town and Village of Cape Vincent the avian migration corridor was recognized as one of the Town's most important	See first response in this Table for comprehensive response. In addition, avian reports and a summary of the methods and data collected are presented in Exhibit E and contain information characterizing patterns

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		natural resource assets. The spatial context and dynamics of the avian migratory corridor through the Town of Cape Vincent should be described in far greater detail (see below) than the one year of study conducted by BP in 2006-2007. More effort is required to document annual variation in numbers specie composition description of the spatial gradient within the corridor and the vertical distribution of migrants over the project footprint (500 ft. turbines are 100 ft. higher than those previously considered and therefore require a new assessment).	of use and flight paths of raptor migration observed at the Project. The Article 10 Application will include a discussion of raptor migration at the Project.
20-Jan-13	Town of Cape Vincent	Based on USFWS 3/19/08 CVWF Review starting the radar study in mid- April misses a substantial portion of the spring avian migration and likewise ending the radar study on October 15 in the fall will underestimate the migration during that season particularly some raptors and passerines and most waterfowl. Further collecting data in only one year is inadequate.	See first response in this Table for comprehensive response. In addition, avian reports will be included in the Article 10 Application which contains information characterizing patterns of use and flight paths of raptor migration observed at the Project. The Article 10 Application will include a discussion of raptor migration at the Project. All wildlife study reports were provided previously to the USFWS and the NYSDEC for review.
20-Jan-13	Town of Cape Vincent	Based on USFWS 5/29/09 SLWF Review the proximity of turbines to these (grasslands etc.) habitats as well as Lake Ontario and the St Lawrence River are cause for great concern/ because these habitats are known to attract waterfowl	See first response in this Table for comprehensive response. In addition, avian reports and a summary of the methods and data collected are presented in Exhibit E and contain information characterizing patterns of use and flight paths of raptor migration observed at the Project. The Article 10

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		waterbirds and shorebirds to the area during the breeding and migratory periods.	Application will include a discussion of raptor migration at the Project.
20-Jan-13	Town of Cape Vincent	Based on USFWS 5/29/09 CVWF Review "insufficient data were collected at the project site to determine the spatial and temporal use of the project air space by flying animals. We recommendation for wildlife studies at wind projects generally specifies that the data should be collected over multiple seasons and years to determine average annual conditions. Because of the variability in migration and weather patterns/ collecting data for 1 year likely does not reflect typical wildlife use in the project area. Therefore we find insufficient data currently exists to adequately conduct a risk assessment and predict wildlife mortality for this project."	See first response in this Table for comprehensive response. Multiple years of migration period studies for birds and bats were completed at the CVWP and a summary of the methods and data collected are presented in Exhibit E). Further information regarding overwintering raptors, migration birds and bats will be provided in the Article 10 Application. Those studies contain information characterizing patterns of use for birds observed during pre-construction studies. Data on flight heights for birds observed during pre-construction studies are included in the aforementioned reports. The Article 10 Application will include a discussion of raptor migration at the Project.
20-Jan-13	Town of Cape Vincent	Based on Article 10 EXHIBIT 31 setbacks requirements would have to be considered on a case by case basis by looking at the purpose for their establishment and the circumstances of a specific site or case. A setback might be unreasonable for the purposes of preventing construction encroachments but reasonable to protect migratory flight paths.	Please see Section 2.31 for discussion regarding this topic.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	Based on NYSDEC 5/29/09 SLWF Review SDEIS suggests winter densities were low and that the relative risks to these species are very low. DEC staff on the other hand have documented high numbers. To overcome this inconsistency in reporting between the DEC and the consultant additional survey effort directed towards the short-eared owl is recommended both preconstruction and post construction to be sure this species' distribution and abundance is accurately documented as a basis for future project evaluation and planning efforts. It is also known that the project area lies within one of the most important raptor wintering grounds in New York State. A more thorough analysis of raptor migration within the project area is needed to support the conclusions made in the SDEIS. It is clear from Table 3.1.1 that the numbers of birds per hour for Cape Vincent are not similar to the other wind facilities but higher than all of the other sites.	See first response in this Table. In addition, avian reports will be included in the Article 10 Application which contains information characterizing patterns of use for birds observed during pre-construction studies. All wildlife study reports were provided previously to the USFWS and the NYSDEC for review. Overwinter use of the Project by short-eared owl and northern harrier will be addressed within the Article 11 Part 182 Application, while general avian patterns of use observed during overwinter pre-construction surveys will be summarized in the Article 10 Application. The Application will compare publically available data from other wind projects in terms of how bird use compares to the level of use observed at the Project and will include a discussion of what current information suggests about the correlation of bird use observed during pre-construction studies and observed mortality during post-construction monitoring. Current publically-available post-construction monitoring data from New York and other regional studies will be used.
20-Jan-13	Town of Cape Vincent	Based on NYSDEC 12/3I/04 Chautauqua Wind Farm Review (K Kispert) The eastern and southern shore of Lake Ontario and the eastern shore of Lake Erie are documented and well recognized	The comment is noted.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		migratory bird pathways which are important within Eastern North America on a regional scale particularly during spring migration as birds move north.	
20-Jan-13	Town of Cape Vincent	Based on PSC 2/28/08 CVWF Review a more thorough explanation of the nature of migration through the project area and consideration of potential impacts of the project on migrating raptors is warranted.	See first response in this Table. In addition, the Article 10 Application will include a discussion of raptor migration at the Project.
20-Jan-13	Town of Cape Vincent	Based on Smith Ecologist 6/8/07 SLWF Review the fact no other waterfowl than Canada Goose and mallard were identified is of particular concern as it suggest at best marginal competence of observers and inadequate sampling time.	The comment is noted. All bird species identified in pre-construction studies are described in pre-construction study reports, which will be included in the Article 10 Application
20-Jan-13	Town of Cape Vincent	Based on Audubon 6 /7I/ 07 SLWF Review "We have concerns about development of wind power at sites that are known migratory corridors or provide habitat to at risk species."	The comment is noted.
20-Jan-13	Town of Cape Vincent	Based on Old Bird Inc. 6/74/07 SLWF Review bird/bat migration altitude information should be provided at 25 m resolution up to 200 m above ground level. The West radar report however does not provide information on movements along the shoreline and inland areas of coverage are simply summed together to produce a single passage rate for	The comment is noted. Data from the nocturnal radar studies completed at the Project were reported using standardized methods and metrics. Reports were submitted to the NYSDEC and USFWS for review and will be included in the Article 10 Application.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		the whole radar Survey area.	
20-Jan-13	Town of Cape Vincent	Based on Old Bird Inc. 6/14/01 SLWF Review "The most significant problems I find with the West Inc. radar study involve the location they chose to carry out their radar study and their lack of analysis of migration density dynamics within the radar study area The St Lawrence Wind project area is currently proposed to be located within 800 m of the St Lawrence River. The radar study site is apparently only about 500 m from the shoreline in fact outside the wind project area. My interpretation of the NYSDEC and USFWS comments is that the radar site would ideally be located 1500 m from the shoreline West's placement of the radar unit approximately one kilometer closer to the shoreline than had apparently been recommended leads to the fact that about one third of the radar detection area was located over the St Lawrence River and less than half of their radar coverage was actually over the proposed wind project site.	While not every portion of the current Project area was covered in the studies; the surveys are applicable to the whole Project area due to similarity of habitat and landform. Information published by the NYSDEC (http://www.dec.ny.gov/docs/wildlife_pdf/radarwind.pdf) indicate that at 23 sites studied in New York, only 2 included more than one radar sampling location. In addition, those data do not account for the fact that the radar sampling locations from both the SLWF and the previous CVWEP are now included in the impact assessment for the CVWF. As a result, two radar stations are now included in the evaluation of the CVWF. Only transmission facilities are proposed for the Wildlife Management Area and Coastal Zone Habitats.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	Based on Old Bird Inc. 6/14/07 SLWF Review "The question of migration corridor along the south shore of the St Lawrence River is not addressed as was suggested it would be in the study plan. What would be useful to see in evaluating potential impact to night migrants is a 500 m resolution representation off lying target density as one moves away from the St Lawrence River In other words what is the migration density within 500 m of the river? What is the migration density in the zone between 500 m and 1 km from the river? What is the migration density in the zone between 1 km and 1 5 km from the river? What is the migration density in the zone between 15 km and 2 0 km from the river? Such data can be obtained from a properly designed marine radar study or with other methodologies. "	While not every portion of the current Project area was covered in the studies; the surveys are applicable to the whole Project area due to similarity of habitat and landform. Information published by the NYSDEC (http://www.dec.ny.gov/docs/wildlife_pdf/radarwind.pdf) indicate that at 23 sites studied in New York, only 2 included more than one radar sampling location. In addition, those data do not account for the fact that the radar sampling locations from both the SLWF and the previous CVWEP are now included in the impact assessment for the CVWF. As a result, two radar stations are now included in the evaluation of the CVWF. Only transmission facilities are proposed for the Wildlife Management Area and Coastal Zone Habitats.
20-Jan-13	Town of Cape Vincent	BP should provide an operational plan that includes the increase in cut in speed and the provision for shut down during the migration season as outlined below.	The Project has consulted the USFWS and NYSDEC in regards to threatened and endangered species and will continue to do so in regards to the ESA and Article 11 Part 182.
20-Jan-13	Town of Cape Vincent	Based on USFWS 6/15/07 SLWF Review "If turbines will be located in blocks of grassland habitat we recommend that information be gathered on the displacement of grassland nesting birds. To	The Project has consulted the USFWS and NYSDEC in regards to threatened and endangered species and will continue to do so in regards to the ESA and Article 11 Part 182.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		mitigate potential impacts to bats turbines should not have a cut in speed of less than 6 m/s and operation should be curtailed between July 15 and September 15 for 5 hours after sunset."	
20-Jan-13	Town of Cape Vincent	Based on USFWS 5/29/09 SLWF Review previous recommendation to mitigate potential impacts to bats was not included in the SDEIS. The project sponsor should commit to adjusting turbine cut in speeds during low wind nights to reduce bat fatalities. This is the period when most bats are killed as documented by recent research e.g. Arnett 2005. Cut in speed should be 6 m/ s or more and operation should be curtailed for 5 hours after sunset from July 15 to September 15.	The Project has consulted the USFWS and NYSDEC in regards to threatened and endangered species and will continue to do so in regards to the ESA and Article 11 Part 182.
20-Jan-13	Town of Cape Vincent	Based on NYSDEC 5/29/09 CVWF Review "The SDEIS should further state that based on the results of these studies adjustments to the project ' s operational configuration and or time table may be necessary to affect avoidance or minimization of the take of birds and bats with listed species receiving the highest consideration."	The Project has consulted the USFWS and NYSDEC in regards to threatened and endangered species and will continue to do so in regards to the ESA and Article 11 Part 182.
20-Jan-13	Town of Cape Vincent	As indicated in Cumulative Analysis section above projected avian mortality should use the mortality data coming from the Wolfe Island Wind Power project	See first response in this Table for comprehensive response.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		located 2 miles north of the Village of Cape Vincent. Risk assessments should also include avian avoidance or displacement i.e. those birds and bats driven away from traditional habitats by the proposed industrial development.	
20-Jan-13	Town of Cape Vincent	Based on USFWS 6/15/07 SLWF Review environmental assessments of impacts on wildlife from wind projects should include a risk assessment. None was provided in the DEIS. These assessments should consider population abundance distribution in the project airspace over multiple years and seasons/ avian avoidance weather as well as information on breeding wintering and stopover habitat.	See above responses. The Article 10 Application will include further analysis of avian use and the potential for avian mortality at the Project. This analysis will utilize existing site-specific data collected during pre-construction studies which will be included in the Article 10 Application as well as publically-available information on direct and indirect effects of operating wind energy facilities on birds.
20-Jan-13	Town of Cape Vincent	Based on USFWS 3/19/0B CVWF Review "Further, it appears that the site has high avian use as well but these resources were not fully considered in the fatal flaw analysis. Based on the data collected so far the Cape Vincent area has high concentrations of waterfowl and waterbirds migrating passerines and year round raptor use."	The Article 10 Application will include further analysis of avian use and the potential for avian mortality at the Project. This analysis will utilize existing site-specific data collected during pre-construction studies which will be included in the Article 10 Application, as well as publically-available information on bird mortality observed at regional operating wind energy facilities.
20-Jan-13	Town of Cape Vincent	Included in a long-term management plan should be an adaptive management component that would outline steps and actions that would be taken in response to potential adverse	The Project will take the comment under advisement.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		impacts that may arise from project operations.	
20-Jan-13	Town of Cape Vincent	Based on NYSDEC 6/15/07 SLWF Review the SDEIS should include a long-term environmental management plan that incorporates plans for restoration of environmental impacts during and following project construction (including grading, slope stabilization, re-planting with appropriate indigenous plant species, control of invasives, and restoration of disturbed habitats), environmental considerations to be included in the ongoing maintenance of the facility (including maintenance and repair of roads and corridors, a contingency plan to assess and minimize environmental impacts during major repairs, and assessment and mitigation of environmental impacts during the decommissioning process. An adaptive management component is a necessary feature of an environmental management plan to respond to environmental impacts that arise during project operation (such as potential impacts to birds and bats disturbance to Blanding's turtle nest sites.	CVWP expects to comply with local substantive restoration requirements for road subgrade, base and pavement; restoration provisions within agreements with landowners; New York Agriculture and Markets guidelines for Agricultural Mitigation for Windpower Projects; NYSDEC requirements for endangered and threatened species, and the USFWS and NYSDEC substantive requirements for impacts to freshwater wetlands.
20-Jan-13	Town of Cape Vincent	The following excerpt from the Cape Vincent zoning law requires a developer shall take to properly	See first response in this Table for comprehensive response and other responses above. In addition, The CVWP has

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		evaluate wildlife and other environmental issues. The scope of such assessment shall be developed in consultation with the New York State Department of Environmental Conservation and the United States Fish and Wildlife Service and shall adhere to the USFWS Land Based Wind Energy Guidelines March 23 2012 to assess suitability of the site and if application is approved outline post Operational studies to assess impacts.	met the framework and intent of the USFWS 2012 Guidelines and has conducted field surveys recommended within the 2012 USFWS Guidelines. The 2012 Guidelines are not prescriptive and do not prescribe multiple years of field surveys. In certain cases such as for acoustic bat surveys, breeding bird surveys and raptor migration surveys, the CVWP conducted multiple years of study. The Article 10 Application will include evaluation of bird migration data for impact assessment.
20-Jan-13	Town of Cape Vincent	Based on NYSDEC 2/29/08 CVWF Review In order to adequately assess the potential impacts to the Project Area's threatened and endangered species the Project needs to fully characterize seasonal use of the area by these species. As submitted the SDEIS is inadequate to allow a thorough evaluation of the potential impacts to these species. Regarding breeding bird surveys they state "Surveying during only one year and two days the entire breeding season is far from adequate. Knowing that both endangered and threatened grassland bird species have the potential to nest in this area should have triggered a more thorough Breeding Bird Survey consisting of more than one year of study."	See first response in this Table for comprehensive response and other responses above. The Project has consulted the USFWS and NYSDEC in regards to threatened and endangered species and will continue to do so in regards to the ESA and Article 11 Part 182.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	Based on USFWS 3/19/08 CVWF Review BP stated that the avian and bat study protocols were approved by the Service. We reviewed the study protocol s and provided input to the sponsor (BP). We also provided recommendations to the Town of Cape Vincent. However many of our recommendations have not been implemented such as conducting surveys over multiple years to account for annual variation in weather and migration.	See first response in this Table for comprehensive response and other responses above. The Project has consulted the USFWS and NYSDEC in regards to threatened and endangered species and will continue to do so in regards to the ESA and Article 11 Part 182.
20-Jan-13	Town of Cape Vincent	Based on NYSDEC 5/29/09 SLWF SDEIS Review In order to adequately assess the potential impacts to the project areas threatened and endangered species the project needs to fully characterize seasonal use of the area by these species. As submitted the SDEIS is inadequate to allow a thorough evaluation of the potential impacts to these species.	See first response in this Table for comprehensive response and other responses above. The Project has consulted the USFWS and NYSDEC in regards to threatened and endangered species and will continue to do so in regards to the ESA and Article 11 Part 182.
20-Jan-13	Town of Cape Vincent	Based on Mentor Rubin & Trivelpiece 6/13/07 SLWF Review Based on material omissions described below we request that the Planning Board, as the Lead Agency under SEQRA, reject the DEIS reconsider, its previous determination that the DEIS is complete and adequate for public review and return the document	The comment is noted.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		to the Applicant for significant addition and revision.	
20-Jan-13	Town of Cape Vincent	The reviews below by involved agencies were very critical of past attempts at depicting industrial wind project layouts due to the lack of sufficient detail with the underlying maps. BP should use a map similar to that provided in the Town's comprehensive plan that describes state and federal wetlands, archeological and historical resources, natural heritage assets, and the migratory corridor to name a few. Moreover project maps need better detail than what is currently available to allow landowners to locate their property to better understand wind turbine setbacks from their property lines and potential adverse environmental impacts.	The Project will take the comment under advisement.
20-Jan-13	Town of Cape Vincent	Based on PSC 02/28/08 BP Project maps should include sensitive environmental features e. g., wetlands rare plants, coastal zone protections cultural and historical features as well as the project layout.	As required in the Article 10 regulations, CVWP submit maps contains the following information to the required agencies: sensitive environmental features, including wetlands, coastal protection areas, cultural and historical features.
20-Jan-13	Town of Cape Vincent	Based on PSC 02/28108 DEIS does not have adequate mapping of TX line and resources.	See comment above.
20-Jan-13	Town of Cape Vincent	Based on USFWS 3/18/08 CVWF Review lack of sufficient information to properly assess impacts on wetlands In fact no estimates are provided. Without	Sufficient detail will be provided in the Application to adequately assess impacts to wetlands.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		an understanding of wetlands extent it is not possible to evaluate or provide recommendations.	
20-Jan-13	Town of Cape Vincent	Based on PSC 2/28/08 CVWF Review the representation of the wetlands…obscures relevant cover type information by use of solid colors for Field Verified Wetland Area. The scale of the mapping included is too gross to enable discernment of details. More detailed mapping with project layout should be provided in a supplement.	Sufficient detail will be provided in the Application to adequately assess impacts to wetlands.
20-Jan-13	Town of Cape Vincent	Based on Based on Pressy & Associates 5/29/07 SLWF Review DEIS notes wetland impacts will be avoided if practicable … and where impacts could occur, if practicable, Project components will be moved to avoid or minimize impacts to wetlands The proposed project however has placed many turbines adjacent to wetlands and streams. Therefore, the listed turbines should be moved or eliminated.	The Project layout does seek to reduce impact by taking into account the location of turbines relative to wetlands.
20-Jan-13	Town of Cape Vincent	Based on USFWS 3/19/08 CVWF Review without field surveys the description of reptiles and amphibians may be underestimated. Due to the abundant aquatic habitat found in the area these animals may represent an important part of the ecosystem. Further the discussion of affected mammals is	In addition to the several seasons of surveys previously completed, CVWP will characterize the facility and any areas to be disturbed for amphibians, terrestrial invertebrates, and reptiles using reconnaissance level surveys, supplemented by available data from the New York Natural Heritage Program, and New York State Amphibian and Reptile Atlas Project.

Table 2.22-4 Comments and Responses on Potential Project Impacts to Terrestrial Ecology & Wetlands Resources

Date	Commenter	Issue/Comment Summary	Response
		inadequate, as no survey data or existing information sources were provided.	
20-Jan-13	Town of Cape Vincent	Adequate mapping is needed to document and highlight those areas within the Town and the proposed project footprint that have important plant resources. These data are available from the DEC's mapping section and should be included as an overlay on any project layout mapping.	The Project will take the comment under advisement.
20-Jan-13	Town of Cape Vincent	Based on USFWS 6/15/07 SLWF Review Project area has many unique plant habitats that are protected and others that should be avoided SLWF. DEIS makes no mention of these areas and therefore when and where they should be avoided.	CVWP will initially assess the potential for rare plants based on available data from the New York Natural Heritage Program and coordination with the NYSDEC.
20-Jan-13 20-Jan-13	Town of Cape Vincent Town of Cape Vincent	Based on USFWS 3/19/08 CVWF Review assessment conducted in fall when most plants were unavailable and/or difficult to observe. Better assessment needed at an appropriate time. Comments regarding wildlife and cumulative impacts.	The Project will take the comment under advisement. An analysis of cumulative impacts to birds, bats, and wildlife (including endangered, threatened and special concern species) will be addressed as part of Exhibit 22 for the Article 10 Application. CVWP will coordinate with NYSDEC and the USFWS to identify appropriate wind energy project within the region to include as part of this analysis.

2.23 Water Resources & Aquatic Ecology - Exhibit 23

This exhibit will provide an assessment of local water resources and aquatic ecology.

2.23.1 Potentially Significant Adverse Impacts

Groundwater

Construction activities will likely result in surface excavation to the water table. Subsurface foundations for wind turbines will require foundation depths of approximately ten to twelve feet below grade. Excavation of foundations may involve blasting. Blasting could potentially block water supply wells or known shallow aquifers, while excavation provides a potential contaminate pathway to these resources. The installation of access roads and power collection lines will be shallow in depth and will likely result in a minimum amount of potential groundwater disturbance. Additional indirect groundwater impacts could result from the potential introduction of pollutants into groundwater from surface flow via natural drainage down slopes or through open excavations or diversions related to construction activities.

No potentially significant adverse impacts are expected to groundwater quality in the Towns of Cape Vincent and Lyme in Jefferson County. Operation of construction equipment and vehicles that require the use of diesel and gasoline fuels, lubricating oils, and cooling fluids may pose a small risk for spills. However, spills associated with these sources, should they occur, will likely be small and confined to work sites, thus limiting the potential for infiltration into groundwater or direct flow of contaminants through fissures in potential karst areas.

While shallow groundwater flow rates and patterns may exhibit some deviation from preconstruction conditions in the immediate area surrounding the foundations of Project facilities, the Project will likely have minimal impacts on regional groundwater recharge because of the small percentage of added impervious surface. If dewatering of excavated pits for foundations occurs, it may result in minor and local lowering of the water table. Given the minor and highly localized character of these impacts, local water supply wells will not be adversely affected. Each turbine will be located a distance of approximately 1,000 feet from existing occupied residences. The routine operation and maintenance of the Project facilities is anticipated to have no significant impacts to groundwater, as most of the Project impacts are attributed to the construction phase.

Surface Water

Direct impacts to surface waters will be minimal and are anticipated in areas where temporary and permanent stream crossings are necessary to facilitate access during construction and operation. In

these areas either temporary or permanent culverts will be installed. Potential indirect impacts to surface water may result from sediment-, silt- or pollutant- laden surface runoff associated with vegetation clearing, grading, and excavation for turbine foundations, construction access, access roads, underground collection lines, and other ancillary facilities.

Stormwater

While distinct topographic and changes in local elevation are minor within the Project area, there is a direct influence of these features on stormwater runoff. The soils within the Project area contain relatively high amounts of clays and silts. Fine soil materials such as these inhibit permeation of storm waters. In addition, the depth to bedrock is shallow in portions of the Project area. The low permeability of the soils and the shallow depth to bedrock within the Project area also tends to contribute to overland flow. Precipitation in the Project area is either absorbed into the ground or is transported via overland flow into numerous drainage channels, which typically connect to wetlands or small streams in the Project area. During construction, stormwater may potentially convey sediment and silt laden runoff to down gradient surface waters or potentially pollutant laden runoff to groundwater or down gradient surface waters.

Aquatic Species and Invasive Species

The NYSDEC has documented walleye spawning activity over gravel beds in Kents Creek upstream of Route 12E. The ability of Kents Creek to support a substantial resident population of walleye has not been confirmed; however, NYSDEC considers most of the spawning individuals in Kents Creek to be upstream migrants from Lake Ontario and/or the St. Lawrence River (NYSDEC, 2007)[20]. Field investigations confirm the density of fish bearing streams in the Project area is low and disturbances to streambeds and banks will be temporary; therefore, project-related impacts to aquatic species are not anticipated.

Based on results of previous studies, the Project area has suitable Blanding's turtle habitat. Significant adverse impacts to Blanding's turtle utilizing these areas are considered low. The Project has been designed in a manner that avoids placement of turbines directly within the identified habitat areas. Project-related activities that appear to create the potential for adverse effects on the identified potential Blanding's turtle habitat will result from the overhead generator interconnection line, heavy

[20] New York State Department of Environmental Conservation. (NYSDEC) Region 6. 2007. Personal communication on January 29, 2007 between R. McCullough, Division of Fish, Wildlife, and Marine Resources, and Jason Wiley, ERM.

equipment utilizing roads, and equipment staging areas during the construction period. No federally endangered or threatened aquatic species were identified in the Project area.

Eleven invasive species were identified by the NYSDEC as potentially occurring within the Project area:

- Eurasian Water-milfoil (*Myriophyllum spicatum)*
- Rock Snot (diatom) (*Didymosphenia geminate)*
- Purple Loosestrife (*Lythrum salicaria*)
- European Common Reed Grass (*Phragmites australis*)
- Pale Swallow-wort (*Cynanchum rossicum*)
- Eurpoean Frogbit (*Hydrocharis morsus-ranae)*
- Japanese Knotweed (*Fallopia japonica*)
- Spotted Knapweed (*Centaurea stoebe* ssp. *Micranthos*)
- Giant Hogweed (Heracleum mantegazzianum)
- Japanese Honeysuckle (*Lonicera japonica*)
- Common Buckthorn (*Rhamnus cathartica*)

Construction activities may instigate introduction and spread of invasive species by transferring seeds to the site that may be mixed in topsoil, gravel, and straw or moving plant material to new locations in the Project area by construction equipment. Depending on the individual species their spread can: displace native species and decrease native plant and wildlife biodiversity by encroaching into upland forest, wetland, and riparian habitats; present a public health hazard by causing photo-dermatitis; decrease forage production for livestock and wildlife; hinder the movement of fish, waterfowl, and boats; and reduce habitat for small fish and invertebrates.

2.23.2 Extent and Quality of Information Required

Information regarding water resources from multi-year onsite field investigations will be supplemented by a compilation of existing federal and state agency data sources, and a desktop geo-spatial analysis for the Project area. These data were assessed to identify hydrogeologic conditions such as the local groundwater elevation, quality, and use; and the presence and extent of surface water resources, aquatic species, and potential occurrence of invasive species in the Project area as well as to determine the significance of project-related impacts to these resources.

Groundwater

The groundwater impact information and related studies for the prior proposed SLWF and CVWEP projects provide useful guidance for the nature and extent of potential groundwater impacts. The quality of the prior studies and reports also identify many of the key conditions that likely will be encountered during the Project's construction activities as will be identified in the Article 10 Application. The quality of this information is sound, and conforms to the Article 10 - Exhibit 22 regulations. Based on the proposed Project layout, there will be a very small increase in impervious cover, and thus the Project should have little impact on groundwater recharge or surface water runoff rates. During construction, erosion and sedimentation control measures will be used to reduce sediment runoff from construction sites. Prior to construction, an appropriate industry standard survey for Karst will be undertaken.

As indicated in the Cape Vincent Preliminary Geotechnical Report (November 2010), groundwater was encountered during the installation of three monitoring wells on the project site. Based on site specific conditions monitoring wells were installed at only two of the three locations explored. These wells were installed to monitor groundwater conditions. Additional information suggests that the groundwater fluctuations should be considered during the construction phase of the project; although no significant dewatering is expected to be needed. Based on the report, any encountered groundwater (perched or otherwise) will be controlled to prevent runoff. The pre-construction studies will also include a plan for monitoring impacts to wells within the potential impact zone of any construction activities, along with plans for mitigating any short or long term impacts to groundwater resulting from the Project construction effort. If blasting is required, a site specific survey will be conducted which will help indicate if any impacts to local ground water wells might result.

Surface Water

Surface waters located within the former SLWF and CVWEP limits of disturbance were delineated during the period between 2007 and 2010 in conjunction with wetland delineations. Surface waters were delineated based on the USACE *Jurisdictional Determination Form Instruction Guidebook*, United States Environmental Protection Agency ("USEPA") and USACE joint guidance regarding Clean Water Act (CWA) jurisdiction after Rapanos, and joint guidance on identifying waters protected by CWA (USEPA/USACE 2007,[21] 2008,[22] 2011[23]). CVWP will delineate surface waters within the revised limits of disturbance and

[21] USEPA-USACE. 2007. Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States. Issued June 5, 2007. Available at http://www.usace.army.mil/CECW/Documents/cecwo/reg/cwa_guide/rapanos_guide_memo.pdf

within 500 feet of the areas to be disturbed by construction including the overhead generator interconnection line.

Stormwater

A SWPPP will need to be prepared to identify potential sources of sediment and other pollutants associated with the revised Project layout that may affect the quality of stormwater discharge.

Aquatic Species and Invasive Species

Information regarding the presence of aquatic species observed in the Project area was derived from previous field studies involving the characterization of streams, rivers, ponds, and other surface waters the Project area and through communication with a NYSDEC staff biologist.

Field studies were performed in the prior Project areas during 2007 to identify areas surrounding wetlands that may have the potential to support Blanding's turtle. These wetlands were surveyed to determine whether the soil substrate, vegetative characteristics, and other habitat parameters represent suitable nesting habitat for Blanding's turtle. Additional field studies were conducted during 2010 for the Project area and overhead generator interconnection line. Areas surrounding wetlands associated with the revised Project layout and not previously surveyed will need to be assessed for potential habitat for Blanding's turtle.

The list of invasive species identified by the NYSDEC as potentially occurring within the Project area was completed for the prior SLWF and CVWEP project layouts. Additional information will need to be compiled to reflect the limits of disturbance for the revised Project area.

2.23.3 Proposed or On-going Studies during Pre-construction Activities

Groundwater

With regard to groundwater, the following information is necessary to evaluate pre-construction mitigation of potential impacts:

(1) Hydrologic information reporting depths to high groundwater and bedrock, including a site map showing depth to high groundwater and bedrock in increments appropriate for the Project.

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[22] USEPA-USACE. 2008. Revised Guidance on Clean Water Act Jurisdiction Following the Supreme Court Decision in Rapanos v. U.S. and Carabell v. U.S. Available at http://www.usace.army.mil/CECW/Documents/cecwo/reg/cwa_guide/cwa_juris_2dec08.pdf

[23] USEPA-USACE. 2011. Draft Guidance on Identifying Waters Protected by the Clean Water Act. Available at www.epa.gov/tp/pdf/wous_guidance_4-2011.pdf

(2) A map based on publicly available information showing all areas within the study area delineating all groundwater aquifers and groundwater recharge areas, and identifying groundwater flow direction, groundwater quality, and the location, depth, yield and use of all public and private groundwater wells or other points of extraction of groundwater, and including delineation of well head and aquifer protection zones.

(3) An analysis and evaluation of potential impacts (during normal and drought conditions) from the construction and/or operation of the facility on drinking water supplies, groundwater quality and quantity in the facility area, including potential impacts on public and private water supplies, including active, private wells within a one mile radius of the Project, and wellhead and aquifer protection zones.

Pre-construction surveys will be conducted to locate local water supply wells within 500 feet of each turbine where blasting will occur for foundation excavation. For positively identified wells, CVWF will conduct pre- and post-construction hydrological studies and monitoring to characterize flow rates and water quality.

Surface Water

Consistent with the Article 10 regulations, field delineations will be performed for all jurisdictional surface waters that intersect the revised limits of disturbance and where unmapped surface waters are identified within the revised survey limits and within 500 feet of the areas to be disturbed. Stream data collection will involve recording the segment of the surface water that intersected the limits of disturbance, including up to an additional 20 feet outside the Project area with GPS to ensure adequate field-data collection. The top of bank will be recorded for streams greater than 5 feet in width and the centerline recorded for streams less than 5 feet in width. Portions of the Project inaccessible during the field effort will be desktop delineated. The desktop delineation will involve review of recent high resolution aerial photography obtained during April 2011 overlaid with 2-foot contour lines. This information will be supplemented with the location of wetlands and streams derived from state and federal sources, field delineated wetlands and streams, and soils information to digitize an accurate representation of field conditions.

Stormwater

A SWPPP will be prepared to address stormwater discharges related to the revised Project layout. The SWPPP will comply with SPDES requirements for the General Permit for Stormwater Discharges Associated with Construction Activities (GP-0-08-001). This goal will be met by identifying potential

sources of sediment and other pollutants that affect the quality of stormwater discharge, and by planning and implementing measures to meet the following objectives:

- Reduction or elimination of erosion and loading of sediment and other pollutants that affect the quality of stormwater discharges to water bodies during construction;
- Control of the impact of stormwater runoff on the water quality of the receiving waters;
- Control of the increased volume and peak rate of runoff during and after construction;
- Maintenance of stormwater controls during and after completion of construction;
- Waste and material management for construction activities;
- Implementation of site inspections, monitoring and personnel training; and
- Identification of any post-construction measures that will be required.

Aquatic Species and Invasive Species

Pre-construction studies and data relating to the presence, abundance, or distribution of aquatic species in the Project area have been conducted or compiled since 2006. These data provide area-specific guidance for the nature and extent of potential impacts. Field studies will be supplemented by available data from the New York Natural Heritage Program and NYS Amphibian and Reptile Atlas Project. In addition, data will include identification of any Significant Coastal Fish and Wildlife Habitat Areas designated by NYS Department of State/NYSDEC and any unusual habitats or significant natural communities that could support state or federally listed endangered or threatened species or species of special concern. Information on the presence and distribution of aquatic species and potential suitable habitat identified in the Project area will be compiled and an analysis of these data will be completed to assess potential impacts to aquatic species and their habitat.

Potential habitat to support Blanding's turtle will be assessed within the revised Project area and within 500 feet of the areas to be disturbed. A review of available maps and aerial photography will be completed to identify areas of potential suitable Blanding's turtle habitat within the Project area. This information will be supplemented with information compiled from wetland and surface water delineations since 2006. Information will also be compiled from Blanding's turtle studies conducted during 2007 and 2010 to target areas in the revised Project layout where suitable habitat may occur. If potential habitat is identified, a field survey will be conducted. The field survey will involve field inspections of targeted wetlands located within the Project area. Experienced biologists will systematically survey transects of the targeted wetland. If suitable habitat is located, the survey will expand to encompass the radial extent of the habitat cover type.

2.23.4 Avoidance and Minimization Measures

Groundwater

The potential for groundwater contamination resulting from Project construction or operation will be mitigated by: requiring construction contractors to use appropriate best management practices to prevent spills, complying with applicable laws related to the use of hazardous materials, and the implementation of the Emergency Response Plan ("ERP") that addresses prevention, containment and removal of spills. The potential for direct flow of contaminants into groundwater through fissures in karst areas will be addressed in the ERP and SWPPP. The Applicant will work with the NYSDEC and the County Soil and Water District prior to construction to develop a plan to survey karst features in the Project area. CVWP will also prepare a SPCC for construction activities

The risks of potential water table reduction or pathway alteration due to dewatering will be avoided initially through pre-construction surveys and studies. Depth to water table will be established through evaluation of core borings at every foundation by conducting pre-construction geotechnical studies. Construction of foundations presents limited risk to the continued operation of private wells due to limited proximity. Mechanical or hydraulic equipment, similar to that planned for excavating foundations, are commonly used in the Project area to excavate building foundations of equivalent depth and area to those proposed for Project facilities. As previously mentioned, each turbine will be located a distance of approximately 1,000 feet from existing, occupied residences, making it likely each will have little to no impact on active, private wells (which tend to be located in close proximity to homes).

Surface Water

Potential impacts to surface waters will be minimal and will only occur during the construction of the Project. Results of field delineations for the Project area will be used to inform approaches for further avoidance, minimization, and/or reduction of impacts. The Project will endeavor to reduce impacts by:

- Crossing jurisdictional water at locations that reduce impacts;
- Following best management practices ("BMP") that will install erosion control measures and control sediment that could potentially flow offsite;
- Limiting vegetation clearing near stream banks;
- Giving preference to existing crossings or narrow crossings when impacts are unavoidable; and
- Establishing ""Restricted Activities Areas" within 100 feet surrounding essential construction, as required by the appropriate regulatory agencies.

Restricted activities in these areas will include the following:

- No storage of construction debris within the area;
- No equipment refueling or washing within the area;
- Limited use and strict adherence to manufacturer's instructions for the application of herbicides;
- No storage of any chemical substances, combustible fuels, or petroleum products within the area; and
- No deposition of slash within or adjacent to a wetland or waterbody.

Stormwater

Identifying potential sources of sediment and other pollutants that affect the quality of stormwater discharge, and implementing measures identified in the SWPPP will avoid and minimize impacts associated with stormwater discharge during construction of the Project.

Aquatic Species and Invasive Species

Impacts to aquatic species are not anticipated; however, implementation of measures to avoid and minimize impacts to water resources will assist in minimizing unanticipated impacts to aquatic species.

Reduction and/or minimization of impacts to Blanding's turtles and their habitats will include the following:

- Roadways and staging areas sited, to the extent practicable, away from potential nesting areas, travel corridors between nesting areas, and identified potential Blanding's turtle wetlands and suitable habitat areas;
- Reduce the use of certain sections of Swamp Road during construction and subsequent maintenance, to the extent practicable, during the period of peak turtle use (April – September); and
- Construction clearance activities will be reduced, to the extent practicable, during the peak nesting season in areas in and adjacent to Blanding's turtle habitat (as June 1 – July 1).

An Invasive Species Management Plan will be prepared to identify specific invasive species that may occur in the Project area and outline management measures that will be implemented. CVWP will ensure the Invasive Species Management Plan is employed throughout Project development.

2.23.5 Proposed Measures to Mitigate Unavoidable Impacts

Groundwater

As construction of foundations may present limited risk to the continued operation of private wells, where the post-construction study indicates that a well's characteristics have significantly changed, CVWP will conduct subsequent studies to determine the cause of the change.

Surface Water

While no significant adverse impacts to surface waters are anticipated, details of mitigation measures for unavoidable impacts will be developed and potential mitigation measures will be developed in conjunction with the NYSDEC and USACE. This Mitigation Plan will include the proposed location and nature of the proposed stream mitigation as well as a proposed monitoring program.

Stormwater

No significant adverse impacts resulting from discharge of stormwater are anticipated; therefore, no mitigation is proposed. Best Management Practices used on the Project to prevent potential adverse impacts to water quality will be described in the SWPPP and will conform to the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control.

Aquatic Species and Invasive Species

No significant adverse impacts to fish, amphibians, or reptiles are anticipated; therefore, no mitigation is proposed for aquatic species. Unavoidable impacts to Blanding's turtle habitat will be mitigated through enhancement, creation, or preservation of suitable Blanding's Turtle habitat areas, including nesting areas, as part of the mitigation requirements for compliance with the Article 11, Part 182 regulations.

Post-construction management of invasive species may be employed in the Project area to manage the eleven invasive plant communities identified in Section 2.23.1 by NYSDEC. Management strategies will be limited to those outlined in the Invasive Species Management Plan. If additional invasive species are discovered in the Project area, CVWP will consult with NYSDEC regarding the most effective means of control.

2.23.6 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received comments regarding potential Project impacts to water resources and aquatic ecology. These are summarized in Table 2.23.1.

Table 2.23-1 Comments and Responses Regarding Project Impacts to Water Resources & Aquatic Ecology

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	In the recent past the Town has tried to control the invasive plant Swallowwort but it still remains an invasive that requires careful management during any construction period. An invasive plan should be developed and approved by DEC staff prior to the onset of any construction.	An invasive species management plan will be developed in consultation with and approved by the NYSDEC as part of the Article 10 Application.
20-Jan-13	Town of Cape Vincent	Based on NYSDEC 6/75/07 SLWF Review DEC recommends that the SDEIS include an Invasive Species Control Plan (ISCP) to minimize the spread of invasive propagules throughout the project development area and particularly in regulated wetland and stream areas.	An invasive species management plan will be developed in consultation with and approved by the NYSDEC as part of the Article 10 Application.

2.24 Visual - Exhibit 24

A visual resource assessment ("VRA") will be undertaken to determine the extent and assess the significance of Project visibility. Components of the assessment include identification of visually sensitive resources, viewshed mapping, fieldwork, photographic simulations, cumulative visual impact analysis, and proposed visual impact mitigation.

To address the needs of the State Environmental Quality Review process, VRAs were previously conducted for the environmental evaluations of the predecessor proposed projects. These analyses identified most or all of the identified receptors that may be affected by the Project as currently designed and also identified potential visual impacts and mitigation strategies. However, due to changes in the layout and turbine of the currently proposed Project, an updated VRA will be undertaken for the current Project layout. In particular, the VRA will contain updated viewshed maps, photographic simulations, and a shadow-flicker analysis. The VRA will be prepared in accordance with DPS regulations for Exhibit 24 of the Article 10 Application and the NYSDEC's "Program Policy: Assessing and Mitigating Visual Impacts" (2000).

2.24.1 Potentially Significant Adverse Impacts

Visual Resource Assessments, which are essentially identical to the requirements specified by the Article 10 regulations, were completed for previous project layouts by Saratoga Associates. Each study examined potential visual effects in study areas extending 5 miles beyond the outer most turbines. There was considerable overlap between the two projects in their respective study areas, and these studies also largely or entirely overlap with the anticipated study area for the Project as currently designed.

The studies identified a total of 132 key visual receptors, including historic properties (NHL- and NRHP-listed), community and State parks, designated scenic areas (i.e., Seaway Trail), wildlife management areas, community centers, transportation corridors, and public/community facilities and institutions (Table 2.24-1). Of these, 73 were identified as having statewide significance per the NYSDEC's "Program Policy: Assessing and Mitigating Visual Impacts" (NYSDEC Visual Policy).

Table 2.24-1 Key Visual Receptors in Project Vicinity

	Significance			
Location	Statewide	Local	Other	**Total**
Town of Cape Vincent	32	11	10	**53**
Town of Clayton	1	1	8	**10**
Town of Lyme	16	4	4	**24**
Village of Cape Vincent	24	8	4	**36**
Location Not Specified	0	0	9	**9**
Total	**73**	**24**	**35**	**132**
Sources:				

The Project will be lit in accordance with FAA regulations.

It is anticipated that shadow flicker will generally not be a major concern. The locations of the Project's wind turbines and their immediate surroundings are rural, largely cropland and pasture with intervening areas of woodland. There are comparatively few occupied dwellings, and turbines will be situated with substantial buffers separating them from houses and most other buildings minimizing the amount of shadow flicker a residential structure may experience. Nonetheless, it is anticipated that there will be some structures in the vicinity of the turbines that would experience shadow flicker. Exhibit 24 will present, in table format, a summary of potential hours that each identified receptor could experience. The table at a minimum will include the expected shadow hours per year for each residential structure within 10x the rotor diameter (shadow-flicker study area). It is anticipated that many such affected

structures would belong to participating landowners, who would be compensated for leasing land to the Project. The studies performed to date also note that not all affected structures are necessarily residences; some may be barns or other utilitarian buildings.

Based solely upon the viewshed analyses already performed, it is likely that, because of the relatively flat and open terrain, in theory a large portion of the proposed turbines will be visible from most vantage points in and adjacent to the Project. However, it should be noted that these viewsheds could be considered conservative as they do not illustrate how much of the turbines are visible (e.g. blade tip, nacelle, tower) or consider atmospheric conditions such as haze, fog, rain, lighting conditions that may affect visibility. It is anticipated that such visibility will not rise to the level of significant visual intrusion in many locations. There are several reasons for this, including spread of the turbine array over an area of 4 by 10 miles, which may place many of the turbines in view close to the horizon. Moreover, in terrestrial areas the open terrain will be broken by patches of woodland, lines of trees, and occasional terrain undulations, all of which will mask some of the more distant turbines in the array from many viewpoints. Offshore in Lake Ontario and along the St. Lawrence River, however, clear lines of sight towards the Project will allow all or most of the turbine array to be visible in the distance.

Photo simulations of the antecedent proposed projects assessed the potential visual effects of those proposed projects from specific receptors. The photo simulations of selected key resources illustrated that, when visible, substantial portions of nearby turbines would be visible above the intervening landform and vegetation, due to the relatively level terrain and extensive broad agricultural clearings characteristic of the area. Nonetheless, these studies also confirmed the masking effect of woodlands for more distant turbines, even in winter. Such studies based on the currently proposed Project layout are likely to indicate that the visual effects of the turbine array in many instances will not rise to the level of a detrimental effect on the perceived beauty of resources, nor do they diminish public enjoyment and appreciation of such resources themselves, or impair their character or quality, based on specific criteria, such as those of the NYSDEC visual policy. However, it is possible that the Project may result in substantial impacts in some instances, which will be identified during the development of the VRA.

2.24.2 Extent and Quality of Information Required

The visual studies of the antecedent proposed projects provide useful guidance for the nature and extent of potential impacts. They also identify many of the key visual receptors that likely will be of concern in assessing the Project's effects for the Article 10 Application. The quality of this information is

good, and it largely or entirely conforms to the Exhibit 24 regulations. As a result of changes to the Project layout and other design changes, the existing studies will be combined and updated to develop a VRA of the revised Project layout.

2.24.3 Proposed or On-going Studies during Pre-construction Activities

The VRA will include three (3) sections: turbines and ancillary facilities, shadow flicker analysis, and transmission line analysis.

Section 1: Turbines and Ancillary Facilities

Task 1.1 – Project description – A brief narrative and graphic illustrations will be provided to describe the appearance of the proposed turbines, including size, design, colors lighting, etc. This assessment will also include discussion of overhead interconnects, roads, and other ancillary facilities that may affect the visual character of the region during the construction and operation periods.

Task 1.2 – Mapping the area of potential Project visibility – The first step in identifying whether or not the proposed project would likely be visible from a given location is to create viewshed maps. Viewshed maps identify the geographic area within which there is a relatively high probability that some portion of the proposed Project would be visible. Viewshed maps will be developed using GIS software. Control points for viewshed development will include the highpoints of each of the proposed project turbines (i.e., blade tip at top of rotation).

One viewshed map will be prepared to define the area in which there would be no visibility of the Project because of the screening effect of intervening topography. A second map will be prepared illustrating the probable screening effect of existing vegetation based on the most recent, publicly available, version of the National Land Cover Dataset (NLCD) available for the study area. It will be assumed that the height of mature vegetative stands will be 40 feet.

An additional vegetated viewshed map will be provided to determine the potential visibility of FAA required obstruction lighting based on the location and height of proposed light fixtures. The VRA will include a detailed description of the methodology used to develop the viewshed maps, including software, baseline information, and sources of data.

A suitable basemap will be used so that it, along with the viewshed data, can easily be read. It is expected that a topographical base map such as USGS quad maps will not be used.

Task 1.3 – Identify and map sensitive visual resources – Visually sensitive resources are places generally considered to be of cultural importance, aesthetic importance, or both. Publicly accessible aesthetic resources to be inventoried will be organized as follows:

a) Aesthetic Resources of Statewide Significance – The NYSDEC Visual Policy requires that all aesthetic resources of statewide significance be identified along with any potential adverse effects on those resources from the proposed project. Aesthetic resources of statewide significance may be derived from one or more of the following categories:

- Properties on the National or State Register of Historic Places;
- State Parks [Parks, Recreation, and Historic Preservation Law Section 3.09];
- Urban Cultural Parks [Parks, Recreation, and Historic Preservation Law Section 35.15];
- The State Forest Preserve [NYS Constitution Article XIV], Adirondack and Catskill Parks;
- National Wildlife Refuges [16 U.S.C. 668dd], State Game Refuges, and State Wildlife Management Areas [ECL 11-2105];
- National Natural Landmarks [36 CFR Part 62];
- The National Park System, Recreation Areas, Seashores, and Forests [16 U.S.C. 1c];
- Rivers designated as National or State Wild, Scenic, or Recreational [16 U.S.C. Chapter 28, ECL 15-2701 et seq.];
- A site, area, lake, reservoir, or highway designated or eligible for designation as scenic [ECL Article 49 or DOT equivalent and APA], designated State Highway Roadside;
- Scenic Areas of Statewide Significance [of Article 42 of Executive Law];
- A State or federally designated trail, or one proposed for designation [16 U.S.C. Chapter 27 or equivalent];
- Adirondack Park Scenic Vistas [Adirondack Park Land Use and Development Map];
- State Nature and Historic Preserve Areas [Section 4 of Article XIV of the State Constitution];
- Palisades Park [Palisades Interstate Park Commission]; and
- Bond Act Properties purchased under Exceptional Scenic Beauty or Open Space category.

b) Resources of Local Interest – Places of local sensitivity or high intensity of use (based on local context) were also inventoried, even though they may not meet the broader statewide threshold. Aesthetic resources of local interest will generally be derived from the following general categories:

- Recreation areas including playgrounds, athletic fields, boat launches, fishing access, campgrounds, picnic areas, and other recreational facilities/attractions;

- Areas devoted to the conservation or the preservation of natural environmental features (e.g., reforestation areas/forest preserves, wildlife management areas, open space preserves);
- A bicycling, hiking, ski touring, or snowmobiling trail designated as such by a governmental agency;
- Parkways, highways, or scenic overlooks and vistas designated as such by a governmental agency;
- Important urban landscape including visual corridors, monuments, sculptures, landscape plantings, and urban green space;
- An interstate highway or other high volume (relative to local conditions) road of regional importance;
- A passenger railroad or other mass transit route; and
- A residential area greater than 50 contiguous acres and with a density of more than one dwelling unit per acre.

c) Other Places for Analysis – Given the rural character of much of the study area, the inventory of aesthetic resources may be further expanded to be conservatively over-inclusive. In several cases, locations not rising to the threshold of statewide significance or local interest may be included to represent visibility along sparsely populated rural roadways; most selected based on field observation of open vistas. Although possibly of interest to local residents, such locations are not considered representative of any aesthetically significant place and carry little importance in the evaluation of aesthetic impact.

In addition to the above, eligible properties to be listed on the National or State Register of Historic Places will be identified. The source of these properties will be from the historical analyses completed for the previously proposed St. Lawrence Wind Farm and Cape Vincent Wind Energy Project.

The location of all identified visual resources will be plotted on viewshed maps identified in Task 1.2 above. Photographic simulations will be completed for only a subset of the identified resources.

Task 1.4 – Define existing landscape character/visual setting – Landscape character is defined by the basic pattern of landform, water resources, vegetation, land use, and land use intensity that make up a view. The description of the landscape character offers an overview of the intrinsic visual condition of a site and establishes the baseline condition from which visual change can be evaluated. This evaluation, using both field investigation and map interpretation to identify physiographic, land use, and natural

resource conditions, will provide a framework for comparing and prioritizing the differing visual quality and sensitivity of visual resources in the study area.

Task 1.5 – Identify factors influencing visual impact – To bring order to the consideration of visual resources, the inventory of visual resources will be organized into several recognizable elements. These will have a potential to influence or minimize perceived visual impact and include: 1) viewer/user groups, 2) level of viewer exposure, 3) duration/frequency/circumstances of views, and 3) distance zones (foreground/ middleground/background).

Task 1.6 – Conduct field assessment – A trained field observer will visit inventoried visual resources determined through viewshed evaluation to be potentially affected by the project. Where a view of the proposed Project is found to exist, the precise location of the worst-case (most exposed) vantage point in the immediate vicinity of the subject visual resource will be recorded using a hand held GPS unit and a photograph taken of the affected field of view using a digital SLR camera with a 50mm +/- lens setting (film equivalent) to approximate normal human eyesight. The location selected for each photograph will be the position judged by the field observer to be the most unobstructed vantage.

Task 1.7 – Depict the appearance of the facility (photographic simulations) – Photo realistic simulations of the proposed Project will be prepared for up to 20 representative locations. Locations selected for photo simulations will be based on 1) the most unobstructed or directed views, 2) relative importance of public vantage points, 3) level of viewer exposure, 4) geographic distribution and 5) input from local sources and appropriate regulatory agencies.

Photo simulations will be developed by superimposing a rendering of a three-dimensional computer model of the proposed wind turbines into the base photograph taken from each corresponding visual resource. The three-dimensional computer model, covering the regional terrain within the Project area, will be developed in *AutoDesk Civil 3D®* and *AutoDesk 3D Studio Max®* (3DS Max) software.

As a result of Saratoga Associates previous involvement in creating the Visual Resource Assessment for both the previously proposed projects it is anticipated that a subset of those completed simulations locations will be considered for simulation of the currently proposed Project.

The suitability of these locations will be further reviewed during the completion of the report and a final list of simulation will be developed. The VRA will include a detailed description of the methodology used to develop the photo simulations.

Task 1.8 – Evaluate the Degree and Nature of Visual Change – A summary analysis describing potential Project visibility from each simulated visual resource will be provided. This evaluation will include the photographic simulations and summary describing the aesthetic character of each viewpoint (landscape similarity zone), identification of affected viewer groups, distance zone and duration of view.

Evaluation of secondary impacts (e.g., construction impacts, FAA required lighting, meteorological; towers, aboveground interconnections and other potential operational considerations) will also be provided. This evaluation will be sufficiently detailed to provide an overall understanding of such secondary impact, but will not be the subject of additional photo simulation, viewshed analysis or cross-sectional analysis.

A brief narrative section will also be provided describing the compatibility of the proposed wind energy facility within the context of the local visible landscape. Issues such as differences in form, line, color, texture, scale, and spatial dominance will be addressed. This information will assist review agencies determination of the significance of identified visual impacts.

In addition, a more detailed rating of each set of existing and simulated views of the project will be completed using a portion of the Bureau of Land Management ("BLM") Visual Resource Management process. Specifically, the simulations will be rated using Form 8400-4 Visual Contrast Rating Worksheet, which is part of the BLM process, by a panel of three to five individuals (including individuals not involved in completing the VRA) experienced in completing visual studies. These individuals will be either licensed Landscape Architects or other environmental/planning professionals. Prior to rating the simulations, the entire panel may participate in a tour of the study area so that each panel member has a better understanding of the landscape within the study area. Once the ratings are completed, those that rate as "strong" and have been identified as a location where mitigation measure to be considered will be further evaluated in order to determine whether such mitigation measures would effectively reduce the potential impact.

Task 1.9 – Opportunities for Effective Avoidance, Mitigation or Enhancement of Adverse Visual Impacts – The VRA will explore potential mitigation to reduce any adverse visual impact.

Task 1.10 – Cumulative Analysis – An analysis will be completed on the potential cumulative visibility of the proposed Project and proposed wind projects that are actively being pursued in adjacent towns, including Clayton, Brownville, and Orleans. The Galloo Island Wind Farm (proposed, not active), Horse Creek Wind Farm (proposed, not active), and projects in Canada will not be included. If active projects

are found within these three adjacent towns, the visual assessment will include cumulative blade tip topographical and vegetated viewshed maps, and up to six cumulative simulations. All information on the proposed projects must be publicly available, including but not limited to: general turbine dimensions and structure locations.

Section 2: Shadow-Flicker

Using industry standard software (WindPro Shadow Module), the geographic area falling within the shadow zone of one or more wind turbine rotors will be mapped, and the maximum hours per year and minutes per day, and expected hours per year of potential flicker for affected receptors will be calculated. This analysis will be conducted using sunshine "probabilities" from meteorological data compiled at the National Weather Service data source (or similar), and operational time/rotor orientation data supplied by CVWP.

An isoline map will be prepared illustrating the maximum cumulative shadow area for all proposed wind turbines. A map showing the isolines and potential affected residences (also referred to as "receptors") will be completed.

A suitable basemap will be used so that it, along with the shadow data, can easily be read. It is expected that a topographical base map such as USGS quad maps will not be used.

In table format, a summary of potential hours that each identified receptor could experience will be presented. The table at a minimum will include the expected shadow hours per year for each residential structure within 10x the rotor diameter (shadow-flicker study area). For the purpose of this analysis 30 hours per year will be considered the threshold where potential mitigation measures may be considered on a case-by-case basis and will not be a part of this initial study.

Section 3: Transmission Line

Task 3.1 – Project description – A brief narrative and graphic illustrations will be provided to describe the appearance of the proposed overhead transmission lines, including size, design, materials, etc. This assessment will also include discussion of sub-station and switchgear facilities, clearing and other ancillary facilities that may affect the visual character of the region during the construction and operation periods.

Task 3.2 – Map area of potential transmission line visibility – Utilizing the viewshed analysis process described in Task 1.2 above, Exhibit 24 will include topography and vegetated viewshed maps for a study

area extending one mile around the centerline of the proposed transmission route. Control points for viewshed development will include the highpoints of each transmission structure (not including substation and switchgear facilities). A suitable basemap will be used so that it, along with the viewshed data, can easily be read. It is expected that a topographical base map such as USGS quad maps will not be used.

Task 3.3 – Conduct field assessment – Photographs will be taken from locations adjacent to the proposed transmission line. Locations such as road crossings, public resources, and resources of statewide significance will be visited.

Task 3.4 – Depict the appearance of the facility (photographic simulations) – To illustrate anticipated visual changes resulting from the proposed transmission line, photographic simulations will be prepared for up to 10 locations. To illustrate the transmission line, it is anticipated that simulations will be completed using photographs taken from close proximity to the transmission line. Photo simulations will be developed by superimposing a rendering of a three-dimensional computer model of the proposed project into the base photograph taken from each corresponding study location. The three-dimensional computer model will be developed in Autodesk *Civil 3D®* and *3D Studio Max®* software.

Task 3.5 – Evaluate the Degree and Nature of Visual Change – A summary analysis describing potential project visibility will be provided. This evaluation will include the photographic simulations and a brief narrative describing the compatibility of the proposed transmission line within the context of the local visible landscape.

2.24.4 Avoidance and Minimization Measures

Measures to reduce, minimize, or avoid potential visual impacts from the Project will be determined in consultation with the appropriate regulatory agencies and may include items such as:

- Shadow flicker analysis and results on occupied residences will be taken into account when optimizing the turbine layout.
- Other than standard manufacturer markings, Project infrastructure will be free of advertising and high-visibility commercial markings.
- Where practicable, subsurface routing of electrical collection lines and control interconnects may be employed.
- The Project design will adhere to minimum FAA requirements for aviation obstruction lighting.

- Outdoor lighting at ancillary facilities, such as the O&M building, will be reduced while ensuring that health, safety, security, environment, and functionality issues are accounted for. Lighting at the building will be in compliance with code requirements for ingress and egress during emergency situations.
- Operators will maintain facilities over the life of the Project consistent with industry standards.
- The wind turbine towers and other aboveground elements of the Project, other than those owned by the interconnecting utility, will be removed during decommissioning.

2.24.5 Proposed Measures to Mitigate Unavoidable Impacts

If reasonably unavoidable visual impacts from the Project are identified, CVWP will consult with municipal authorities, appropriate local stakeholders, and state agencies to identify specific measures to mitigate the impacts. Among the possible measures to be considered are:

- Appropriate mitigation for resources most affected, directly and indirectly, would be determined through discussions with OPRHP, NYSDEC, NYSDOS and NYSDPS.

2.25 Effect on Transportation - Exhibit 25

2.25.1 (a) Project Layout

Exhibit A provides locations for each of the access roads. These access roads are expected to have a width of 40 feet during construction (serving as temporary roads travel lanes) and a width of 16 feet during operations (serving as permanent road travel lanes). The suitability of road intersections is still under evaluation. A conceptual site plan, including characterization of road intersection suitability and depicting access road locations and widths will be provided in the Application.

2.25.2 (b) Pre-Construction Characteristics of Project Area Roads

The Cape Vincent Wind Farm will require usage of the road systems throughout the Town of Cape Vincent, where turbines and supporting infrastructure will be placed. The general transportation patterns around the Project area are highly seasonal, affected both by weather and by tourism.

Interstate 81 ("I-81") is the primary transportation corridor on a regional level. I-81's northern terminus is at the Thousand Islands Bridge where it connects with Ontario Highway 137 (also known as King's Highway) entering Canada. To the south, I-81 passes through Watertown approximately 15 miles east of the heart of the Project, and continues through Syracuse and southward. In Syracuse, I-81 intersects with I-90.

The primary local transportation route through the project area is NYS Route 12E, which travels northwest from Watertown to Cape Vincent, then northeast along the St. Lawrence River to Clayton County.

Major local roads include County Route ("CR") 4 (Rosiere Road), and County Route 6 (Pleasant Valley Road), County Route 8 (Millens Bay Road), and County Route 9 (St. Lawrence Road). Numerous local roads traverse Cape Vincent. Roads are typically two-lane with asphalt pavement, however some gravel surfaced seasonal roads exist. Due to the rural location, several roadways within the Project area are not considered heavily traveled roads.

Cape Vincent is not served by a public transit system such as train and commercial bus. The Project is located predominantly within the Thousand Island Central School district with the elementary school north of the west laydown area on County Route 9.

For the Article 10 Application, a review of existing data on vehicle traffic, use levels and accidents will be included.

The potential approach and departure routes to and from the Project area for police, fire, ambulance and other emergency vehicles will be identified.

The available load bearing and structural rating information for expected facility traffic routes will be included. The New York State, Jefferson County, and Towns of Cape Vincent and Lyme, and the Village of Lyme roads do not have posted weight limits within the Project limits.

The Project is not located in a congested urbanized area, thus, the following tasks are not contemplated in accordance with Article 10: results of twenty-four hour traffic volume counts and peak turning movement counts for typical weekday morning, weekday afternoon, and Saturday peaks, at representative critical intersections.

2.25.3 (c) Trip Generation Characteristics during Construction and Operation

Potential impacts to traffic and transportation will primarily occur during the construction phase for the Project and can be exacerbated due to delivery of turbine component on potentially narrow roads. Impacts during operation are expected to be minimal. For each major phase of the Project, including construction, and the operation phase, an estimate of the number and frequency of vehicle trips, including time of day and day of week arrival and departure distribution, by size, weight and type of vehicle will be included.

The heavy equipment and materials needed for site access, site preparation, and foundation construction are typical of road construction and high rise building projects and do not pose unique transportation considerations. The types of heavy equipment and vehicles required would include cranes, pile drivers, bulldozers, graders, excavators, front-end loaders, compactors, dump trucks, electric line trucks, water trucks, and heavy equipment maintenance vehicles. Typically, the equipment would be moved to the site by flatbed combination truck and would remain on site through the duration of construction activities. Typical construction materials hauled to the site would include gravel, sand, water, steel, electrical cable and components, fencing, and lumber. Ready-mix concrete might also be transported to the site. The movement of equipment and materials to the site during construction would cause a relatively short-term increase in the traffic levels on local roadways during the construction period.

An identification of approach and departure routes to and from the facility site out to a 5-mile distance for vehicles carrying water, fuel oil, bulk fuels, chemicals or hazardous materials for construction or operation of the facility will be included in the Application.

Major cut or fill activity (spoil removal or deposition at the facility site and affected interconnection areas) are not anticipated to create additional traffic on public roads as excess soil will be distributed within disturbance limits. Thus, a separate estimate of the number and frequency of vehicle trips, including time of day and day of week arrival and departure distribution, and including a delineation of approach and departure routes, by size, weight and type of vehicle will not be developed.

The approach and departure routes to and from the Project area for construction workers and employees of the facility will include most existing roads. During construction, a peak of up to 350 workers will working at the site at any given time.

2.25.4 (d) Impacts on Traffic and Transportation

The Application will contain a comparison of projected future traffic conditions with and without the proposed facility, the analysis to be conducted separately for the peak construction impacts of the facility and for the typical operations of the completed facility. Because the Project is not in a congested urbanized area, a calculation and comparison of the level of service for each representative intersection or detail for each turning movement will not be included.

The Application will also contain an evaluation of the adequacy of the road system to accommodate the projected traffic, the analysis to be conducted separately for the peak construction impacts of the

facility and for the typical operations of the completed facility, the analysis will also include an identification of the extent and duration of traffic interferences during construction of the facility and any interconnections.

Transportation logistics for the Project will be reviewed early in the planning process. The length and weight of the turbine delivery vehicles will require special permitting. The estimated number of delivery trips for turbine components, underground and overhead electrical systems foundations, erection cranes, and road materials will be provided in the Application.

The delivery of oversize/overweight components and materials will likely follow one of the proposed regional haul routes to access the Project area; however, the State of New York makes the final determination of the delivery routes to the Project site. Local school officials and emergency response representatives will be notified in advance of temporary closures or traffic restrictions required to improve intersections to accommodate oversize/overweight loads or cross roadways with utility lines.

The deliveries of oversize/overweight components have the potential to inhibit operations along the major two-lane highways (NYS Route 12) during peak hours and deliveries of select oversize/overweight turbine components may be limited to off-peak hours to minimize the disruption to motorists. According to NYSDOT Traffic Count Hourly Reports for NYS Route 12, which is located along the regional haul routes, the peak hours occur on weekdays from 7-9 AM and 4-6 PM.

A detailed assessment of over-size load deliveries, and the adequacy of roadway systems to accommodate oversize and over-weight vehicles; improvements necessary to accommodate oversize or overweight deliveries; impacts associated with such improvements; and mitigation measures appropriate to minimize such impacts will be included in the Application.

The Application will also include an identification and evaluation of practicable mitigation measures regarding traffic and transportation impacts, including time restrictions, the use of alternative technologies, the construction of physical roadway improvements, the installation of new traffic control devices, and the repair of local roads due to damage by heavy equipment or construction activities during construction or operation of the facility.

Maps of local delivery routes will be provided in the Application. The local delivery routes will be selected to reduce weight restrictions and vertical clearance obstructions. Although efforts will be made to reduce the impacts to intersections and roadways, some intersections and roadways may require

improvements and modifications to accommodate the oversize/overweight loads necessary for the construction of the turbines. Types of modifications may include items such as:

- pavement widening;
- intersection widening;
- flattening short steep vertical curves;
- temporary removal of signs and structures;
- temporarily lifting overhead obstructions such as utility lines;
- improving the structural integrity of certain roadways;
- upgrading culverts;
- extending culverts in areas of pavement widening;
- increasing pavement thickness;
- temporarily raising, relocating, or removing overhead utility lines including electric, telephone and cable television; and
- trimming of trees and vegetation along local roads having a narrow right-of-way.

Land agreements will be needed in certain locations to perform some of the improvements required to accommodate oversize/overweight vehicles. The improvement locations and details will be provided in the Application.

Currently, it is not expected that any improvements to bridges along the proposed local delivery routes will be required. The selection of local delivery routes to be considered will include bridges that are posted with restricted capacities. Additionally, alternative routes will be evaluated with the intent of selecting local delivery routes that do not traverse any bridges that are posted with weight restrictions; however, the State of New York makes the final determination of the delivery routes to the Project site.

Scheduling considerations must consider seasonal influences on local travel patterns. During the winter months, severe weather conditions can limit road access, as well as functional road width. During the summer months, the region experiences an increase in tourism-related traffic. In addition, commuting traffic and school bus schedules will need to be considered to avoid potential impacts.

At some point during the Project, construction activities associated with the Project are expected to overlap with peak seasonal travel and with the school year. It is expected that equipment and materials will be delivered to the site during normal construction hours. The heavy equipment and materials needed for site access, site preparation, and foundation construction are typical of road construction

and do not pose unique transportation considerations. The delivery of oversize/overweight turbine components are expected to have the greatest impact to motorists as these transport vehicles will be slow moving and will require additional time to navigate turns.

A description of all road use and restoration agreements, if any, between the applicant and landowners, municipalities, or other entities, regarding repair of local roads damaged by heavy equipment or construction activities during construction or operation of the facility will be included in the Application.

CVWP will enter into an agreement to detail the roadway modifications and improvements required to complete the Project. The agreement will include a pre-construction and post-construction survey which documents roadway conditions, and will identify how post-construction roadway repairs will be completed. In addition, access road entrances to state, town and county roadways are expected to require highway work permits and right-of-way acquisition.

To the maximum extent practicable, CVWP will construct roadway and intersection improvements along major arterials during the non-recreational season and establish an equipment staging area that contains enough capacity to minimize the amount of equipment deliveries into the area which would take place during the recreational season.

2.25.5 (e) Impacts on Mass Transit Systems

CVWP expects to research the regional aeronautical environment for the Cape Vincent Project area. The Application will include a layout with the protected airspace dimensions and volumes.

The Application will include an analysis of the Project area against the following criteria:

- Federal Aviation Regulations ("FAR") Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace;
- FAA Order JO 7400.2J, Procedures for Handling Airspace Matters; and
- FAA Order 8360.3B, United States Standard for Terminal Instrument Procedures (commonly referred to as "TERPs")

The Application will include a report on the above mentioned items that will include a narrative and a GIS-based map consisting of the Project area divided into sectors. The sectors will show the maximum allowable heights for turbines in those sectors.

2.25.6 (f) Federal Aviation Administration Notice of Proposed Construction

CVWP intends to provide notice to the FAA as required by FAR Part 77 which involves preparation and filing of FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, for any facilities 200 feet or taller in height in the Cape Vincent Project along with a Lighting Plan consistent with FAA Advisory Circular 70/7460-1K, *Obstruction Marking and Lighting*.

CVWP intends to file for and obtain a Department of Defense ("DoD") Siting Clearinghouse Review. The Clearinghouse provides two alternative procedures either of which may be followed to satisfy this requirement, i.e., a Formal Review or an Informal Review by the Clearinghouse. It is currently anticipated that CVWP will file for Informal Review.

FAA will provide notice to civil and military airports within specified distances of the Project along with evidence of actual consultation with the operators of any such airports. The relevant airport facilities will be identified and pertinent Project information will be provided to involved airport operators to enable them to determine any impacts to their facilities and operations arising from the Project.

CVWP will confirm if the proposed construction will be located: (i) Within 12 miles of the nearest point of the nearest runway of a commercial service, cargo service, reliever or general aviation (public use) airport or a military airport with at least one runway more than 3,200 feet in actual length; or (ii) Within 6 miles of the nearest point of the nearest runway of a commercial service, cargo service, reliever or general aviation (public use) airport or a military airport with its longest runway no more than 3,200 feet in actual length; or (iii) Within 3 miles of the nearest point of the nearest point of the nearest landing and takeoff area of a commercial service, cargo service, reliever or general aviation (public use) heliport or military heliport. If the proposed construction triggers one of these three criteria, the Application will then include a statement that the applicant has consulted with the operators of such airports and heliports that are non-military facilities (public use), has provided a detailed map and description of such construction or alteration to such operators, and has requested review of and comment on such construction or alteration by such operators. A statement that the applicant has provided a detailed map and description of such construction or alteration to the operators (Base Commanders) of such airports and heliports that are military facilities will also be included.

The Application will include a detailed description of the responses received in such reviews and consultations undertaken in connection with the requirements of this Exhibit 25, including specifically whether and why such operators believe such construction or alteration should be:(i) unrestricted; (ii) subject to site-specific requirements; or (iii) excluded from certain areas.

2.26 Effect on Communications – Exhibit 26

This section provides an overview of the methodology that will be employed to assess the impact that Project turbines may have on various types of wireless telecommunication systems listed in the Article 10 regulations. The results from the study work performed on these system will be used to develop a plan to address potentially significant adverse impacts identified.

2.26.1 Overview of Wireless Communications

Wireless communication systems operate by providing a signal transmission path between a transmitter and a receiver. The successful operation of any wireless transmission requires a number of factors including frequency (spectrum) of operation, transmitter power, receiver sensitivity and the characteristics of the path between the transmitter and the receiver. The path characteristics between a transmitter and a receiver, along with the frequency of operation, will determine the signal propagation or resulting signal level that will exist at the receiver after traveling from a transmit antenna to a receive antenna.

Wireless systems can broadly be classified as either line-of-sight ("LOS") or non-line-of-sight ("NLOS") networks. LOS systems, such as point-to-point microwave, require a clear and unobstructed path between the transmitter and receiver to provide reliable communications between the two points. NLOS systems, such as land mobile radio, television broadcasting and cellular networks, are designed to operate with a high degree of reliability in an environment where the path between a transmitter and receiver is typically blocked by terrain, vegetation, buildings or other manmade obstacles.

LOS systems that may be affected by the installation of wind turbine facilities operate over a wide frequency range from 900 MHz to 23 GHz. NLOS systems operate on a variety of frequencies that are typically below 3 GHz. At these lower frequencies, the wavelengths of the signals are such that they will propagate through and around the obstructions with minimal degradation to the signal level. The lower the frequency, the less its signal is affected by obstructions along its communication path.

Radar systems are potentially impacted by the presence of wind turbines in a different manner than the wireless communication networks discussed above. There are a number of characteristics of radar systems versus other wireless activities that make them a unique situation with respect to wind turbine installations. Like other systems, radars have both a transmitter and receiver, but unlike all other systems, the radar transmitter and receiver are collocated with each other and share the same antenna sub-system.

In addition, radars operate by sending out a pulsed signal from the transmit antenna and the receiver of the radar detects any signals that are returned as a result of reflected energy from distant objects. With the processing of this reflected signal, the radar system can determine precisely where the reflected object is in the three dimensions of distance, direction and height (or altitude) as viewed from the radar installation. In addition to determining the highly accurate location of reflected objects, a radar system can determine the rate of speed, or velocity, of a reflected object based on its varying positional location over time. Radar systems operate with a very short transmit pulse rate allowing them to determine very accurately the velocity of a moving object.

2.26.2 Potentially Significant Adverse Impacts

The installation of wind turbines in the vicinity of wireless telecommunications has the potential to impact the wireless networks operations by creating additional obstacles between a given transmitter and receiver. These additional obstructions have the potential of increasing the propagation losses between a transmitter and receiver which results in a reduced signal level at the receiver. The net effect of these additional propagation losses is dependent on the wireless system type. An assessment of the turbines' effect or impact will be performed for each type of wireless system discussed below.

AM and FM Radio

For AM stations, no degradation of their broadcast coverage should occur due to the presence of the wind turbines as long as the separation distance to the nearest wind turbine is sufficient. Potential problems with broadcast coverage are greater for AM stations with non-directive antennas than those with directive antennas. Turbines located sufficiently close to an AM station transmitter may affect the coverage area of the station as the turbines themselves could become re-radiators of the AM signal.

Similar to AM stations, FM stations' coverage are not subject to degradation as long as the separation distance to the nearest wind turbine is sufficient. The problem that may occur when wind turbines are too close to FM broadcast antennas is that the coverage pattern of the FM station will be decreased in the direction of the wind turbine due to the physical obstruction of the wind turbine nacelle and blades. Attenuation of the signal can be significant in the azimuth that the wind turbine(s) obstructs. This will affect reception at the perimeter of the FM station's range more so than reception closer to the station. The wavelength of the FM broadcast signal is long enough relative to the blades of a wind turbine minimizing the attenuation of the signal.

Television

Off-air television stations are broadcasters that transmit signals that can be received directly on a television receiver from terrestrially located broadcast facilities. The presence of wind turbines in the path between a television transmitter and a television receiver may negatively impact the signal coverage due to both attenuation of the broadcast signal and multi-path reflections of the television signal off of the rotating turbine blades. The net effect of this signal degradation may vary to include a condition known as "video flicker", ghosting, and video pixilation or complete loss of video, depending on the severity of the signal attenuation. Ghosting is caused by multipath interference that occurs when a broadcast signal reflects off of a large reflective object—in this case a wind turbine—and arrives at a television receiver delayed in time from the signal that arrives via direct path.

Locations where the proposed wind turbines are sited between the television transmitter and receivers are potential areas that may be impacted by the presence of turbines. However, if coverage exists from multiple transmitters and directions, reception may only be impacted from a limited number of transmitters that are in the direction of the turbines, while the reception of other transmitters will not be affected by the presence of the turbines.

Cellular Telephone

See Land Mobile Radio below.

Microwave Transmission: Point-to-Point and Point-to-Multipoint

Microwave Transmissions, whether point-to-point or point-to-multipoint are line-of-sight networks designed to operate with a clear, unobstructed path between a given transmitter and its associated receive location. Wind turbines, if located within this path, can degrade these microwave signals by physically blocking the line-of-sight conditions between the two end sites.

Land Mobile Radio including Emergency Services/First Responders, Municipal/School Districts and Public Utility Services

An impact assessment of land mobile radio and mobile telephone services (cellular, PCS, and 4G networks) can be consolidated due to the similarities of their operations with respect to the potential impact on these services from a wind turbine. Although each of these network types operate in different frequency ranges and provide different types of service including voice, video and data applications, there is commonality among these different networks on the impact to their individual operations due to the presence of wind turbines.

Each of these networks is designed to operate reliably in a NLOS environment. Additionally, each of these systems typically consist of multiple base station transmit locations so that their signal coverage is over a large geographic area with overlapping coverage areas between the base station transmitters. This network architecture is implemented to not only provide wide area coverage but also to support the hand-off of signals from one base station to another as the mobile user travels throughout the area. In this manner, at any point the signal level is often present from more than one base station transmitter which improves network redundancy and overall signal reliability. Thus no significant adverse impacts are anticipated to land mobile radio or mobile telephone systems.

Federal Government Systems, including GPS and LORAN

The telecommunications systems operated by the Federal Government fall under the jurisdiction of the National Telecommunications and Information Administration ("NTIA"), which is part of the United States Department of Commerce. Within the NTIA, the Interdepartment Radio Advisory Committee ("IRAC") is responsible for the coordination of all federal telecommunication system activities. To address potential impacts on classified and non-classified federal government systems, a notification letter will be sent to the NTIA to analyze federal communication systems, including the Department of Defense radar systems, the National Weather Service's Doppler weather radar systems and FAA radar systems.

GPS and LORAN (including eLORAN) communication systems are overseen by the Department of Defense, Department of Homeland Security and the Coast Guard. The NTIA notification letter responses should identify any potential adverse impacts

Radar

Radar systems are designed to identify objects that are located within their radar line-of-sight ("RLOS"). The RLOS is the area where there are no ground-based obstructions that will block the radar signal from reflecting off a distant object and subsequently returning a reflected signal that the radar can detect. Due to the curvature of the earth and ground clutter such as terrain, buildings, vegetation and other manmade obstructions, the RLOS for identifying low-altitude objects for a typical radar system extends to approximately 50 – 75 miles from the radar installation. This distance will vary greatly depending on the location of the radar system. For instance, the RLOS region for radars that are located at a significantly higher terrain ground elevation than the surrounding environment will have a much greater RLOS distance than a radar installation located near ground level in a valley surrounded by near-in hills

and mountains. Without the presence of ground-based clutter and obstructions blocking a signal, radar systems will typically be able to detect objects upwards of 200 miles or greater from the radar facility.

Radar systems detect the reflected signal from objects and with the processing of this data can determine precisely where the object is and the velocity of a moving object. The processors of a radar system have the ability to blank-out non-moving large objects such as water tanks and other tall structures that are located within its RLOS. Wind turbines, unlike other large manmade obstacles, are moving objects with varying velocities (the velocity of the blades is much slower near the nacelle than at the tips of the blades) and a radar system cannot necessarily differentiate a wind turbine from other moving features such as an airplane, weather front or a travelling missile.

The large footprint and moving nature of wind turbines may negatively impact the ability of a radar to detect other objects in and around the turbine as a result of an overload of the radar's processors and filters due to the varying rotor blade velocities. This results in a number of potential impacts to the radar's operation including target detection capability reduction, degradation to the range and target tracking capabilities, false readings and loss of target detection abilities in areas both within the wind development and areas beyond the wind project as viewed from the radar facility.

Amateur Radio

The effect on amateur radio systems is highly dependent on the technical parameters of the system. The frequencies can be as low as 14 kHz or as high as 40 GHz. The type of operation can be intercontinental communications by sky wave or satellite, or line-of-sight communications over short distances. A determination of degradation effect, whether direct electromagnetic interference or signal obstruction is dependent on the system configuration and frequency of operation. If an amateur system is identified as being close enough to the turbines to be impacted, a site visit by a field engineer will be necessary to examine the present system configuration and inspect the transmitting antennas with respect to the wind turbines.

2.26.3 Extent and Quality of Information Required

To perform assessments of the communications systems that could be impacted by wind facilities, an on-site visit is not typically required and will likely not be utilized. Instead, the most important sources of information for assessing communication impacts in the United States are the Federal Communications Commission ("FCC") databases, NTIA federal government databases, local government data resources, spectrum management databases and the individual entities themselves that operate

communication systems. For microwave transmissions, a frequency coordinator's database will be consulted to gather information on proposed paths.

Field measurements can be beneficial in that they can measure pre and post-construction conditions as it pertains to wireless signal reception in the area near the wind facility.

A study will be performed for the Project in compliance with the requirements of the Article 10 regulations for Exhibit 26. A plan will be developed to address potentially significant adverse impacts identified in the study.

2.26.4 Avoidance and Minimization Measures

The avoidance and minimization measures for each of the assessed communications systems are summarized below.

AM and FM* R*adio

Potential problems with AM and FM broadcast coverage occurs within certain distances. The study will look to identify these distances. For locations where turbines may cause an impact, micro-siting beyond these distances may help avoid impact on the surrounding AM and FM stations coverage area.

Television

Micro-siting of individual turbines can be employed to reduce television coverage degradation, especially if a television transmit tower is located close to the project area. Some local residents near the Project, depending on their positioning, may have their off-air television reception negatively impacted by the Project.

Cellular Telephone

See Land Mobile Radio

Microwave Transmission: Point-to-Point and Point-to-Multipoint

For each microwave path that intersects the project area, a Fresnel zone analysis will determine which paths may be affected. The Fresnel zone defines a zonal area around the microwave path that needs to remain clear of obstructions in order not to cause any propagation disruption to the microwave path. With this information, the turbines can be positioned in locations that do not overlap the defined Fresnel zones. If alternatives to re-positioning a turbine outside of the Fresnel zone are necessary, a detailed analysis of the 3-D cross-sectional Fresnel zone at specific points along the path can be performed to identify if vertical or horizontal clearance exists. Micro-siting of turbines to avoid the

actual Fresnel zone of any licensed microwave communications whose paths intersect the boundaries of the proposed wind turbine development will negate any impact on the microwave communications.

Land Mobile Radio including Emergency/First Responders, Municipal/School Districts and Public Utility Services

No avoidance or minimization measures are necessary from an obstruction standpoint for these communications systems. Based on FCC electromagnetic emission requirements, turbines should be located at least 75 meters from fixed base stations used for land mobile or mobile telephone systems.

Federal Government Systems, including GPS and LORAN

Avoidance and minimization measures will be established, if at all necessary, after discussions with the appropriate government agency.

Radar

If the Project area is within the RLOS of any of the surrounding radar facilities, an evaluation of the terrain features between the radar facility and the proposed turbines may be conducted to further quantify the potential impact. This additional analysis helps further identify specific impacts a proposed wind development may have on surrounding radar facilities. There are a number of potential mitigation techniques that will be considered to reduce potential negative impact including:

- Micro-siting the turbines to reduce their RLOS as viewed from the radar facility
- Providing open azimuths as viewed from the radar facility through the wind project where no turbines are located thereby allowing the radar facility to detect objects in these open azimuth ranges
- Relocating the impact turbines to lower ground elevation to reduce their footprint as viewed from the radar

Amateur Radio

System configuration is needed to determine which measures may be potential options to reduce potentially significant impacts.

2.26.5 Proposed Measures to Mitigate Unavoidable Impacts

The following measures can be implemented to mitigate unavoidable impacts:

AM and FM Radio

For both AM and FM radio, mitigation options for unavoidable impacts may include options such as:

- Increase the transmitter power of the station to overcome signal degradation due to the presence of the turbines
- Add low-power repeaters to provide coverage to any affected areas
- Increase the stations' antenna to a height above the top of the turbines

Television

An engineering analysis would need to be conducted to conclusively determine if the turbines had a direct, significant adverse impact to the off-air television reception. If this were concluded, one or more of the following options could be pursued, depending on the unique environment in question:

- Improve the customers' off-air television reception system
- Installation of a high gain, steerable tower mounted off-air antenna
- Installation of a low noise amplifier at the antenna
- Use of low-loss, double shielded coaxial cable
- Use of active splitter/amplifiers for distribution to multiple television sets

Cellular Telephone

See Land Mobile Radio

Microwave Transmission: Point-to-Point and Point-to-Multipoint

For point-to-point systems that require line-of-sight, unavoidable impacts may be resolved by re-routing the microwave path so that the Fresnel zone is no longer obstructed. For point-to-multipoint systems, the receive site may be re-directed to point at another hub (transmit) site or the path may be re-routed so that the Fresnel zone is no longer obstructed.

Land Mobile Radio including Emergency/First Responders, Municipal/School Districts and Public Utility Services

If an assessment conclusively determined that the turbines had a direct, significant adverse impact to land mobile radio or mobile phones, options to improve their signal coverage to the area may be achieved through evaluation of the nearby base station or adding a repeater site. Utility towers, meteorological towers or even the turbine towers within the wind project area may serve as the platform for a new base station or wireless repeater site.

Federal Government Systems, including GPS and LORAN

Mitigation measures will be established, if at all necessary, after discussions with the appropriate government agency.

Radar

For unavoidable impacts to radar systems, installation of a "gap-filler" radar to provide coverage in areas that are negatively impacted by the presence of turbines is a possible solution, although further work is needed to determine the efficacy of this approach.

Amateur Radio

System configuration is needed to determine which measures may be potential options to reduce potentially significant impacts.

2.26.6 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received a comment expressing concerns about potential Project effects on communications. This comment is summarized in Table 2.26-1.

Table 2.26-1 Comments and Responses on Potential Project Effects on Communication

Date	Commenter	Issue/Comment Summary	Response
5-Dec-12	Town of Cape Vincent	Electronic signal interference	The Project will conduct studies, as noted above, to evaluate potential significant adverse impacts on the various types of wireless telecommunications systems listed in the Article 10 regulations.

2.27 Socioeconomic Effects - Exhibit 27

The socioeconomic impacts of this Project will be determined consistent with the requirements of Article 10 and will evaluate the following general categories: construction workforce, associated payroll, primary and secondary employment and economic activity, school district and infrastructure costs.

2.27.1 Potentially Significant Adverse Impacts

A specialized construction workforce will be required for construction of the Project. Local workers will be hired to the extent that skilled workers are available within the local community. Nonlocal workers will be required for the construction workforce. This will result in a temporary in-migrating of workers

that will require temporary accommodations, housing, and food services. Operation of the Project will require a smaller workforce that may be hired from the local community. A portion of the payroll to the construction and operation workforce may recirculate into the local economy through local expenditures and taxes.

Various supplies and services for the Project may be purchased from local suppliers and companies. Construction of the Project will require trucking, gravel, and concrete among other services and supplies. This will lead to additional revenues for area businesses, and possible hiring of additional temporary workers. Total economic impact on the local area is composed of direct, indirect, and induced economic impacts. Any supplies and services purchased locally and any financial compensation received by local workers is a direct impact of the Project. Reinvestment of these revenues by businesses and workers at other local businesses may result in the indirect impact of increasing revenues in the local economy. Induced impacts may occur as a result of employees of the businesses re-spending money at other businesses in the area.

Local spending will result in increased tax revenue for the Towns of Cape Vincent and Lyme. The Project will provide revenues to the local communities through property taxes or through payment-in-lieu-of-taxes ("PILOT") arrangements. Increased municipal revenues will benefit the school districts, emergency services, and essential infrastructure.

Impacts on industries in the Project area must be carefully considered, particularly on agriculture, tourism, and housing. The placement of Project facilities on agricultural land may decrease productivity on cropland by removing agricultural land and by requiring farmers to maneuver machinery around structures. Owners of properties with proposed turbines will receive payments during operation from CVWP. Although no recreational or tourist facilities will be displaced by the Project, other than potentially some snowmobile trails, the turbines will be visible throughout the area and could affect the area from a recreational and/or tourist perspective based on viewer attitudes on the aesthetics of wind turbines.

2.27.2 Extent and Quality of Information Required

As the Project develops, more Project-specific information will become available which will help determine socioeconomic impacts from construction and operation of the Project. Such information includes:

- Construction
    - The average construction work force by discipline, for each quarter, and during the construction period;
    - The peak construction employment level;
    - Annual construction payroll by trade and for each year of construction; and
    - Annual direct non-payroll expenditures likely to be made in the vicinity of the facility, including materials, services, rentals, and similar categories.
- Operation
    - Number of jobs and on-site payroll, by discipline, during a typical year once the plant is in operation; and
    - Other expenditures likely to be made in the vicinity of the facility during a typical year of operation.

It is important to note that at the time of submittal of the application, such information provided would be high-level estimates. As the construction team crystalizes, more accurate estimates may be developed.

Consultations with the local municipalities are required to determine potential impacts and to develop estimated incremental operating and infrastructure costs due to the construction and operation of the Project. CVWP will also consult with emergency services, including police, fire, and first aid, to determine if the local emergency response capacity, including specific training and equipment, is sufficient to meet the needs set forth in the contingency plans that will be established for the Project.

An estimate of any real property taxes or PILOT payments, benefit assessments, and user fees, that will be paid by CVWP will be estimated or negotiated for inclusion in this Exhibit. Additionally, any fiscal costs to any jurisdictions that are expected to result from the construction and operation of the Project must be compared to the tax revenues and payments.

Finally, this Exhibit will include a detailed statement indicating how the proposed facility and interconnections are consistent with each of the state smart growth public infrastructure criteria specified in ECL-6-0107, or why compliance would be impracticable.

2.27.3 Avoidance and Minimization Measures

To minimize post-construction economic impacts on agricultural land from soil compaction and potential decreased productivity, CVWP will seek to build the Project in accordance with guidelines

provided by the New York State Department of Agriculture and Markets and land unencumbered by wind facilities will be able to return to compatible former land uses (agriculture, grazing, etc.).

2.27.4 Proposed Measures to Mitigate Unavoidable Impacts

To mitigate financial implications of placing Project facilities on private property, property owners with turbines will receive payments from CVWP during operations.

Project construction may impact local roads and necessitate their repair or upgrade to accommodate construction vehicles and higher activity. CVWP will enter into agreements with the Town of Cape Vincent and Jefferson County to ensure all public roads used are returned to the same condition than they were before construction, at no expense to taxpayers.

2.27.5 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received comments regarding socioeconomic issues. These are summarized in Table 2.27-1.

Table 2.27-1 Comments and Responses Regarding Project Impacts to Socioeconomics

Date	Commenter	Issue/Comment Summary	Response
12-Nov-12	Town of Cape Vincent	BP's presentation included Town Supervisor Joseph Kushner, who discussed economic impacts from the wind project in the Town of Eagle, NY. BP's poster stated that the Town of Cape Vincent would receive 15% of the PILOT payment; yet Kushner noted that his town gets 88% of the pie. On a benefit per MW basis Kushner and the Town of Eagle are receiving nearly 6 times the money that BP plans for Cape Vincent. Kushner's experience was not a good example of what BP was offering Cape Vincent.	The Open House event provided an example of a successful wind project. The Town of Eagle reaped benefits from the project and no representation was made that the Town of Cape Vincent would receive more or less than the Town of Eagle. A PILOT payment structure was estimated by applying a previously approved PILOT structure for another proposed wind project in Jefferson County and showed that $1.7 million (or more for a larger project size) would be paid by CVWP in year 1 to the local municipalities.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	Negative impact on agriculture	CVWP will seek to build the Project in accordance with guidelines provided by the New York State Department of Agriculture and Markets

Table 2.27-1 Comments and Responses Regarding Project Impacts to Socioeconomics

Date	Commenter	Issue/Comment Summary	Response
12-Nov-12	Town of Cape Vincent	Why BP's projected economic impacts used a hypothetical financial model that was not intended to be used for any other wind project other than for Galloo Island?	The Open House event provided an example of a successful wind project. The Town of Eagle reaped benefits from the project and no representation was made that the Town of Cape Vincent would receive more or less than the Town of Eagle. A PILOT payment structure was estimated by applying a previously approved PILOT structure for another proposed wind project in Jefferson County and showed that $1.7 million (or more for a larger project size) would be paid by CVWP in year 1 to the local municipalities.
5-Dec-12	Town of Cape Vincent	Overestimate of rated output and annual tax payment	The Open House event provided an example of a successful wind project. The Town of Eagle reaped benefits from the project and no representation was made that the Town of Cape Vincent would receive more or less than the Town of Eagle. A PILOT payment structure was estimated by applying a previously approved PILOT structure for another proposed wind project in Jefferson County and showed that $1.7 million (or more for a larger project size) would be paid by CVWP in year 1 to the local municipalities.
20-Jan-13	Town of Cape Vincent	The USFWS makes a valuable point in their June 2007 review that projected benefits should be derived from a realistic analysis and not a sales brochure. For example estimated electric energy production from the project should be based on realistic production figures rather than maximum rated output which a project never delivers (capacity factor). Real world benefits are important understand in order to accurately assess and weigh potential adverse impacts.	The Open House event provided an example of a successful wind project. The Town of Eagle reaped benefits from the project and no representation was made that the Town of Cape Vincent would receive more or less than the Town of Eagle. A PILOT payment structure was estimated by applying a previously approved PILOT structure for another proposed wind project in Jefferson County and showed that $1.7 million (or more for a larger project size) would be paid by CVWP in year 1 to the local municipalities. This amount was determined based on nameplate power rating, not estimated electric energy production.

Table 2.27-1 Comments and Responses Regarding Project Impacts to Socioeconomics

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	Based on USFWS 6/15/07 SLWF Review FWS recommends an analysis of the environmental benefit from the project Using realistic production data, e.g., capacity factor and seasonal production figures and other generating facilities operating as backup and to meet demand during intermittent wind periods analyze the projected air quality benefit.	See Section 2.8 for further discussion.
20-Jan-13	Town of Cape Vincent	Based on USFWS 3/19/08 CVWF Review Project benefits cannot justify the unavoidable adverse impacts if all the adverse impacts are unknown or inadequately treated and if project benefits are insufficiently documented.	The Article 10 process ensure that potentially significant adverse environmental and health impacts are identified and evaluated.
20-Jan-13	Town of Cape Vincent	Based on OPRHP 05/28/08 SLWF the project will have an ADVERSE IMPACT on cultural resources.	The Project will continue to consult with the OPRHP to reduce impacts on cultural resources.
20-Jan-13	Town of Cape Vincent	Based on Save The River 2/29/08 Letter, a cost benefit analysis of the project must be considered so that decision makers have a thorough understanding of economic and environmental costs and benefits to the region.	The Article 10 process ensure that potentially significant adverse environmental and health impacts are identified and evaluated, and provides allow for discussion regarding the benefits of projects.
25-Sep-12	Town of Cape Vincent	Property devaluation	The Project will take the comment under advisement.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	Property values	The Project will take the comment under advisement.

Table 2.27-1 Comments and Responses Regarding Project Impacts to Socioeconomics

Date	Commenter	Issue/Comment Summary	Response
23-Oct-12	Town of Cape Vincent Planning Board Mtg	Negative impact on scenic vistas and tourist assets.	See Section 2.20 for discussion regarding potential visual impacts.

2.28 Environmental Justice – Exhibit 28

CVWP identified a potential environmental justice area that may be affected by the Project by comparing NYSDEC'S map of Potential Environmental Justice Areas in Jefferson County to the location of the proposed turbines and transmission infrastructure. According to the map, the northeastern portion of the Project was located in an area categorized as a potential Environmental Justice Area while the southwestern portion of the Project was not; therefore, CVWP proceeded with defining the Impact Study Area for the Project and determining whether an environmental justice community is present within the Impact Study Area.

2.28.1 Define Impact Study Area

The Impact Study Area is defined as a one-half mile radius around the location of the turbines and transmission infrastructure (Figure 2.28-1). The "adjacent communities" is defined by the next one-half mile radius around the Impact Study Area. The Project Impact Study Area is located within portions of the Towns of Cape Vincent, Lyme, and Clayton in Jefferson County, New York. A summary of demographic and economic attributes by municipality, based on the 2010 U.S. Census data, is provided in Table 2.28-1. The Impact Study Area comprises 27,840 acres. The Adjacent Community, which includes one-half mile around the Impact Study Area, comprises 15,112 acres. The Project, Impact Study Area, and the Adjacent Community may be characterized as rural landscape largely consisting of cropland and pasture with intervening areas of woodland.

Table 2.28-1 2010 U.S. Census Demographic and Economic Attributes by Municipality

	Cape Vincent	Clayton	Lyme
Population			
Total Population	2,777	5,153	2,185
Population by Ethnicity			

Table 2.28-1 2010 U.S. Census Demographic and Economic Attributes by Municipality

	Cape Vincent	Clayton	Lyme
Hispanic or Latino	247	104	32
Non-Hispanic or Latino	2,530	5,049	2,153
Population by Race			
White	2,137	4,989	2,123
African American	481	50	14
Asian	5	12	6
American Indian and Alaska Native	5	12	2
Native Hawaiian and Pacific Islander	2	3	0
Other	127	31	7
Identified by two or more	20	56	33
Population by Sex/Age			
Male	1,775	2,479	1,103
Female	1,002	2,674	1,082
Under 18	366	1,241	435
18 & over	2,411	3,912	1,750
20 - 24	213	288	102
25 - 34	470	607	193
35 - 49	697	1,033	428
50 - 64	569	1,102	577
65 & over	422	765	391
Housing			
Total Housing Units	2,712	3,561	2,317
Occupied Units	878	2,085	897
Owner-occupied Units	712	1,477	753
Population in owner-occupied	1,631	3,781	1,855
Renter-occupied Units	166	608	144
Population in renter-occupied	342	1,360	318
Households with individuals under 18	202	665	239
Vacant Units	1,834	1,476	1,420
Vacant: Units for Rent	47	81	6
Vacant: Units for Sale	25	45	13
Employment			
Employed	898	2278	928

Table 2.28-1 2010 U.S. Census Demographic and Economic Attributes by Municipality

	Cape Vincent	Clayton	Lyme
Unemployed	81	201	84
Percent Unemployed	8.3	8.1	8.3
Median Household Income	$63,264	$49,118	$51,813
Mean Household Income	$75,812	$63,281	$64,663
Families Below Poverty Level (percent)	7.2	9.7	5.6
Occupation			
Management, Business, Science, and Arts	327	642	383
Service	177	412	124
Sales and Office	206	604	213
Natural Resources, Construction, and Maintenance	132	334	104
Production, Transportation, and Material Moving	56	286	104
Industry			
Agriculture, Forestry, Fishing and Hunting, and Mining	44	6	5
Construction	104	305	66
Manufacturing	71	169	74
Wholesale Trade	3	92	24
Retail Trade	81	272	129
Transportation and Warehousing, and Utilities	39	98	58
Information	45	31	18
Finance and Insurance, and Real Estate and Rental and Leasing	52	55	84
Professional, Scientific, and Management, and Administrative and Waste Management Services	63	160	29
Educational Services, and Health Care and Social Assistance	161	487	253
Arts, Entertainment, and Recreation, and Accommodation and Food Services	105	231	50
Other Services, Except Public Administration	26	100	79

Table 2.28-1 2010 U.S. Census Demographic and Economic Attributes by Municipality

	Cape Vincent	Clayton	Lyme
Public Administration	104	272	59

The first statistical threshold does not relate to the Project as the Impact Study Area and Adjacent Community are rural, not urban, areas. An analysis of the U.S. Census Data for the year 2000 revealed that Census Block Group (360450602003) that coincides with the northeastern portion of the Impact Study Area reported 45.77 percent of its population as minority. On the surface this would appear to meet the second statistical threshold for an Environmental Justice ("EJ") area. However, only seven Census Blocks of the 114 within the Census Block Group include minority populations. Of these, four contain minority populations above 10 percent and the remaining three contain minority populations below 10 percent. Of the four above, one Census Block stands out with 86.20 percent minority representation. This Census Block includes the population incarcerated within the Cape Vincent Correctional Prison Facility. The remaining Census Blocks that contain minority populations above 10 percent include the Millen Bay area with 57.14 percent reported minority population, the Rosiere – St. Lawrence – Muttan Road area with 28.57 percent reported minority population, and the French Creek – Deferno Road area with 10.52 percent reported minority population. This suggests that the minority population associated with the prison contributes heavily to the percentage of the Census Block Group. While the 2000 U.S. Census Data indicate the Census Block Group exceed the second statistical threshold for a EJ categorization, the 2010 U.S. Census Data revealed that minority population in the Census Block Group accounted for 32.73 percent representation, lower than reported in 2000, and lower than the statistical EJ threshold (bullet 2 above).

According to the 2000 U.S. Census Data, 7.36 percent of the Census Block Group that contains the northeastern portion of the Project, the Impact Study Area and the Adjacent Community, reported income below the federal poverty level. In 2010, 11.76 percent of the Census Block Group reported income below the federal poverty level. Both of these two data sets are below the EJ statistical threshold (bullet 3 above).

Determine if Contiguous Census Block Group or Contiguous Area with Multiple Census Block Groups Contains Environmental Justice Area

When no EJ is identified within the Impact Study Area, NYSDEC calls for an evaluation of contiguous census block groups or contiguous area with multiple census block groups to determine if they contain

Environmental Justice Areas. NYSDEC provides for two additional criteria, both of which must be met to be characterized as an EJ area within the contiguous locations:

- A census block group or contiguous area with multiple census block groups has a minority or low-income population that is above 75 percent of the stated thresholds (33.8 percent) for defining a minority or low-income community, and
- reasonably available air quality data and (ii) health outcome data that have been made available to the public statewide at the zip code level, reveals that the Impact Study Area may bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal program and policies, when compared to the county as a whole, or if the Impact Study Area is in the City of New York, when compared to the city as a whole. In the case of health outcome data, applicants shall consult with the Department of Health about appropriate comparison areas for specific datasets.

This additional analysis was accomplished by examining data on the Census Tract level. Table 2.28-2 below summarizes the U.S. Census Data reviewed for 2000 and 2010 for minority populations represented within the Census Tract that contains the Impact Study Area and those that surround it.

The 2000 and 2010 data about minority population from the Census Tracts that contain the Impact Study Area fall below the statistical threshold for minority population representation characteristic of a EJ area. Similarly, the 2000 and 2010 data from the Census Tracts of the two areas contiguous to the Impact Study Area also fall below the statistical threshold for EJ designation by NYSDEC.

Table 2.28-2 Comparison of Census Tract Data for Percent Minority Populations

CENSUS TRACT ID	NYSDEC Statistical Threshold Percent Minority Population (75% of 33.8%)	2000 U.S. Census Percent Minority Population	2010 U.S. Census Percent Minority Population
36045060200 (Impact Study Area)	25.35	18.95	13.32
36045060300 (Impact Study Area)	25.35	1.98	4.07
36045060400 (Contiguous Area)	25.35	3.58	5.10
36045060500 (Contiguous Area)	25.35	12.07	11.56

Census Tract level data were also reviewed for poverty level within the Impact Study Area and within the two Contiguous Areas. These data are summarized in Table 2-28-3 below.

Review of the Census Tract level data for the percent of the population that falls below the federal poverty level shows that within the Impact Study Area, the percent of population with household incomes below the federal poverty level exceeded the threshold comparison within one of the Census Tracts according to the 2000 Census Data. The results of the 2010 Census Data however show that the same Census Tract indicated that the percent of households with income below the federal poverty level had decreased to below the NYSDEC statistical threshold for an EJ area. The 2000 and 2010 Census Tract data for the two Contiguous Areas indicate that both show percentages of household income below the federal poverty level well below the NYSDEC statistical threshold for EJ designation.

Table 2.28-3 Comparison of Census Tract Data for Percent Household Income Below Federal Poverty Level

Census Tract Id	**NYSDEC Statistical Threshold Percent Household Income Below Federal Poverty Level (75% of 23.59%)**	**2000 U.S. Census Percent Household Income Below Federal Poverty Level**	**2010 U.S. Census Percent Household Income Below Federal Poverty Level**
36045060200 (Impact Study Area)	17.69	18.95	13.32
36045060300 (Impact Study Area)	17.69	1.98	4.07
36045060400 (Contiguous Area)	17.69	3.58	5.10
36045060500 (Contiguous Area)	17.69	12.07	11.56

Since the Census Tract Data do not support Criterion 1 above and both Criteria 1 and 2 (above) must be met to quality as an EJ area, no further consideration of this characterization will be given. The Impact Study Area and the contiguous areas do not qualify as Environmental Justice areas as defined by NYSDEC (6 NYCRR Part 487).

Statement of Absence of EJ Community

While the Census Block Group met one criterion (at least 33.83 percent minority population representation) as an EJ area based on the 2000 U.S. Census Data, the 2010 Census Data indicate that the Project, Impact Study Area and the Adjacent Community do not meet any of the EJ threshold criteria. In addition, the review of Census Tract Data for both the Impact Study Area and Contiguous Areas demonstrate that the criteria for an EJ designation are not met. Therefore, it is concluded that there is no EJ area present within the Project, Impact Study Area, and Adjacent Community. A final EJ Analysis will not be required and no additional studies or programs of study to support a Final EJ Analysis will be performed.

2.29 Site Restoration and Decommissioning – Exhibit 29

CVWP will identify performance criteria proposed for site restoration in the event the Project cannot be completed and for decommissioning of the Project. CVWP will also discuss how the selected criteria are appropriately addressing:

- 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.

2.29.1 Potentially Significant Adverse Impacts

While wind farms are designed to operate for 20 years, there is no certainty that the Project's power will be marketable at the end of 20 years. If the Project is not able to sell its power through a power purchase agreement or in the wholesale energy market, it is possible that the Project will be uneconomical to continue to operate. Currently, commodity and component prices for the materials from which the Project is constructed (specifically, steel and copper as well as the gearbox and generator) are worth about the same or more than the cost to decommission and remove the Project from its location. However, commodity pricing over a 20 year time frame cannot be accurately predicted. As such, there is a potential impact of having a non-operating project within the Project area for which the removal cost exceeds the salvage value.

2.29.2 Extent and Quality of Information Required

Current wind energy industry standards set forth the following outline of Project decommissioning:

- All turbines, including the blades, nacelles and towers will be disassembled, and transported off site for reclamation and sale. The transformers will also be transported off site for reuse or reclamation. Oils and hazardous materials will be properly disposed of or recycled. Unless otherwise requested by the local municipalities, the overhead generator interconnection line will be removed and reclaimed, and the poles will be cut off at grade. Foundations and structures will be removed to a depth of three (3) feet below the surface. Underground power and communication lines will be decommissioned in place. Underground cables will be cut off at ground surface at the cabinets.
- Areas where reclamation takes place will be graded to match adjacent contours, stabilized with an appropriate seed mix, and allowed to re-vegetate naturally. All road materials will be allowed to remain in place, unless directed otherwise by the individual landowners.

Prior to construction, a decommissioning plan will be prepared that will include a quantification of the salvage value of the Project components as well as a plan for, and cost of decommissioning the Project. This plan will also set forth requirements for disposal of any hazardous materials. This plan will specify how decommissioning and restoration, if required, will be funded and will provide a schedule for conducting such activities.

Since the proposed Project is to be located on lands owned by others, the plan will also include a description of all site restoration, decommissioning, and guaranty/security agreements between CVWP and the local municipalities, as applicable, specifically addressing provisions for turbines, foundations, and electrical collection, the generator interconnection line, and interconnection facilities.

2.29.3 Avoidance and Minimization Measures

Financial assurance, such as a surety bond , corporate guaranty, cash, or letter of credit will be posted with the New York Department of Public Service starting 10 years after the project goes operational, which will cover the cost of decommissioning less the salvage value of the Project components. This will provide funding for decommissioning of the Project either if the Project cannot be completed or if it is at the end of its useful life.

The decommissioning plan will be updated every five years beginning in year 10 to take into account current commodity and component pricing, as well as decommissioning costs. The financial assurance will be updated to provide sufficient funding for decommissioning as per the decommissioning plan.

2.29.4 Proposed Measures to Mitigate Reasonably Unavoidable Impacts

The mitigation measures in 2.29.3 should adequately mitigate any impacts.

2.29.5 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received comments regarding restoration and decommissioning. These are summarized in Table 2.29-1.

Table 2.29-1 Comments and Responses Regarding Restoration and Decommissioning

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	Towns of Cape Vincent and Lyme are uncertain as to who other than the towns have responsibility for ensuring that after the life of any industrial wind project has been completed that the communities are restored to their predevelopment states. A plan should be provided to ensure that insolvency of either the project LLC or the State does not preclude our towns being made whole at the project's end of life.	See discussion above within the section regarding restoration and decommissioning for the Project.
20-Jan-13	Town of Cape Vincent	Based on DOS 5/26/09 Review It may be useful to require a Performance bond or dedicated fund established to ensure the complete decommissioning of the project.	See discussion above within the section regarding restoration and decommissioning for the Project
20-Jan-13	Town of Cape Vincent	Based on Mentor Rubin & Trivelpiece 6/13/07 SLWF Review The Planning Board must demand financial assurance to fund decommissioning of all of these towers in the event that the Applicant is no longer financially viable refuses to properly remove the facility.	See discussion above within the section regarding restoration and decommissioning for the Project

2.30 Nuclear Facilities

This exhibit is not applicable to the proposed Cape Vincent Wind Farm.

2.31 Local Laws and Regulations – Exhibit 31

The following laws and regulations have been listed as possibly being applicable to the construction, operation or maintenance of the proposed facility.

Town of Cape Vincent

Town of Cape Vincent Zoning Law (see Exhibit F)

1989 as Amended 1991, 1993, 1998 and 2012

Town of Cape Vincent Resolution #58 Dated November 15, 2012

Town of Lyme

Town of Lyme Local Law No. __ of 2012, entitled "Wind Energy Conversions Systems Law" adopted August 11, 2012 (See Exhibit H)

Town of Lyme Local Law No. 1 for the year 1989 – Zoning Ordinance (See Exhibit H)

As amended by local law #3 of 1989, local law #3 of 1993, local law #1 of 1997, local law #2 and 3 of 2011 and local law #2 of 2012 (See Exhibit H).

Village of Chaumont

Village of Chaumont Land Ordinance adopted by the Village Board of Trustees in 2007 (See Exhibit I).

Jefferson County

Jefferson County enforces the New York State Uniform Fire Prevention and Building Code on behalf of the Town of Lyme and the Town of Cape Vincent. It is expected that the Applicant will request that the Article 10 Siting Board expressly authorize the exercise of the electric, plumbing and building permit application, inspection and certification processes by Jefferson County.

2.31.1 Preliminary List of Unreasonably Burdensome Provisions

A preliminary assessment of the applicability of the laws referenced above has been undertaken and the applicant may not be able to comply with the provisions listed below.

Town of Cape Vincent

Town of Cape Vincent Zoning Law

- Section 3.4 – Agricultural Residential District
    - Lot requirements
        - Commercial
            - Area minimum – 1 acre
            - Frontage minimum – 300'
            - Setbacks minimum
                - Front 40'
                - Side 75'
                - Rear 25'
            - Height maximum 35'
            - Open space minimum 35%

Analysis: Complying with Section 3.4 of the Town of Cape Vincent Zoning Law is not possible given existing technology. Commercial scale wind turbines range to upwards of 500 feet in height. Accordingly, commercial scale wind turbines cannot meet maximum height limitation of 35 feet.

This provision has the effect of unjustifiably and unreasonably restricting the placement of turbines in agricultural districts and precludes CVWP from placing turbines in planned and/or optimal locations within the Town. Section 3.5 is also unreasonably burdensome with respect to the needs or costs of the ratepayers located within and outside of the municipality. Section 3.4 limits CVWF's ability to maximize this area's potential limiting its ability to produce low cost wind power and reducing the amount of local benefits such as school and property taxes.

- Section 4 – Lot Uses
    - 4.1 – Only one principal use per lot permitted. Accessory uses must be compatible with principal use.

Analysis: Section 4.1 of the Town of Cape Vincent Zoning Law is unreasonably restrictive as it effectively prohibits wind turbines from being located on any property except in instances where the principal use is related to electric wind generation.

- Section 5.3 - Zoning Board of Appeals
    - Provisions allowing Zoning Board of Appeals to evaluate based on environmental or other impacts
    - Provision allowing Zoning Board of Appeals to impose special conditions
    - 5.3.3 – Special Use Permit
        - Standard of review
    - Imposition of conditions
- 5.4.6 – Site Plan Review
    - Required environmental assessment form
    - Criteria including environmental impacts
    - Imposition of conditions
    - Bond or letter of credit requirement for installation
    - Decommissioning requirements (applies to electric generating structures)

Analysis: Sections 5.3.3 and 5.4.6 are procedural in nature and require Zoning Board of Appeals approvals for the construction of CVWF. Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve an applicant from compliance with these requirements. CVWF reserves its right to assert that these provisions are unreasonably restrictive in light of existing technology and with respect to the needs of the ratepayers.

- Section 6.7 – Noise
    - 6.7.4 – Decibel Requirements
    - 6.7.5 – Predicting Noise Impacts
    - 6.7.6 – Enforcement – contains methods that must be used to study noise impacts
    - 6.7.7 – Complaint Resolution Process – contains steps to shut down the plant while noise studies are conducted

Analysis: Section 6.7 addresses noise which will be studied and addressed in CVWF's Article 10 Application. To the extent that noise concerns are addressed in the Article 10 Application, and approved by the Siting Board, the Public Service Law general preemption of local laws should relieve CVWF of the obligation to comply with this section. To the extent that Section 6.7 is not generally preempted under Article 10, this section is unreasonably restrictive given existing technology.

With respect to Section 6.7.7, *Complaint Resolution Process*, CVWP intends to request that Noise levels be subject to the Siting Board's ongoing jurisdiction and that any complaints or further studies regarding noise levels be directed to the Siting Board. Because Section 6.7.7 does not contain any time limits within which local noise studies must be completed in response to a complaint, or the frequency that such complaints are allowed (i.e. a different resident filing a complaint each month), the practical effect of this section allows the municipality to continually, and indefinitely, stop windfarm operations.

- Section 6.9 – Outdoor Lighting

Analysis: CVWP will confer with the Federal Aviation Administration regarding requisite lighting for the turbines and comply with all federally imposed requirements. To the extent that Section 6.9 is not preempted by federal permits, CVWP will attempt to comply with local requirements reserving the right to seek a determination from the Siting Board that such requirements are unreasonably restrictive or otherwise preempted.

- Section 6.10 – Outdoor Storage

Analysis: CVWP will attempt to comply with Section 6.10 subject to the Siting Board's ongoing jurisdiction and reserving the right to seek a declaration from the Siting Board that Section 6.10 is unreasonably burdensome or restrictive.

- Section 6.11 – Parking Requirements

Analysis: CVWF will not have parking areas as described in the Town of Cape Vincent Zoning requirements. Any parking areas will be temporary in nature and required only for workers during construction. To assure that Section 6.11 is not applicable, CVWP expects to request that these requirements be subject to the Siting Board's ongoing jurisdiction and not applicable as unreasonably burdensome or restrictive.

- Section 6.14 – Restoration of Land

Analysis: Section 6.14 requires that all areas disturbed by a project be stabilized, upon completion of the project in order to prevent erosion. CVWP anticipates it will comply with 6.14. To the extent, however, that Section 6.14.4 requires additional compliance with unidentified "Planning Board"

requirements, CVWP reserves the right to request that the Siting Board determine 6.14 to be unreasonably restrictive and subject to the Siting Board's ongoing jurisdiction.

- Section 6.15 - Screening

Analysis: Section 6.15 states that the Planning Board may require that an industrial or commercial use place an opaque screen from the ground to a minimum of six feet. The screen may be comprised of living plants, wooden walls, berms, or a combination. Given the nature of the wind turbines, such a requirement is not so much unreasonably restrictive but more so that it is ineffective. CVWP will consult with the Town regarding this provision but to the extent that an agreement cannot be reached regarding its applicability, CVWP reserves the right to seek a Siting Board determination that this requirement is unreasonably restrictive, impractical or otherwise burdensome.

- Section 6.17 – Traffic

Analysis: Section 6.17 provides that "[t]he Planning Board may request a traffic impact survey." CVWP anticipates that the general preemptive provisions of Article 10 will supplant the need for an additional traffic survey at the behest of the Planning Board.

- Section 7.16 – Tall Structure Applications (including WECS)
    - 7.16.4.d – Requires finish (paint) that minimizes visual impact

Analysis: Section 7.16.4.d addresses the visual impacts associated with paint finishes on wind energy facilities which will be studied and addressed in the CVWF Article 10 Application. It is anticipated that the Article 10 process will result in the selection of a paint finish that will be consistent with this substantive requirement, but to the extent that visual impact concerns (including paint finishes) are addressed in the Article 10 Application, and approved by the Siting Board, the Public Service Law general preemption of local laws should relieve CVWP of the obligation to comply with this section

    - 7.16.4.e – Ancillary buildings must be color and texture to blend with natural surroundings

Analysis: Section 7.16.4.e requires that "ancillary structures shall maximize the use of building materials, colors and textures that blend with the natural surroundings." The use of the term "maximize" is vague. CVWP will consult with the Town regarding this provision but to the extent that an

agreement cannot be reached regarding its applicability, CVWP reserves the right to seek a Siting Board determination that this requirement is unreasonably restrictive or otherwise burdensome.

- 7.16.4.f – Night lighting should minimize glare

Analysis: As noted above, the CVWP will comply with federal law and FAA requirements. Accordingly, CVWP does not believe that this section is applicable to the Project. To the extent that Section 7.16.4.f imposes additional requirements to "minimize glare," beyond those imposed by the FAA, CVWP intends to request that the Siting Board not apply this section as it is preempted by federal requirements or otherwise unreasonably restrictive in light of existing technology.

- 7.16.4.g – Towers must be sited where visual impact is least detrimental to highly rated scenic and historical areas; contains requirements for visual impact assessment

Analysis: Section 7.16.4.g addresses visual impacts which will be studied and addressed in the CVWF Article 10 Application. To the extent that visual impact concerns are addressed in the Article 10 Application, and approved by the Siting Board, the Public Service Law general preemption of local laws should relieve CVWP of the obligation to comply with this section.

- 7.16.4.h – Towers must be sited, where possible, to avoid avian species

Analysis: Section 7.16.4.h: addresses avian species which will be studied and addressed in the CVWF Article 10 Application. To the extent that avian concerns are addressed in the Article 10 Application, and approved by the Siting Board, the Public Service Law general preemption of local laws should relieve CVWP of the obligation to comply with this section.

- 7.16.4.i – Existing vegetation should be preserved to the maximum extent possible

Analysis: As noted above, the CVWF will comply with federal law and FAA requirements. Accordingly, CVWP does not believe that this section is applicable to the Project. To the extent that Section 7.16.4.i imposes additional requirements to preserve existing vegetation beyond those imposed by USACE, USFWS, and NYSDEC and CVWP intends to request that the Siting Board not apply this section as it is preempted by state and federal requirements or otherwise unreasonably restrictive in light of existing technology.

- 7.16.4.j – Access roads must be inspected and approved by Highway Superintendent

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve an applicant from compliance with these requirements. CVWP will attempt to comply with local requirements but reserves the right to seek relief subject to the Siting Board's ongoing jurisdiction to override such requirements if they become unreasonably restrictive in any manner.

- 7.16.4.j – Parking capacity for emergency vehicles will be determined by Planning Board

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve an applicant from compliance with these requirements. CVWP will attempt to comply with local requirements but reserves the right to seek relief subject to the Siting Board's ongoing jurisdiction to override such requirements if they become unreasonably restrictive in any manner.

- 7.16.4.l – Towers must be enclosed by fence

Analysis: It is not industry practice for towers to be enclosed in a gate which makes this requirement unnecessarily burdensome. Fences would unnecessarily restrict landowners' use of property – fences are not necessary for safety, towers are not climbable by nature and have locked doors. Fencing would also increase the visual impact. Additionally, the requirement for additional equipment is vague and lacks clear criteria for what the Planning Board may require.

- 7.16.4.o and p – Decommissioning plan required and deposit of funds in account with Town Clerk

Analysis: Sections 7.16.4.o and p, regarding decommissioning will be addressed in the CVWF Article 10 Application. To the extent that decommissioning is addressed in the Article 10 Application, and approved by the Siting Board, the Public Service Law general preemption of local laws should relieve CVWP of the obligation to comply with this section. To the extent that Sections 7.16.4.o and p. are not generally preempted under Article 10, this section is unreasonably burdensome in view of the existing technology or the needs of or costs to ratepayers and unreasonably restrictive given Section 7.16.4.o and p potentially allow the Planning Board to request additional funding after an original determination

has been made by the Siting Board. In addition, the requirements of a decommissioning plan (section 5.4.8) are unreasonable and unduly burdensome as the plan requires removal of underground components at depths lower than industry standards and precludes CVWP from leaving access roads even if the private landowner wish for them to be left in place.

- 7.16.9 – Meteorological Towers
  - The towers proposed by CVWP for installation will be permanent and will be in place for the life of the wind project. The towers are necessary for the operation of the Project and necessitating their removal would be unreasonably burdensome in view of existing technology.
- 7.16.10 - WECS
  - 7.16.10.b – Site plan approval and special use permit required

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve an applicant from compliance with these requirements.

- 7.16.10.c – Application requirements
  - Setback requirements
    - Identify radius 6 times total height
    - Distance associated with noise compliance – table of predicted noise levels for each property within 1.5 miles

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve an applicant from compliance with these requirements. To the extent Section 7.16.10.c requires minimum setbacks, the provision is unreasonably restrictive given existing technology. Under the current proposed layout, the Towns setback requirements effectively prohibit siting of wind generating facilities within its municipal boundaries.

  - Decommissioning plan

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve an

applicant from compliance with these requirements. Additionally, decommissioning will be addressed by the Siting Board in its review of the Application.

- 7.16.10.e – Complaint resolution plan

Analysis: Section 7.16.10.e requires that the owner/operator of a WECS establish a plan to resolve a complaint in a diligent and timely manner. Section 7.16.10.e further requires that the plan should at a minimum comply with the provisions of 6.7, Noise. As CVWP stated above regarding Section 6.7.7, *Complaint Resolution Process*, CVWP intends to request that any complaint procedures be subject to the Siting Board's ongoing jurisdiction and that any complaints be directed to the Siting Board. Because Section 6.7.7 does not contain any time limits within which complaints must be completed, or the frequency that such complaints are allowed (i.e. a different resident filing a complaint each month), the practical effect of any plan under this section is that the municipality may continually, and indefinitely, stop wind farm operations.

- 7.16.10.f - Information on construction and installation
  - Preparation of EIS with specified information
    - Shadow flicker
    - Noise
    - Electromagnetic

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve CVWP from compliance with these requirements. To the extent such provisions are not preempted, the provisions are unreasonably restrictive given existing technology.

- 7.16.10.g – Application certification
  - proof of liability coverage
  - disclosure of financial interests
  - fund escrow agreement for Town cost to review

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve CVWP from compliance with these requirements.

- 7.16.10.h – Rated output of any WECS cannot exceed 1.6 MW for noise

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve CVWP from compliance with these requirements. To the extent such provisions are not preempted, the provisions are unreasonably restrictive given existing technology.

- 7.16.10.i – Application review process

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve an applicant from compliance with these requirements.

- 7.16.10.j – WECS standards
  - all transmission lines underground
  - lighting must have switching technology
  - WECS must be in matte finish or camouflaged
  - WECS size must be uniform
  - No company advertising or graphics
  - No WECS where there will be interference with radio, telephone or wireless phone
  - Setback 1.25 miles from Rte. 12, Seaway trail and National Scenic Byway
  - Setback 2 miles from lake and river waterfronts
  - To protect from ice throw and rotor failure, setback a minimum of:
    - Six times total height from nearest residence
    - Six times total height from nearest boundary or property line
    - Six times total height from any road
    - 1.25 miles from any Village of Cape Vincent boundary and from Hamlets of Rosiere, Millens Bay and St. Lawrence Corners
    - 1.25 miles from schools

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve CVWP from compliance with these requirements. To the extent such provisions are not preempted, the provisions are unreasonably restrictive given existing technology or the needs of and costs to ratepayers. Under the current proposed layout, the Town's setback requirements completely prohibit

siting of industrial wind generating facilities within its municipal boundaries. Putting transmission lines underground is unreasonably restrictive and impractical as well as not in the best interests of the needs of ratepayers. The cost of placing transmission underground is far greater than any potential environmental benefit.

Town of Lyme

Town of Lyme Local Law No. __ of 2012, entitled "Wind Energy Conversions Systems Law" adopted August 11, 2012

In 2012, the Town of Lyme adopted local laws entitled the *Wind Energy Conversion Systems Law*. As the name implies, the new local law governs the siting of Wind Energy Conversion Systems ("WECS") within the Towns municipal boundaries. The law defines WECS as a commercial machine with a generating capacity equal to or greater than 500kw that converts the kinetic energy of wind into electricity (also called a wind turbine)." By its definition, WECS do not include electric transmission facilities. The Project proposed by CVWP does not involve installing any WECS (i.e. turbines) within the municipal boundaries of the Town of Lyme. Arguably, as a general matter, any provision of the local law applying to WECS does not apply to the CVWF or its proposed facilities.

The local law does address transmission and related facilities through the definition of Wind Energy Facilities. Wind Energy Facilities are defined as "[a]ny [WECS], including all related infrastructure, electrical lines and substations, access roads, wind measurement tower(s), and/or accessory structures." However, the provisions of the local law only apply to WECS. There are no provisions relating to Wind Energy Facilities. CVWP will be requesting confirmation from the Siting Board that the local law is inapplicable to the CVWF.

There are some provisions of the Town of Lyme local law applicable to WECS that appear to include transmission infrastructure. To make sure there is no confusion over the applicability of these provisions, CVWP addresses each of these local law requirements with respect to WECS and demonstrates that its provisions should not be applied by the Siting Board.

- Article II
    - 2. Applications for WECS

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve an

applicant from compliance with these requirements. To the extent such provisions are not preempted, the provisions are unreasonably restrictive given existing technology.

- 3. Application Review Process

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve an applicant from compliance with these requirements. To the extent such provisions are not preempted, the provisions are unreasonably restrictive given existing technology.

- 4. General Standards for WECS
  - The following standards shall apply to all WECS:
  - All power transmission lines from the tower to any building or other structure shall be located underground, including all transmission lines and those transiting the Town of Lyme from WECS sited within other jurisdictions.
    - Underground cables and wires, substations, and all permanent access roads shall be positioned along existing fence lines, hedge rows or tree rows, and/or as near the edge of any fields as possible to minimize disruption to residences, pasture land or tillable land. Following construction, the site shall be graded and seeded and restored to its preconstruction condition. During construction the licensee shall follow best agricultural practices to insure the post construction integrity of the site.

Analysis: Because these provisions only apply to WECS (and not to transmission lines) they are not applicable to the Project. Furthermore, because they are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve an applicant from compliance with these requirements. To the extent such provisions are not preempted, the provisions are unreasonably restrictive given existing technology. The cost of placing transmission lines underground far outweighs any environmental benefits. The location of underground cables and wires and roads shall be governed by the Article 10 process, and sited consistent with Ag & Mkts guidance as well as environmental impact considerations.

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve CVWP

from compliance with these requirements. To the extent such provisions are not preempted, the provisions are unreasonably restrictive.

Town of Lyme Local Law No. 1 for the year 1989 – Zoning Ordinance

As amended by local law #3 of 1989, local law #3 of 1993, local law #1 of 1997, local law #2 and 3 of 2011 and local law #2 of 2012.

- Section 405 – Agricultural District
    - Limits uses to 9 specified unless special use permit:
        1. Agricultural
        2. One family
        3. Two family
        4. Multi-family
        5. Individual mobile home
        6. Home occupation
        7. Accessory building
        8. Sign
        9. Recreational vehicles
    - Allowed Special permits allow "Essential Services" defined to include electrical substations and similar facilities built by public utilities.
        1. Special permits have restrictions for distance from lot line, minimum lot area, etc.

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve CVWP from compliance with these requirements. To the extent such provisions are not preempted, the provisions are unreasonably restrictive.

- Section 410 – Waterfront District
    - No electric facilities will be constructed in waterfront district

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve CVWP from compliance with these requirements. To the extent such provisions are not preempted, the

provisions are unreasonably restrictive given existing technology or the needs of and costs to ratepayers. Under the current proposed layout, avoiding the placement of transmission lines in a waterfront district would require significant rerouting of the transmission corridor, adding environmental impacts. Avoiding the waterfront district is unreasonably restrictive and impractical as well as not in the best interests of the needs of ratepayers.

- Section 415 – Floating Planned Development Overlay District
    - No electric facilities will be constructed in waterfront district

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve CVWP from compliance with these requirements. To the extent such provisions are not preempted, the provisions are unreasonably restrictive given existing technology or the needs of and costs to ratepayers. Under the current proposed layout, avoiding the placement of transmission lines in a waterfront district would require significant rerouting of the transmission corridor, adding environmental impacts. Avoiding the waterfront district is unreasonably restrictive and impractical as well as not in the best interests of the needs of ratepayers.

- Section 525 - Reasonable Conditions
    - Zoning Board of Appeals may also attach reasonable safeguards and conditions to any special permit including, but not limited to
        1. approval of any required federal, state or county permits;
        2. redesign of building access, parking, pedestrian path location or arrangement;
        3. additional landscaping or screening; intersection improvement of traffic controls; and
        4. redesign or additional facilities for drainage, water provision, and sewage disposal
    - The Zoning Board of Appeals is hereby specifically empowered to require any reasonable screening, landscaping, walls, or other methods necessary to protect residential uses from the noise, glare, odor, vibration, traffic or activity of an adjacent commercial use.

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve an

applicant from compliance with these requirements. To the extent such provisions are not preempted, the provisions are unreasonably restrictive given existing technology.

- Section 530 – Installation and Maintenance Guarantee
    - Both require cash, bond or letter of credit

Analysis: It is not expected that the Siting Board will require any installation or maintenance guarantee, however CVWP anticipates that construction and maintenance will be addressed in CVWP's Article 10 Application. Because construction and maintenance issues will be addressed in the Article 10 Application, and approved by the Siting Board, the Public Service Law general preemption of local laws should relieve CVWP of the obligation to comply with this section. To the extent that Section 530 is not generally preempted under Article 10, this section is unreasonably burdensome in view of the existing technology or the needs of or costs to ratepayers.

- Section 635 – Fences
    - Fences higher than 4 feet acceptable for confinement of livestock
    - Fences higher than 8 feet require special use permit

Analysis: Because these provisions are procedural in nature, and because they impose additional local approvals on an applicant, it is expected that the preemption provisions of Article 10 will relieve CVWP from compliance with these requirements. To the extent such provisions are not preempted, the provisions are unreasonably restrictive.

Village of Chaumont

Village of Chaumont Land Development Code adopted 2007

The following provisions of the Village of Chaumont Land Development Code could possibly be applicable to the Project. Because transmission lines are subject to site plan review, the substantive provisions would normally be applied during a site plan review. Because a site plan review is procedural in nature, CVWP would expect that it would be pre-empted by the Article 10 process. The following provisions are preliminarily identified as procedural in nature and thus not applicable.

- Section 305 – Dimensional Regulations
    - Contains lot sizes, frontages, etc. for site plan review uses and accessory uses.
- Section 405(2)

- Transmission lines utilities subject to site plan review

- Section 515(1)-(7) – General Procedure for Site Plan Review
- Section 520(1)-(4) – Applications
    - No application complete until SEQRA compliance
- Section 535 – Review Criteria
- Section 540 – Reasonable Conditions
    - Can impose reasonable safeguards and conditions to any plan including:
        - Approval of federal, state or county permits;
        - redesign of building access;
        - parking;
        - additional landscaping or screening
        - traffic controls; and
        - redesign or additional facilities for drainage, water provisions and sewage
- Section 905 – Zoning Permit
    - No building or structure shall be erected until a zoning permit has been issued
- Section 915 – Certificate of Compliance

The following provisions are either procedural in nature or are of a substantive nature that is already the subject of the Article 10 Application. A preliminary analysis of CVWP's ability to comply with the substantive nature of the provisions is provided:

- Section 545 – Guarantee for Installation and Maintenance of Improvements
    - Installation guarantee: Village Board of Trustees may require applicant complete improvements before final approval granted or applicant enters into agreement with Village for bond or other deposit
    - Maintenance guarantee:
        - Work guaranteed for minimum of 2 years after complete

        - Work guaranteed for minimum 10 percent of total improvements
    - Acceptance of Road and Facilities

Analysis: It is not expected that the Siting Board will require any installation or maintenance guarantee, however CVWP anticipates that construction and maintenance will be addressed in CVWP's Article 10 Application. Because construction and maintenance issues will be addressed in the Article 10 Application, and approved by the Siting Board, the Public Service Law general preemption of local laws should relieve CVWP of the obligation to comply with this section. To the extent that Section 545 is not generally preempted under Article 10, this section is unreasonably burdensome in view of the existing technology or the needs of or costs to ratepayers.

- Section 625 – Utilities
    - Electricity: power lines to be placed underground.

Analysis: To the extent that Section 625 is not generally preempted under Article 10, this section is unreasonably burdensome in view of the existing technology or the needs of or costs to ratepayers. The cost of placing transmission lines underground far outweighs any environmental benefits.

The following provisions are either procedural in nature or are of a substantive nature that is already the subject of the Article 10 Application. A preliminary analysis of CVWP's ability to comply with the substantive nature of the provisions is provided:

- Section 705 – Parking
    - All uses shall be provided with off-street parking
    - Light industrial uses 1 space/200 sq. feet of GLA unless a showing of lower ratio of employees to floor space
- Section 740 – Temporary Storage Trailers/PODS
    - One storage trailer per tax parcel
    - Limit of 60 days

2.31.2 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received several comments regarding compliance with local laws and regulations. These are summarized in Table 2.31-1.

Table 2.31-1 Comments and Responses Regarding Local Laws and Regulations

Date	Commenter	Issue/Comment Summary	Response
23-Oct-12	Town of Cape Vincent Planning Board Mtg	If the Town of Lyme does not prohibit the transmission line, why go through the Article 10 Process?	The Article 10 process offers a comprehensive one stop shop. To pursue multiple avenues for permitting a project would not be a desired route for the project. The Article 10 Process represents a single permitting process that can be pursued for the entire project.
25-Sep-12	Town of Cape Vincent	The …Comprehensive …Plan pointedly states that a large wind project, similar to that proposed by BP under Article 10, is not a good fit for our community….Given that a large utility scale project is a poor fit, we would like to see BP's rationale for ignoring our Plan and proposing to turn our community into something it does not want and that will be a detriment to our overall prosperity - a highly industrialized energy complex.	The Article 10 process offers a comprehensive one stop shop. To pursue multiple avenues for permitting a project would not be a desired route for the project. The Article 10 Process represents a single permitting process that can be pursued for the entire Project.
25-Sep-12	Town of Cape Vincent	we believe we are entitled to see the rationale for throwing aside our municipal prerogatives and trashing the zoning law that was designed in good faith and with expert consultation to protect the health, safety and general welfare of our citizens.	CVWP appreciates the Town's feedback. The PSS document provides additional information about the Project.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	Not compliant with Comprehensive Plan	CVWP appreciates the Town's feedback. The PSS document provides additional information about the Project.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	Comprehensive plan states that the Town should avoid tall structures	CVWP has reviewed the Comprehensive Plan and appreciates the Town's feedback. Where possible CVWP will take the Comprehensive Plan into consideration.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	Is BP familiar with the Local Zoning Laws?	Yes

Table 2.31-1 Comments and Responses Regarding Local Laws and Regulations

Date	Commenter	Issue/Comment Summary	Response
23-Oct-12	Town of Cape Vincent Planning Board Mtg	Why are you not conforming to local laws that were enacted?	CVWP appreciates the Town's feedback, but for reasons more particularly set forth in the PSS, CVWP believes this Project is important for the ratepayers of the State of New York.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	How can you ask the siting board to vacate Cape Vincent Zoning law when you were given numerous opportunities to participate in the development of them?	We submitted a response in the June 2012 time frame to notify the Planning Board that we had seen the draft Zoning law and would ask the Town to reconsider. As drafted at that time and as is currently drafted, the requirements are unduly unreasonable with respect wind turbine technology.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	Proposed layout does not address Zoning law	CVWP has reviewed the local laws, internal guidelines, other projects within the State, and other setbacks from other communities within the State, and used this information to propose a revised layout that is reasonable.
23-Oct-12	Town of Cape Vincent Planning Board Mtg	What are you using as standard setbacks for roads, and buildings, and other objects?	CVWP has reviewed the local laws, internal guidelines, other projects within the State, and other setbacks from other communities within the State, and used this information to propose a revised layout that is reasonable. The setbacks for roads, residences, and non-participating property owners, among other setbacks, is contained within the PSS submittal.
29-Oct-12	Town of Cape Vincent Letter to R. Chandler	Why BP has declined to participate in the development and review of Cape Vincent's Zoning Law?	We submitted a response in the June 2012 time frame to notify the Planning Board that we had seen the draft Zoning law and would ask the Town to reconsider. As drafted at that time and as is currently drafted, the requirements are unduly unreasonable with respect wind turbine technology.
29-Oct-12	Town of Cape Vincent Letter to R. Chandler	Why does BP now feel justified in asking the Article 10 Siting Board to presume any portion of our Law is unacceptable.	We submitted a response in the June 2012 time frame to notify the Planning Board that we had seen the draft Zoning law and would ask the Town to reconsider. As

Table 2.31-1 Comments and Responses Regarding Local Laws and Regulations

Date	Commenter	Issue/Comment Summary	Response
			drafted at that time and as is currently drafted, the requirements are unduly unreasonable with respect wind turbine technology. CVWP is not making presumptions. The Article 10 Process represents a single permitting process that can be pursued for the entire Project.
29-Oct-12	Town of Cape Vincent Letter to R. Chandler	What sections of the Zoning Law do you find overly burdensome and what specific changes would you suggest?	Please see Section 2.31 of the PSS document.
29-Oct-12	Town of Cape Vincent Letter to R. Chandler	What contrary information do you have to support your requested changes?	Please see Section 2.31 of the PSS document.
29-Oct-12	Town of Cape Vincent Letter to R. Chandler	Why do you give the impression local responsibilities are being ignored in the proposed design of your Cape Vincent wind project	CVWP does not believe local responsibilities are being ignored.
30-Oct-12	Town of Cape Vincent	We also ask that you re-evaluate your company's plans, because what you propose for Cape Vincent is not only incompatible with our community's vision, but is also incompatible with BP's wind projects elsewhere….	CVWP appreciates the Town's feedback. The PSS document provides additional information about the Project.
30-Oct-12	Town of Cape Vincent	….want any future development to be compatible with our zoning laws.	CVWP has reviewed the local laws, internal guidelines, other projects within the State, and other setbacks from other communities within the State, and used this information to propose a revised layout that is reasonable.
14-Dec-12	Town of Cape Vincent	Did BP participate in writing Article 10	BP submitted public comments on May 29, 2012 during the public comment period when the Article 10 regulations were being finalized. The comments are publicly available on the DPS website.
14-Dec-12	Town of Lyme	Request the local law not be overridden	CVWP will defer to the State to make this determination.

Table 2.31-1 Comments and Responses Regarding Local Laws and Regulations

Date	Commenter	Issue/Comment Summary	Response
14-Dec-12	Town of Lyme	Ignoring Comprehensive Plan	CVWP appreciates the Town's feedback. The PSS document provides additional information about the Project.
14-Dec-12	Town of Lyme	Ignoring Zoning Law	CVWP appreciates the Town's feedback. The PSS document provides additional information about the Project.
20-Dec-12	Town of Cape Vincent	Request compliance with Town Comprehensive Plan and our Local Zoning Laws.	CVWP appreciates the Town's feedback. The PSS document provides additional information about the Project.
20-Jan-13	Town of Cape Vincent	Why is BPWE proposing a project so counter to the values espoused by the Town and Village's Joint Comprehensive Plan.	CVWP appreciates the Town's feedback. The PSS document provides additional information about the Project.

2.32 State Laws and Regulation - Exhibit 32

CVWP preliminarily identified state approvals, consents, permits, certificates, or other procedural and substantive conditions that are anticipated to be required for the construction and operation of the proposed Project, associated interconnections, and ancillary features through initial discussions with state agencies. These preliminary identified requirements are provided in Table 2.23.1.

Table 2.32-1 State Approvals, Consents, Permits, Certificates, or Other Conditions

Permit / Consultation	Trigger	Requirement
STATE OF NEW YORK		
New York State Department of Environmental Conservation (NYSDEC)		
Article 15 (6NYCRR, Part 601) Water Withdrawal Permit	Well water withdrawal during construction	A permit is required for any type of water withdrawal system having the capacity to withdraw 100,000 gallons per day or more of surface or groundwater. Temporary water withdrawals for the purposes of construction where the volume withdrawn is less than an average of 100,000 gallons per day in any consecutive thirty-day consecutive period (3 million gallons during a 30 day period) are exempt.
Article 15 (6 NYCRR Part 608) Permit for Protection of Waters	Access roads and collection lines crossing protected waters	Certain waters of the state are protected on the basis of their classification. Streams and small water bodies located in the course of a stream that are designated as C(T) or higher (i.e., C(TS), B, or A) are collectively referred to as "protected

Table 2.32-1 State Approvals, Consents, Permits, Certificates, or Other Conditions

Permit / Consultation	Trigger	Requirement
		streams," and are subject to the stream protection provisions of the Protection of Waters regulations. Currently a Protection of Waters permit is not anticipated to be necessary. However, to meet federal Clean Water Act goals for water quality, the NYSDEC Division of Water will be upgrading the classifications of certain surface waters in 6NYCRR Parts 830 (Lake Champlain drainage basin) and 910 (St. Lawrence River drainage basin). This will result in higher classifications (and thus more stringent water quality standards) for some waters in these two drainage basins. Certain waters will also receive protection for trout or trout spawning. NYSDEC currently anticipates this reclassification will be completed sometime in 2013. While it is not anticipated that NYSDEC regulated streams within the Protect area will be upgraded to a classification of C(T) or higher, CVWP will track these classifications changes and the impact they may have on the need for substantive compliance with a Part 608 permit will be evaluated and addressed, if required in the Article 10 Application.
Article 24 (6 NYCRR Part 662) Permit for Freshwater Wetlands	Access roads and collection lines crossing certain wetlands	An Article 24 permit is required for freshwater wetlands that are 12.4 acres or larger. Smaller wetlands may be protected if the Department Commissioner deems them to have unusual importance in providing one or more functions described in Article 24 of the Environmental Conservation Law. Adjacent wetlands are also regulated and include 100 feet of buffer.
State Pollutant Discharge Elimination System (SPDES) General Stormwater Discharge Permit for Construction Activity GP-0-10-001	Discharge into Waters of the State or municipal sewer systems.	A GP-0-10-001 General Stormwater Discharge Permit for Construction Activity requires that a Notice of Intent along with a SWPPP be filed with the governing agency(ies). Permit is required if discharge occurs to Waters of the State or municipal sewer systems. A SPDES permit is not anticipated to be required for the operation of the facility because the facility is not expected to discharge greater than 1,000 gallons per day of sewage/ wastewater.
Section 401 of the Clean Water Act Water Quality Certification (WQC)	Discharge of dredged or fill material regulated under Section 404	The 401 WQC is generally limited to discharges of dredged or fill material regulated under Section 404. The Project must be consistent with the designated use of a given water body and the water quality criteria established.
Additional	Wind turbines and	Potential consultations with the NYSDEC include:

Table 2.32-1 State Approvals, Consents, Permits, Certificates, or Other Conditions

Permit / Consultation	Trigger	Requirement
consultations required during the Article 10 process	associated facilities	• Bureau of Fisheries • Bureau of Habitat • Bureau of Wildlife • Bureau of Marine Resources • NY State Natural Heritage Program
Article 11 (6 NYCRR Part 182) Endangered and Threatened Species of Fish and Wildlife	Any facility that negatively impacts state endangered or threatened species	The NYSDEC may, at its discretion, issue a license or permit to a person to take, transport, sell, import and/or possess endangered or threatened species of fish and wildlife for purposes it deems legitimate. For this project, the Part 182 is anticipated to be required for five bird species (short-eared owl, northern harrier, upland sandpiper, Henslow's sparrow and sedge wren) and Blanding's turtle and will address direct and indirect impacts from construction and operation of the facility to these species.
New York State Department of State (NYSDOS)		
Coastal Zone Management Program (CZMP) Federal Consistency Certification	Required for projects that have reasonably foreseeable effects on any land or water use or natural resource of the coastal zone. The Chaumont River is located in the coastal zone and any activities associated with its crossing would require a consistency termination	The CZMP provides a framework for government decision-making for actions that affect New York's coastal area. Any Project within the coastal area must obtain a Federal Coastal Consistency Certification and a New York State Coastal Management Program consistency finding under the CZMP and any Local Waterfront Redevelopment Plan developed by the Cape Vincent or Lyme Townships.
New York State Office of Parks, Recreation, and Historic Preservation (OPRHP)		
Section 14.09 of the New York State Historic Preservation Act and Section 106 of the National Historic Preservation Act consultation with	Potential to directly or indirectly affect any building, structure, archeological site, object, landscape or district. This consultation is required by Article 10 regulations and if there	SHPO provides project review to ensure that effects or impacts on eligible or listed properties are considered and avoided or mitigated during the Project planning process. SHPO also consults with federal agencies in identifying archaeological site and historic properties and avoiding or minimizing any potential adverse effects from federally funded, licensed, or authorized projects in New York.

Table 2.32-1 State Approvals, Consents, Permits, Certificates, or Other Conditions

Permit / Consultation	Trigger	Requirement
State Historic Preservation Office (SHPO)	is a federal nexus	
New York State Department of Agriculture and Markets		
Notice of Intent to ensure Compliance with Agricultural District Laws	All facilities located within agricultural districts.	If the project is located in or within 500 feet of an Agricultural District, an Agricultural Data Statement (Town or County Village form) is required and the neighboring landowners are to be notified of the project. CVWP will coordinate with Agricultural & Markets to assist in the determination of project impacts and to identify remedial actions to consider. Follow Notice of Intent (NOI) checklist to prepare NOI.
New York State Department of Transportation (NYSDOT)		
Roadway Improvement/Driveway Permits	Physical improved within the NYSDOT right-of-way	A Highway Work Permit (PERM 33) will be required for any physical improvements within the NYSDOT right-of-way. This will apply for any state highway intersection or road improvements.
Overload Permits	Required for loads that exceed legal dimensions or weight.	The Project will likely require a NYSDOT Type 13 Jobsite permit to cover most of the special hauling trips (not including super loads). Type 13 permits are issued at 6 month intervals and can be extended for up to a maximum of one year. An individual permit would be required for each trip over an R-Posted bridge. Several Type 1 permits for individual convoys may also be required such as the following: • PERM 85 – Special Hauling Route Survey for Over Dimensional Vehicles • PERM 12 – Special Hauling Pre-Approval Application Form for Future Permit • PERM 80 – Special Hauling Pre-Approval Application Form for a Future Crane Permit • PERM 39-1 – Special Hauling Trip & Building Movement Permit • PERM 39-2k – Special Hauling Monthly, Annual & Blanket Permit • PERM 39-3g – Special Hauling Permit Amendment • PERM 99 – Special Hauling Permit Additional Trailer Attachment Form • PERM 39-4 – Special Hauling Permit Vehicle Configuration Attachment Sheet

The Table 2.32-2 provides an anticipated list of the State approvals, consents, permits, certificates, or other conditions required for the construction and operation of the proposed Project that are of a procedural nature. These state procedural requirements would be supplanted by PSL Article 10 with the exception of:

- Permits to be issued by the NYSDEC pursuant to Federal recognition of State authority:
- Permits to be issued by the NYSDEC pursuant to federally delegated or approved authority, in accordance with the Clean Water Act, the Clean Air Act and the Resource Conservation and Recovery Act;
- Permits pursuant to Section 15-1503, Title 9 of Article 27, and Articles 17 and 19 of the Environmental Conservation Law, unless the Siting Board expressly authorizes the exercise of such authority by the state agency; and

Table 2.32-2 List of State Approvals, Consents, Permits, Certificates, or Other Conditions of a Procedural Nature

New York State Department of Environmental Conservation (NYSDEC)

- Article 11 (6 NYCRR Part 182) Endangered and Threatened Species of Fish and Wildlife; Species of Special Concern, Incidental Take Permit
- Article 15 (6 NYCRR Part 608) Protection of Waters Permit
    - Joint Application Form 02/13
- Article 24 (6 NYCRR Part 662) Freshwater Wetlands Permit
    - Joint Application Form 02/13

Table 2.32.3 lists state procedural requirements as identified in in Table 2.32-2 that CVWP will request the Siting Board to expressly authorize the exercise of such authority by the state agency.

Table 2.32-3 State Approvals, Consents, Permits, Certificates, or Other Conditions of a Procedural Nature CVWP anticipates requesting the Siting Board not supplant

New York State Department of Agriculture and Markets

- Review of construction projects affecting farmland to ensure that impacts to agricultural resources are minimized and/or properly mitigated.

Table 2.32-3 State Approvals, Consents, Permits, Certificates, or Other Conditions of a Procedural Nature CVWP anticipates requesting the Siting Board not supplant

New York State Department of Environmental Conservation (NYSDEC)

- Article 15 (6 NYCRR Part 601) Water Withdrawal Permit
  - Joint Application Form 02/13
  - Water Withdrawal Application Supplement Form (WW-1)
  - Water Conservation Program Form
- Article 15 (6 NYCRR Part 608) Section 401 of the Clean Water Act Water Quality Certification (WQC)
- Article 17, Titles 7, 8 and Article 70 State Pollutant Discharge Elimination System (SPDES) General Stormwater Discharge Permit for Construction GP-0-10-001
  - Notice of Intent Form
  - Notice of Termination Form
  - MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

New York State Department of State (NYSDOS)

- Coastal Zone Management Program (CZMP) Federal Consistency Certification

New York State Department of Transportation (NYSDOT)

- Roadway Improvement/Driveway Permits
- Overload Permits

New York State Office of Parks, Recreation, and Historic Preservation (OPRHP)

- Consultation Letter

CVWP will construct and operate the Project in a manner that conforms to all State substantive requirements for those approvals, consents, permits, certificates, or other conditions. As part of this Exhibit for the Article 10 Application, substantive requirements associated with necessary state approvals, consents, permits, certificates, or other conditions will be provided in a summary table demonstrating the degree of compliance with the substantive provision.

CVWP realizes that misclassification of items or the inclusion of unnecessary or inappropriate items may be grounds for finding the Application not in compliance. CVWP will continually review the list of permits and approvals to ensure that it correctly reflects State actions required for the construction and operation of this Project.

2.32.1 Other Material Issues Raised by the Public and Affected Agencies

CVWP has received comments regarding compliance with state laws and regulations. These are summarized in Table 2.32-4.

Table 2.32-4 Comments and Responses Regarding State Laws and Regulations

Date	Commenter	Issue/Comment Summary	Response
20-Jan-13	Town of Cape Vincent	As suggested by the PSC a Coastal Zone Consistency Analysis should be completed and not ignored as was the case in the past.	A Coastal Zone Consistency Analysis will be completed for the Project.
20-Jan-13	Town of Cape Vincent	Based on PSC 06/13/07 SLWF DPS informed the Lead Agency by letter of December 8 2006 that the Coastal Zone Consistency Analysis must be presented for review by the PSC (Lead Agency did not require review in DEIS). The SDEIS should include a complete Coastal Zone Consistency Review and should document and address the full range of Coastal Policies as listed in 19 NYCRR §600.5.	A Coastal Zone Consistency Analysis will be completed for the Project

2.33 Other Applications and Filings – Exhibit 33

CVWP has preliminarily identified potential other applications or filings for the Project that may be filed with the Commission, or other State or Federal departments or agencies. This preliminary list is provided in Table2.33-1. A complete list will be included in the Article 10 Application.

Table 2.33-1 Potential Federal Permits, Consents, Approvals or Licenses

Permit/ Consultation	Trigger	Comments
FEDERAL		
US Army Corps of Engineers (USACE)		
Individual Permit pursuant to Section 404 of the Clean Water Act (CWA)	Discharges of dredged or fill materials affecting federal waters and wetlands	Requires approval prior to discharging dredged or fill material into the "waters of the United States" for impacts over 0.5 acres. Typical activities requiring Section 404 permits are: depositing of fill or dredged material in waters of the US or adjacent wetlands,

Permit/ Consultation	Trigger	Comments
		and site development fill for residential, commercial, or recreational developments. Would be necessary for any crossing of surface water bodies (e.g. Kents Creek, Scotch Brook, Shaver Creek, and Soper Creek and Three Mile Creek, as well as perennial and intermittent tributaries) and federal wetlands.
Individual Permit pursuant to Section 10 of the Rivers and Harbor Act (RHA)	Any work in, over or under navigable waters of the United States, or which affects the course, location, condition or capacity of navigable waters	Requires approval prior to conducting any work or placing any structure in, over or under a navigable water. Would be necessary for aerial crossing of the Chaumont River.
National Historic Preservation Act		
Section 106 Consultation	A license or permit from a federal agency	Consultation with federal and state historic preservation authorities under Section 106 of the NHPA is required for federal permitting actions. The Federal agency issuing permit may be obligated to consult with Native American Tribes to identify Traditional Cultural Properties within the project area.
Federal Aviation Administration (FAA)		
Determination of No Hazard	Wind turbines and associated facilities (transmission lines, construction cranes) over 200 feet tall or within distances to public use airports and heliports as specified in federal regulations	A Notice of Proposed Construction or Alteration (FAA Form 7460-1) will be submitted to the FAA for each turbine to initiate a formal review. Depending on the wind turbine layout in relation to local air traffic patterns and airport proximities, a determination of the potential hazard of constructing and operating the Project would be made by FAA. This includes a recommended wind turbine lighting scheme necessary to acquire a determination of no hazard. The FAA also conducts a review of the potential impacts to military radar as part of its aviation hazard review. A supplemental Notice of Actual Construction or Alteration (FAA From 7460-2) will be filed at least 10 days prior to the start of construction or within 5 days after the construction reaches its greatest height.

Permit/ Consultation	Trigger	Comments
Federal Energy Regulatory Commission (FERC)		
Authorization to sell electric energy, capacity, and ancillary services at wholesale at market-based rates	First sale of test energy	Authorization is required in order for sales of electric energy to be made at wholesale. Request for market-based rate authorization will be submitted approximately 2-4 months prior to date on which test energy is anticipated to be sold.
US Environmental Protection Agency (USEPA)		
Oil Pollution Prevention regulation (40 CFR part 112) Spill Prevention, Control, and Countermeasure ("SPCC")	Aggregate aboveground storage capacity greater than 1,320 gallons and a potential to discharge into navigable waters of the United States or ad-joining shorelines.	SPCC Plans are preventive measures to assure that a spill from an aboveground storage of oil is contained and countermeasures are established to prevent oil spills that could reach navigable waters. CVWP will either prepare an SPCC plan and self-certify or have a plan prepared and certified by New York licensed Professional Engineer (PE).
US Fish and Wildlife Service (USFWS)		
Technical Assistance and Consultation under the Endangered Species Act (ESA)	Potential impacts to federally listed species and their critical habitat; Federal permit or approval required.	CVWP has been seeking technical guidance from the USFWS to plan the Project and avoid or minimize adverse effects to Indiana bats or their habitat. The ESA also directs all Federal agencies to work to conserve endangered and threatened species and to ensure that actions they fund, authorize, permit, or otherwise carry out will not jeopardize the continued existence of any listed species or adversely modify designated critical habitats. Since a Section 404 permit will be required for the Project, the USACE will be required to consult with the USFWS.
Consultation and due diligence under the Migratory Bird Treaty Act ("MBTA") and the Bald and Golden Eagle Protection Act ("BGEPA")	Potential impacts to migratory birds and eagles	CVWP is involved in ongoing consultations with USFWS regarding: 1) MBTA and BGEPA issues and the need for permits will be determined based on those consultations, 2) pre-construction bird surveys to determine species composition and levels of use by birds, and 3) methods for post-construction monitoring studies to determine estimated annual fatality rates for birds.

2.34 Electric Interconnection – Exhibit 34

CVWP will provide a detailed description of the proposed electric interconnection including the information provided in the following sections.

2.34.1 (a) The design voltage and voltage of initial operation

The collector system's design and operation voltage is 34.5kV. The interconnection voltage of the Cape Vincent Wind Farm to the grid is 115kV.

2.34.2 (b) The type, size, number and materials of conductors

There are two 795 kcmil Aluminum Conductor Steel –Reinforced conductors per phase for a total of 6 conductors in the circuit. Additionally, there is one optical ground wire in the circuit. This is an aluminum and steel stranded conductor roughly half an inch in diameter with a tube of fiber optic cables in the middle. Lastly, there is an extra high strength steel shield wire roughly 7/16 of an inch in diameter. Both the shield wire and the optical ground wire ("OPGW") are located above the conductors and attached at the top of the transmission line poles.

2.34.3 (c) The insulator design

Typical utility-grade ceramic or composite insulators will be used.

2.34.4 (d) The length of the transmission line

The overhead generator interconnection line will be approximately 6-7 miles in length, running from the 34.5/115kV Cape Vincent Wind Farm project substation to the 115kV interconnection switching station and then an additional 1.25 miles to the 115kV Lyme substation via line tap.

2.34.5 (e) The typical dimensions and construction materials of the towers

All poles are tubular steel poles, or equivalent type structure, ranging in heights from 80ft above ground level to 95ft above ground level. The tubular steel pole cross arms range in length from approximately 7 ft. to 8.35 ft.

2.34.6 (f) The design standards for each type of tower and tower foundation

All criteria used to design the tubular steel poles will be taken from the National Electrical Safety Code (NESC 2012. Tubular Steel Pole Foundations will be designed using the applicable standards of the American Concrete Institute (ACI 318 & ACI 336.1)

2.34.7 (g) Type of cable system to be used and the design standards for that system

For the underground collection system, the type of cable system to be used will be, XLPE (Cross-Linked Polyethelene) cables will be used for the collector system, comprised of 4 different cable sizes, including: 1250MCM, 750MCM, 4/0AWG and 1/0AWG. For grounding, it is expected that 4/0 bare copper wire will be used. The design standard the system will follow the applicable standards of the Association of Edison Illuminating Companies (AEIC CS9-06).

2.34.8 (h) Profile of the cable and the location of oil pumping stations and manholes

Underground collection drawings will be provided with the Application.

2.34.9 (i) Equipment to be installed in any proposed switching station or substation

The Project substation and interconnection switching station drawings will be provided with the Application. The interconnection switching station is required by the local interconnecting utility and the details of the facility will be addressed in the Application.

2.34.10 (j) Any terminal facility

No terminal facility is needed.

2.34.11 (k) The need for cathodic protection measures

The Project will assess, review results, and determine whether cathodic protection measures will be required.

2.35 Electric and Magnetic Fields – Exhibit 35

An Electric and Magnetic Field ("EMF") study will be employed to determine the magnitude of the electric and magnetic field strengths emanating from the proposed 115kV generator interconnection line. Components of the assessment include desktop identification location of the generator interconnection line, other nearby electrical facilities, and any other existing facilities that could have an impact on the EMF strength in the area around the proposed generator interconnection line. Nearby electrical facilities that do not parallel the generator interconnection line will not be included in the EMF study. Nearby electrical facilities that do parallel the generator interconnection line but do not fall within the right-of-way ("ROW") of the newly constructed 115kV generator interconnection line also will not be included in the EMF study.

To address the needs of the Article 10 process, an EMF study will be conducted. This analysis will ascertain the EMF strength within the proposed right of way of the proposed generator interconnection line as well as within 500 feet of the ROW edge on both sides (subject to the limitations outlined above). However, if there are significant changes in the routing and configuration of the transmission line after the study is completed, an updated EMF study will be undertaken to ensure any changes do not cause the generator interconnection line to fall out of compliance. The EMF study will be prepared in accordance with the implementing regulations of Exhibit 35 for the Article 10 Application unless otherwise specified in this document. Additionally, the electrical and magnetic field limits will be adhered to as set forth in the New York Public Service Commission's 'Interim Policy on Magnetic Fields of Major Electric Transmission Facilities', issued on September 11th, 1990 (NYPSC Policy, Exhibit I).

2.35.1 Potentially Significant Adverse Impacts

Significant exposure to high strength EMF has not been consistently shown to have negative health consequences. Due to a lack of credible evidence proving any impact from significant exposure to high strength EMF, as discussed in the NYSPSC Policy referenced above, generator interconnection lines are not considered to be hazardous to public health. In addition, due to the relatively few occupied structures along the proposed route, few opportunities exist for significant exposure. An additional potential adverse impact of the proposed generator interconnection line is radio and TV reception interference. Occupied structures very close to the proposed generator interconnection line may experience reduced reception quality for radio and TV, especially during rain events. The proposed generator interconnection line will be designed in accordance with the law and in a way as much as practical to reduce the proposed generator interconnection line's EMF strength and any reception interference as much as is practical.

2.35.2 Extent and Quality of Information Required

The current information regarding the project is sufficient to generate an EMF study for the purposes of Article 10. Information regarding existing facilities will be used to inform the study; however, due to proprietary information, lack of owner response, or any other event that makes such data unattainable, it may not be possible to obtain all information. In such cases, the study will assume the probable, worst-case situation for the missing information. When modeling parallel electrical facilities, the designed separation between the two facilities will be used; if this is not available, it will be assumed that the ROWs for the proposed generator interconnection line and the parallel electrical facility are directly adjacent to one another and that the parallel electrical facility is in the center of its own ROW.

2.35.3 Proposed Studies during Pre-construction Activities

The EMF study will include proposed (including the generator interconnection line) and base (without the generator interconnection line) case scenarios as defined in Exhibit 35 of Article 10. The proposed generator interconnection line will be divided into segments. Each segment will be of a specific ROW width, proposed generator interconnection line orientation, and existing facility orientation. If any one of the three things changes along the proposed generator interconnection line route, this would be considered a new segment. Each segment will be studied individually in the following manner:

Study One: Exhibit 35(d)3

Study one will be performed in accordance with Exhibit 35(d)3 for the proposed and base case scenarios for every segment along the generator interconnection line.

Study Two: Exhibit 35(d)4

There are various loading requirements of study two including summer normal, summer short term emergency, winter normal, and winter short term emergency situations need to be modeled individually. Notwithstanding the loading models of Exhibit 35(d)(4) CVWP is proposing that modeling the line at the highest possible generation output will be sufficient for this study. Since the maximum output of the wind generation facility is fixed at the nameplate capacity and since no other transmission will be on the proposed generator interconnection line, modeling the line at the highest possible generation output will capture the worst potential environmental impacts and be sufficient for this study. CVWP proposes to model only one situation (highest possible generation output) for this study for both the proposed and base case scenarios. The remaining portions of the study would be conducted in conformance with all other aspects of Exhibit 35(d)4.

Study Three: Exhibit 35(d)5

CVWP does not have plans to expand nor to place another facility on the proposed generator interconnection line. In addition, the generation from this plant will be the only power transmitted on the line. Therefore, the average annual load occurring on the proposed generator interconnection line within ten years after it is placed into service will be less than the maximum load studied in Exhibit 35(d)(3). Consequently, CVWP is proposing to not perform this study.

Study Four: Exhibit 35(d)6

Study Four will be performed for all segments with existing facilities that parallel our proposed generator interconnection line. These studies will be accordance with Exhibit 35(d)6. Any segments

without existing facilities will have no magnetic field in the proposed ROW – in such cases, no study would be performed as the results would not be informative.

2.35.4 Avoidance and Minimization Measures

Conductors will be arranged using industry best practices and will comply with DPS agency guidelines. Should any segment of the line be out of conformance with the law, a redesign or relocation of the line will be performed.

2.35.5 Proposed Measures to Mitigate Unavoidable Impacts

CVWP will conform to the law and therefore there will be no unavoidable impacts.

2.36 Gas Interconnection – Exhibit 36

This exhibit is not applicable to the proposed Cape Vincent Wind Farm.

2.37 Back-Up Fuel – Exhibit 37

This exhibit is not applicable to the proposed Cape Vincent Wind Farm.

2.38 Water Interconnection – Exhibit 38

2.38.1 Construction

Water during construction will be needed primarily for: mixing concrete, directional borings, and dust control. Construction water requirements and water sources will be evaluated. Possible alternatives to meet water needs include: installation and development of one or more new groundwater wells or through alternative methods, such as trucking water into the site or the addition of palliatives for dust suppression to reduce the volume of water required. Mobile sanitary facilities for construction personnel will be provided by a third party contractor and will not require a separate water supply.

An estimate will be made for the daily, weekly, monthly use of water usage shall be done based on the typical uses for water on a wind project, dust control, mixing concrete, truck washing, etc. A dry and normal year will be used as part of the analysis to determine the range of water needs for the construction period. Water for fire suppression is not required as part of the construction process.

The number of wells will be determined after a Hydrology study is completed. The well(s) will either be from an existing well or a new well(s) will be established. An analysis of the existing water supply shall be done to determine the capacity of the of the existing water supply source. If the supply is determined to be low for use, an offsite source of water will be explored.

This exhibit will include an identification of all infrastructure requirements necessary to serve the facility including treatment requirements as well as any impacts of the facility on excess infrastructure capacity, including distribution piping, mains, pumps, storage, or additional supply during both normal and maximum system demands. There are no special water chemistry needs assuming that the water meets the New York state potable water standards.

2.38.2 Operation

The proposed facility water requirements during operation will be minimal since water is not required for generation of electricity from wind or maintenance of a wind facility. Once the proposed facility is in operation, the wind turbines and associated components operate in a near complete automated fashion and require only routine monitoring, scheduled maintenance, and opportunity maintenance. Opportunity maintenance activities typically include:

- Oil flushing/changes
- Tower torque checks
- Bolt tensioning
- Retrofits
- Gearbox borescope inspections
- Blade inspections
- Infrared surveys
- In-service vibration analysis
- Turbine condition-based monitoring assessments

CVWP intends to permanently employ approximately 10 to 15 full-time workers for O&M of the wind energy facility. Potable water will be needed for kitchen and lavatory facilities only. A lavatory will be installed adjacent to the control room in the O&M building. The lavatory will be equipped with a commode, and sink. A water heater will be installed to provide hot water to the lavatory fixtures. Potable water requirements are anticipated to be met through the installation and development of a new groundwater well unless a public water supply is available.

2.39 Wastewater Interconnection – Exhibit 39

2.39.1 Construction

Wastewater during construction will be generated from wash-outs for concrete trucks, tower washing and potentially washing of trucks. Wastewater from concrete wash out will be either restricted to areas

in locations approved by the site construction manager where slurry will not affect water resources, or it will be contained in a lined area where it will be allowed either to evaporate off or be pumped to a truck for appropriate off-site disposal. Waste water from tower washing is supplemented with biodegradable detergent and is allowed to free flow off site. This washing occurs at each turbine pad. Mobile sanitary facilities for construction personnel will be managed by a third party contractor and will not require a separate wastewater interconnection. None of these construction generated wastewaters will require a wastewater interconnection.

2.39.2 Operation

Wastewater generation at the proposed facility will be minimal and will be limited to the amount generated from the sanitary facilities of the Operations & Maintenance building. Wastewater will be discharged to a newly constructed septic system designed specifically for O&M building.

2.40 Telecommunications Interconnection – Exhibit 40

A communications plan will be developed for the facility. It will include the communications within the facility, with the interconnecting utility, and outside parties. The wind turbines will communicate with fiber to the substation and then on to the O&M building. This fiber line will be collocated with the underground collections lines in the same trench. The substation will communicate with the local utility via OPGW or power line carrier, and telemetry exchange. The OPGW will be strung on the overhead generator interconnection line to the interconnecting utility's switching station.

The estimated outside communications service needs, brought into the O&M building for the facility are expected to be as follows:

Primary

- 8 Plain Old Telephone Service (POTS) lines
- 4 T1/E1 lines
- 5-10 Megabyte (MB) Ethernet or Digital Subscriber Line (DSL) service (Internet Networking (INET) & Voice of Internet Protocol (VoIP))

Backup

- Cellular Modem
- Satellite Modem

The service needs will be further defined dependent on wind turbine manufacturer and interconnecting utility requirements. If the Local Exchange Carrier ("LEC") cannot provide all these services, due to extenuating circumstances, a microwave or satellite system will be deployed.

2.41 Applications to Modify or Build Adjacent

This exhibit is not applicable to the proposed Cape Vincent Wind Farm.