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Description of the Proposed Action

1.1 Description of the Proposed Action

1.1.1 Project Overview and Definitions

Noble Wethersfield Windpark, LLC (Noble) proposes to install and operate a wind energy facility (Project) in the Towns of Wethersfield and Eagle, Wyoming County, located in western New York State (NYS) (see Figure 1.1-1). The Project consists of two distinct portions: generation and transmission (see Figure 1.1-2).

The generation portion of the Project, also described as the Windpark, consists of the following:

- Installation and operation of 85 wind turbines (59 in the Town of Wethersfield and 26 in the Town of Eagle) with a capacity of 127.5 megawatts (MW) within an approximate 9,151-acre area in the Towns of Wethersfield and Eagle (Windpark) (see Figure 1.1-2);
- Construction and use of approximately 20 miles of access roads (15 miles in the Town of Wethersfield and 5 miles in the Town of Eagle) that will connect each wind turbine to a Town or County roadway to allow equipment and vehicle access for construction and subsequent maintenance of the facilities as well as access by emergency services, if needed; and
- Construction and use of an electrical collection system that will allow delivery of electricity to a new substation to be constructed in the Town of Wethersfield as part of the transmission portion of the Project. Where practical, the electrical collection system will be installed underground along the same right-of-way (ROW) corridor as the access roads. A total of 30 miles of underground collection (23 miles in the Town of Wethersfield and 7 miles in the Town of Eagle) will be installed. A total of 0.5 mile of overhead collection lines will be installed, all within the Town of Wethersfield.

The transmission portion of the Project consists of the following:

- Construction and use of a new substation in the Town of Wethersfield on a 5-acre parcel northeast of Devinney Road that will tie into a new 230-kilovolt

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(kV) transmission line. The substation footprint will be approximately 200 by 300 feet;

- Construction and use of a 5.5-mile overhead 230-kV transmission line, sited within a 2,205-acre area in the Towns of Wethersfield and Orangeville to transfer the energy to a new switchyard that will be constructed in the Town of Orangeville to provide access to the grid; and
- Construction and use of a new switchyard on a 5-acre parcel located approximately 1,100 feet north of Liberty Road, in the Town of Orangeville. The switchyard will tie into the existing 230-kV Stolle-Meyer transmission line, which is owned and operated by New York State Electric and Gas (NYSEG). The switchyard footprint will be approximately 300 by 400 feet.

A petition for a Certificate of Public Convenience and Necessity (CPCN) will be filed for the generation portion of the Project, pursuant to Section 68 of the NYS Public Service Law, and an Application for a Certificate of Environmental Compatibility and Public Need has been filed for the transmission components, pursuant to Article VII of the NYS Public Service Law. In accordance with the State Environmental Quality Review Act (SEQRA), actions reviewed by the New York State Public Service Commission (PSC) under Article VII of the NYS Public Service Law are not subject to review under SEQRA (6 New York Code of Rules and Regulations [NYCRR] Part 617.5). Therefore, the scope of this Draft Environmental Impact Statement (DEIS) includes only the Windpark. Hereinafter, the term “Project” refers only to the Windpark. A detailed description of the transmission line and an evaluation of its impacts can be found in the Article VII Application that will be submitted to the PSC in January 29, 2007; a copy is included as Appendix A, Article VII Application. Additionally, a discussion of the cumulative impacts of installation and operation of the Windpark, which considers both the generation and transmission portions of the Project can be found in Section 3, Cumulative Impacts and Benefits.

Turbine Description

The wind turbines that will be installed at the Windpark will be General Electric 1.5-MW, Model sle, 80-meter, modular tower system (MTS), T-flange wind turbine generators¹. The turbine is a three-bladed, upwind, horizontal-axis wind turbine with a rotor diameter of 253 feet (77 meters). The nacelle is located at the top of each tower and contains the electrical generating equipment. The turbine rotor and nacelle are mounted on top of a tubular tower, giving a rotor hub height of 263 feet (80 meters) (see Figure 1.1-3). The maximum height for the turbine is 389 feet (118.5 meters) when a rotor blade is at the top of its rotation. Once

¹ 1.5MW refers to the production capacity of the turbine, which is 1.5 megawatts. The nomenclature “sle” is used to designate that the diameter size of the turbine rotor is 77 meters. 80-meter refers to the height of the tower. MTS (Modular Tower System) designates the type of tower configuration, and T-Flange designates the type of flange used to connect the tower directly to the foundation.

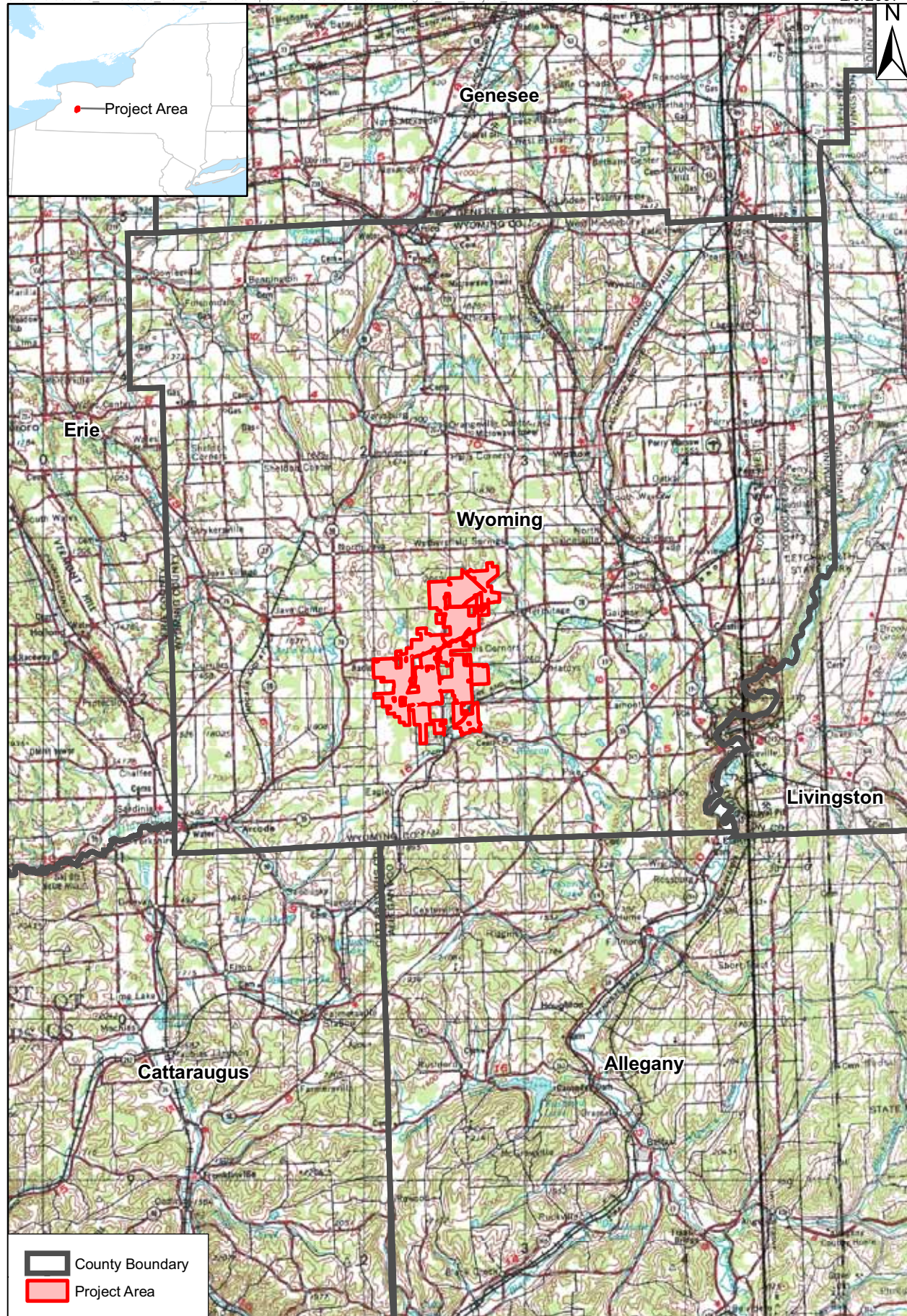
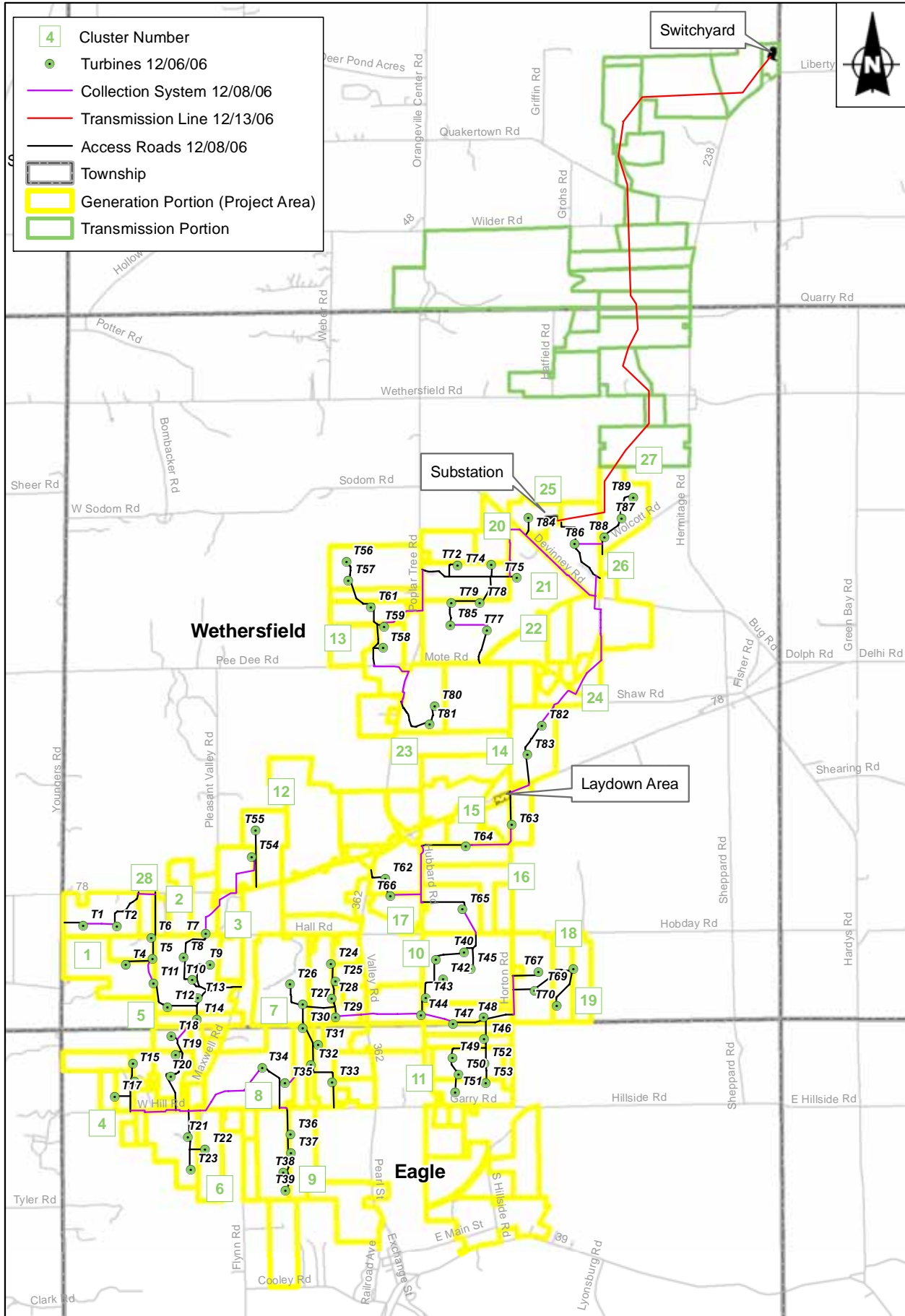


Figure 1.1-1 General Project Location
Noble Wethersfield Windpark
Towns of Eagle and Wethersfield, Wyoming County, New York

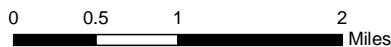
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Source: ESRI, 2005.

Figure 1.1-2 Project Facilities
Noble Wethersfield Windpark



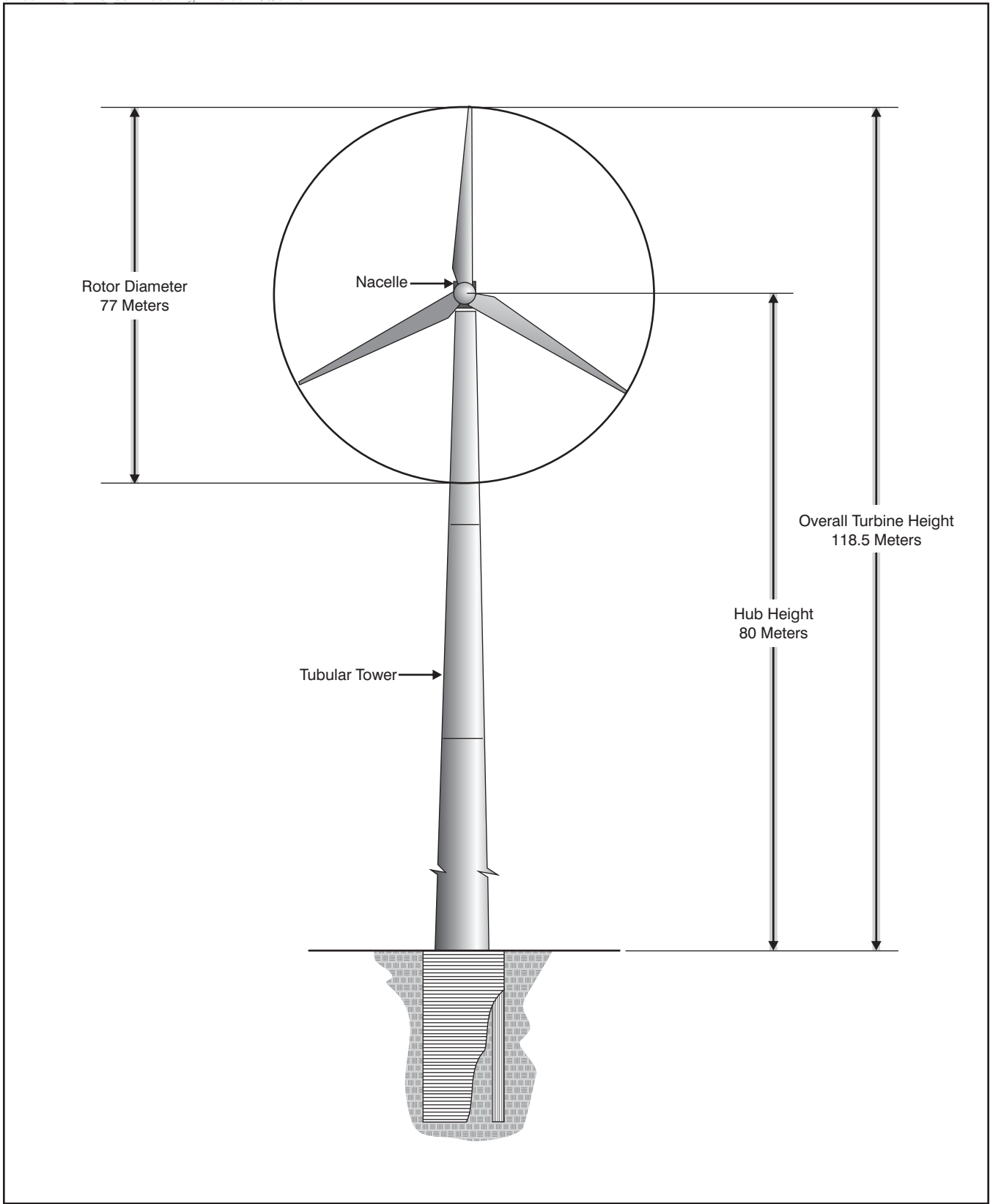


Figure 1.1-3 Generalized Wind Turbine Layout

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installed, each wind turbine will permanently occupy a round, slightly exposed base approximately 18 feet in diameter.

Definitions

The following terms are used throughout this document to describe the proposed action.

- **Project.** “Project” refers to all activities involved in the construction and operation of the Windpark described above and all components thereof, including but not limited to wind turbines (including blades, towers, pads, and foundations); electrical collection lines and poles; trenches; access roads; and related structures. Hereinafter, the terms Project and Windpark can be used interchangeably.
- **Project Area.** The Project Area is denoted by the outer boundary of the geographic area that includes all turbine sites, access roads, and collection system components. The Project Area includes all potential sites that were considered for the Project for which Noble sought and obtained property interests (see Figure 1.1-2). The Project Area does not include the 2,205-acre transmission area where the overhead transmission line, substation, and switchyard are sited; the transmission line area will receive separate treatment throughout this DEIS.
- **Project Site.** The Project Site contains all portions of the Project Area that have the potential to be permanently or temporarily disturbed as a result of the construction or operation of Project facilities (including wind turbines, electrical collection, utility trenches, utility poles, access roads, staging areas, and other related structures). Noble has obtained property interests for all parcels within the Project Site (see Figure 1.1-2).
- **Turbine Cluster.** One or more wind turbines in geographic proximity that are served by a single system of access roads and collection lines is called a turbine cluster.
- **Turbine Site.** An individual 200- by 200-foot staging area used during construction of proposed wind turbines, including a foundation for that structure, a gravel crane pad, and the surrounding construction/maintenance area. The turbine site refers to the total area associated with each turbine that will experience temporary impacts during construction, as described. Once installed, permanent impacts at each turbine site will include a 120-foot by 40-foot gravel crane pad, which will be left in place post-construction, and each wind turbine will permanently occupy a round, slightly exposed base approximately 18 feet in diameter.

1.1.2 Project Area Description

Noble considered the location of the Project within an area of approximately 9,151 acres in the Towns of Wethersfield and Eagle, Wyoming County, New

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York. Land uses within the Project Area are predominantly a mixture of agricultural (5,490 acres) and forested land (3,646 acres). The remaining 15 acres consists of roads and other paved surfaces, scattered residences, buildings, and open water features such as farm ponds. Additionally, there are 356 acres of New York State Department of Environmental Conservation (NYSDEC) mapped wetlands and 606 acres of National Wetland Inventory (NWI) mapped wetlands, within the Project Area. Current agricultural use includes a mixture of row crops (e.g., corn), hay production, and pasture. Forested land within the Project Area varies from successional northern hardwood forest to beech-maple mesic forest. Current and historic silviculture is evident throughout the Project Area. A map of the Project Area is included as Figure 1.1-2.

Noble has obtained property interests allowing for the completion of construction activities within the Project Area. Figure 1.1-2 shows the parcel boundaries of the lands on which property interests have been obtained in the form of individual easement agreements.

1.1.3 Project Site Description

The Project Site is located on approximately 267 acres (approximately 201 acres in Wethersfield and 66 acres in Eagle) within the approximated 9,151-acre Project Area. Noble has obtained property interests that will allow it to complete Project activities on all appropriate parcels within the Project Site. The total acreage of the Project Site includes: the maximum 60-foot ROW (40-foot ROW in wetland and stream crossing areas) for 20 miles of roads and adjacent electrical collection lines (143 acres); the turbine sites (78 acres); the collection system ROW (41 acres); and a laydown area (5 acres). The potential laydown area is located on a 5-acre parcel within the Project Area, along the south side of NYS Route 78, east of Hubbard Road (see Figure 1.1-2). The majority of laydown and storage will occur in areas already operated by Noble outside of the Project Area.

1.1.4 Turbine Clusters

The Project Site has been further divided into turbine clusters that are served by a series of access roads and a circuited electrical collection system. Each cluster is identified by the primary access road to the turbine grouping (i.e., Cluster 1 is served by Access Road 1). The clusters are shown on Figure 1.1-2 and are identified in Table 1-1.

Table 1.1-1 Turbine Clusters

Cluster Number	Turbine Numbers Included in the Cluster	Access Road Serving the Cluster	Municipality
Cluster 1	Turbine T1	1	Town of Wethersfield
Cluster 2	Turbines T4, T5, and T6	2	Town of Wethersfield
Cluster 3	Turbines T7, T8, T9, T10, T11, T12, T13, and T14	3	Town of Wethersfield
Cluster 4	Turbines T15, T16, and T17	4	Town of Eagle

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Table 1.1-1 Turbine Clusters

Cluster Number	Turbine Numbers Included in the Cluster	Access Road Serving the Cluster	Municipality
Cluster 5	Turbines T18, T19, and T20	5	Town of Eagle
Cluster 6	Turbines T21, T22, and T23	6	Town of Eagle
Cluster 7	Turbines T24, T25, T26, T27, T28, T29, T30, T31, T32, and T33	7	Town of Eagle and Town of Wethersfield
Cluster 8	Turbines T34 and T35	8	Town of Eagle
Cluster 9	Turbines T36, T37, T38, and T39	9	Town of Eagle
Cluster 10	Turbines T40, T41, T42, T43, T44, and T45	10	Town of Wethersfield
Cluster 11	Turbines T46, T47, T48, T49, T50, T51, T52, and T53	11	Town of Eagle and Town of Wethersfield
Cluster 12	Turbines T54 and T55	12	Town of Wethersfield
Cluster 13	Turbines T56, T57, T58, T59, and T61	13	Town of Wethersfield
Cluster 14	Turbine T63	14	Town of Wethersfield
Cluster 15	Turbine T64	15	Town of Wethersfield
Cluster 16	Turbine T65	16	Town of Wethersfield
Cluster 17	Turbines T62 and T66	17	Town of Wethersfield
Cluster 18	Turbine T67	18	Town of Wethersfield
Cluster 19	Turbines T68, T69, and T70	19	Town of Wethersfield
Cluster 20	Turbine T71	20	Town of Wethersfield
Cluster 21	Turbines T72, T74, T75, T78, T79, and 85	21	Town of Wethersfield
Cluster 22	Turbine T77	22	Town of Wethersfield
Cluster 23	Turbines T80 and T81	23	Town of Wethersfield
Cluster 24	Turbines T82 and T83	24	Town of Wethersfield
Cluster 25	Turbine T84	25	Town of Wethersfield
Cluster 26	Turbines T86	26	Town of Wethersfield
Cluster 27	Turbines T87, T88, and T89	27	Town of Wethersfield
Cluster 28	Turbine T2	28	Town of Wethersfield

1.2 Detailed Description of the Proposed Action

1.2.1 Project Description

Appendix A includes engineering details and a project description of the transmission site, including the electrical substation, switchyard, and 230-kV transmission line. Appendix B, Construction Drawings, Specifications and Engineering Standards, includes drawings that provide engineering details for the Project Site, including the location of turbines, foundations, roads, properties under easement, and the electrical collection system schematic. The Project schedule anticipates the Project will be constructed in one phase, beginning with construction of selected access roads in late 2007 and continuing with the remainder of the Project in 2008.

Turbine Description

Selection of the various Project components will be based on several factors, including experience of the manufacturer, engineer, or vendor and suitability of the specific component to this geographic location and wind resource. The turbines were selected based on turbine availability, the projected efficiency in the wind resource at this site, economy of scale, availability of service and replacement components, and the manufacturer's reputation.

As discussed in Section 1.1, the wind turbines that will be installed at the Wethersfield Windpark will be General Electric (GE) 1.5-MW, 80-meter, MTS sle, T-Flange wind turbine generators. Appendix B includes the drawings, specifications, and power curves of these turbines. Each turbine included within the Project will have a nominal output of 1.5 MW. The expected annual production of energy is approximately 335 gigawatthours (gwh) per year. The maximum height of each turbine will be 389 feet when the rotor blade is at the top of its rotation, with an approximate 18-foot diameter, slightly exposed concrete foundation.

Power from the turbines is fed through a breaker panel at the turbine base inside the tower and is interconnected to a pad-mounted step-up transformer that steps the voltage from 575 volts as generated by the turbine to 34,500 volts (34.5 kV). The pad-mounted transformers are located near the base of each tower and are interconnected on the high side to underground cables that connect the turbines together electrically.

The turbines will require lighting in accordance with Federal Aviation Administration (FAA) standards to eliminate hazards to aviation. Aviation warning lights will be limited to the minimum required by the FAA (e.g., if allowed by the FAA, lights will be installed on towers around the Project perimeter, and those within the perimeter spaced a half mile apart, rather than on all structures). There will be no lights during the day. There will be red strobes during the night designed at a minimum intensity and duration of time with an illumination pattern that will primarily be directed upward, as suggested by the FAA (see Sections 2.13, Visual Resources: Environmental Setting, and 2.14, Visual Resources: Impacts and Mitigation).

Collection System Description

The Project requires approximately 30 miles of trenched-in underground electric power lines and about 0.5 mile of overhead 34.5 kV electrical power lines to collect the power from the turbines and transfer it to the proposed substation in the Town of Wethersfield. The underground portions of the collection system are installed in a trench that is typically 4 feet deep and generally runs parallel to the Project's roadways in order to reduce disturbances to additional ground. In locations where two or more sets of underground lines converge, pad-mounted junction terminals will be utilized to tie the lines together into one or more sets of larger feeder conductors. Overhead portions of the collection line will be installed

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on 50-foot wooden utility poles, and will be similar to existing utility poles in the area.

The overall electrical system will be designed and constructed in accordance with the guidelines of the Institute of Electrical and Electronics Engineers, the National Electric Safety Code, the National Electrical Code (NEC), the National Fire Protection Agency (NFPA), the New York State Power Authority (NYPA), and good utility practice.

1.2.2 Construction Overview

Turbine Installation

Generally, all components of the Project will be installed in a fixed manner. In preparation for the installation of each turbine, a 200 by 200-foot temporary disturbance area will be cleared and graded to a slope not to exceed 5%. This area may be further minimized to avoid impacts to wetlands and other sensitive resources. A gravel crane pad, typically 120 by 40 feet, will be constructed at each turbine site with a slope of 1% or less in all directions. This graveled crane pad is located within the 200 by 200-foot turbine site. After turbine installation is completed, the crane pad will remain in place for future maintenance. Other disturbed areas at the turbine site will be restored with subsoil and stockpiled topsoil. All foundations and underground infrastructure will be in place for the life of the Project.

Preparation of each turbine site for installation of the foundations will involve excavation of surface materials. Extra care will be used to ensure that topsoil and subgrade materials are kept separated and stockpiled to guarantee the land is returned to its original use. Dewatering is not expected to be required, but will be used where required to maintain the strength of the subsurface load-bearing materials. If bedrock is encountered during excavation activities, an excavator with a large rock bucket will be used or, in locations where the bedrock is more concentrated with depth, an excavator equipped with a hydraulic/pneumatic breaker or rock grinder may be used.

Based on geotechnical tests completed to date, Noble does not expect that blasting will be necessary for the Project. In the unlikely event that blasting becomes necessary, a detailed blasting plan will be prepared and submitted to the authority having jurisdiction and copied to the Towns of Wethersfield and Eagle, the Wyoming County Emergency Response Coordinator, and the Wyoming County Health Department for their review. The blasting plan will include, at a minimum, the requirements as set forth in Occupational Safety and Health Administration Standard 1910.109 and other applicable NYS standards. No activities requiring blasting will proceed until full approvals have been obtained.

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The pad-mounted transformers located at each turbine site will be situated so that there are at least 6 feet of clearance between the transformer and any other component. The transformers will be installed in accordance with industry standards.

During the Project construction phase, the large turbine components (i.e., tower sections, nacelle, and rotor blades), will be delivered to an existing off-site equipment staging area for verification of match marking, a quality receipt inspection, and any necessary rigging adjustments prior to site delivery. From the equipment staging area, specific equipment will be delivered to designated turbine sites. Each turbine site will serve as the heavy lift staging area for the erection of that specific turbine.

Materials such as cable reels will be also be staged at an existing off-site location. These materials will be transported to the sites as they are needed and utilized for construction.

The majority of construction crews will be bused to the work sites. Others, including dedicated support staff, quality inspectors, and field engineers, will park off the public roads in designated areas on the Project's previously disturbed and designated areas such as access roads and turbine sites as needed.

Collection System Installation

Underground collection lines will be used for the majority of the main collection system. Underground collection lines will be installed, to the extent possible, within the maximum 60-foot ROW area of temporary road disturbance. In areas where underground collection lines will not be installed adjacent to an access road, the ROW width will vary depending on the number of parallel circuits to be installed: a 22-foot ROW for one circuit, 32-foot ROW for two circuits, 42-foot ROW for three circuits, and a 50-foot ROW for four circuits.

Underground collection lines will be installed using either a trenching machine or a track hoe. The cables will generally be buried in a trench to a depth of 4 feet. Where multiple circuits are installed parallel to each other, a separation of approximately 8 feet is required between each trench.

Overhead collection lines may be utilized where it is necessary to cross an existing road, along existing roadways, and wherever necessary to minimize environmental impacts in sensitive areas. Installation of overhead lines will require a 25-foot ROW, where located adjacent to existing roadways, or 35 feet in other areas. The ROW will be cleared of any trees and large woody vegetation that may pose a hazard to the line. Where overhead lines are located adjacent to existing roadways, installation will take place from the edge of the road and the poles will generally be located 10 feet from the road shoulder.

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Access Roads

Access roads will have a temporary width of 30 feet during construction. The temporary access road will be installed within a maximum 60-foot construction ROW (40 feet in wetlands) that will also include extra work space to allow for construction of the temporary access road, storage of topsoil, and safe passage of equipment. When co-located with an access road, collection lines will be installed with the construction ROW. Roads will be maintained at a permanent width of 12 feet for operation and maintenance of the turbines after the construction phase is complete. The remainder of the construction ROW will be allowed to naturally revegetate, although it will be subject to periodic removal of woody vegetation to maintain an herbaceous or successional shrub state composed of native species. Natural revegetation of the construction ROW is likely to result in the establishment of naturally occurring native plants, due to existing seed banks and adjacent plant communities.

If soil conditions are not conducive to natural revegetation or if soil erosion risks are apparent, an annual rye seed or mulch will be used to temporarily stabilize the soil until conditions for natural revegetation improve. Areas that fit this description will be monitored to ensure that adequate vegetative growth occurs and if not, supplemental seeding/mulching will take place on an as-needed basis.

In areas adjacent to agricultural fields, plans for revegetation or seeding/mulching will be discussed with individual farmers so that the re-establishment of vegetation compliments each farmer's operation.

The construction/access roads for the Project are gravel roads designed to bear the weight of truck traffic transporting concrete, gravel, and turbine components to the wind turbine sites over the life of the Project. The required gravel road base section will be constructed using site-specific geotechnical information considering the load-bearing requirements of construction traffic and equipment delivery. The gravel roads will be constructed on suitable, undisturbed native soil. Geotextile fabric, or a comparable product, will be used to separate the native soil/fill from the base material to prevent fine soil particles from migrating into the gravel base material and to preserve road base integrity.

Roads will be constructed with culverts as needed to maintain a water table elevation below the base material to ensure roadbed stability. Roadside ditches will be constructed as dictated by the terrain to convey stormwater runoff away from the roadways. To prevent access by the general public, construction/access roads will be gated where they intersect public roads.

Environmental Monitoring

Construction activities will be monitored to ensure compliance with applicable permit conditions, the Storm Water Pollution Prevention Plan (SWPPP), and Best Management Practices. A compliance monitoring document will be included as part of Noble's Quality Assurance Program. This plan will reflect permit condi-

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tions and other commitments made by Noble during the Environmental Impact Statement (EIS) process including those associated with wetland and stream disturbance, vegetation removal, stormwater management, erosion control, and agricultural impacts. Noble will retain an environmental monitor whose duties will include coordination of environmental monitoring activities, documentation and implementation of mitigation activities as they are conducted, and preparation of a final report available to the Town of Wethersfield, the Town of Eagle, and involved and interested agencies as needed and/or requested.

1.2.3 Operation and Maintenance

The turbines are anticipated to be operable 365 days a year and 24 hours a day. Downtime for preventive maintenance and/or malfunctions may reduce the operating hours. The turbines will generate electricity only during times of sufficient wind.

Noble plans to operate with 11 full-time employees. Eight of these employees will perform routine and unplanned work on the turbines under an operations and maintenance contract. A facility manager will be responsible for all operations and maintenance of the site, including administration and direction of turbine maintenance, technical oversight as required by the manufacturer, and operational coordination with both the utility grid system and the local landowners. Two technicians will assist the facility manager in performing preventive maintenance on the electrical substation and the collection system. Large repair tasks will be accomplished using both Project employees and contractors.

The operational staff will maintain the turbines, including routine maintenance, long-term maintenance, and emergency work. In all cases, the facility staff will be responsible for facilitating the needed repair either through internal resourcing or with the aid of additional contractor support.

Routine maintenance for the turbines will include testing lubricants for contaminants, changing lubricants, calibrating and testing electronic systems, and tightening bolts and components. Routine maintenance is generally completed on a scheduled basis by climbing the tower using the internal ladder and doing the work with normal hand tools and electrical testing equipment.

Long-term maintenance may include replacement/rebuilding and cleaning larger components such as generators and gearboxes, testing electrical components, and refurbishing blades.

Emergency work also may be required as the result of a system or component failure. Certain unplanned work such as blade repairs or repairs to other large components may require the use of a crane to complete the work.

It is not expected that the Project will require the use of herbicides or pesticides to control vegetation or pests along access roads and turbine maintenance areas.

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Generally these areas are not expected to promote vegetation growth because of the use of geotextile fabric and gravel construction and the periodic use of the access roads by vehicles. The natural vegetative conditions will be preserved to the maximum extent practicable throughout the Project Area and no sites will be maintained devoid of vegetation. Maintenance of cleared areas and periodic removal of vegetation will consist of trimming trees and clearing undesirable vegetation by side trimming, cutting and mowing to 1) control re-sprouting of undesirable tall growing species to maintain safe clearance within wire security zones; 2) remove vine growth from poles; 3) clear access paths to overhead equipment; 4) protect underground collection lines from root damage; and 5) maintain erosion and sediment control devices. In some cases, spot control of invasive species might be required. If herbicide or pesticide use should become necessary, Noble will comply with applicable laws and best practices standards. Maintenance of clearance distances around aboveground electrical lines will be limited to a minimum of a 5-foot radius around conductors as recommended by the manufacturer's specifications, as necessary, to prevent interference with power cable.

Any and/or all materials used during the inspection and maintenance of Project equipment will follow a strict material safety data sheet (MSDS) program and, when required, will include documented, dedicated control of excess materials as well as off-site disposal of waste materials with an emphasis on recycling whenever possible.

1.2.4 Fire Protection

Fire protection methodology is included throughout the Project's design, as well as in construction and operation procedures (see Section 2.29, Health and Safety). The turbines will be located on a parcel of open land that occupies approximately 1 acre. The open land will be free of significant regeneration, thus minimizing the potential spread of a fire should one start. Significant regeneration will be avoided by regular maintenance, which will consist of trimming of trees and clearing of undesirable vegetation by side trimming, cutting, and mowing.

The fire protection features of the turbine include components within the nacelle that monitor bearing, oil, and nacelle temperatures. These components will be connected to the turbine supervisory control and data acquisition (SCADA) system. The SCADA system will monitor sensor temperatures and automatically shut the turbine down and send an alarm to the control room if predetermined set points are exceeded. In addition to the monitoring system, each nacelle and each service vehicle is equipped with a fire extinguisher.

Beyond the physical fire protection components of the facility, the operations staff will develop a site-specific Emergency Response Plan (ERP) prior to the start of construction. This plan will detail the actions to be taken by the site manager and staff should an emergency or fire occur. Additionally, the plan will provide locator addresses for first response efficiency; identify equipment familiarization procedures; and establish training for emergency equipment, high work rescue, fire

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and emergency response; and proper communication. The ERP will be coordinated with the local fire departments and emergency response organizations and will set forth the lines of communication in the event of a fire or other emergency. Noble will submit the ERP to the Town of Wethersfield and Town of Eagle at least 10 business days prior to the start of construction.

1.3 Project Alternatives

This section discusses Project alternatives and describes the process used to select the Project Site and the locations of turbines, roads, and interconnect and collection lines within the Project Area. The Project alternatives evaluated in this section include: alternative Project sizes; alternative turbine technologies; alternative road and interconnect designs; and the no-build alternative. The Project Site was selected through a systematic process that considered (1) the location of wind resources in New York State; (2) the availability of existing roads and utility interconnections; (3) the availability of land with landowners willing to sign easements for their property; (4) community support; (5) the presence of environmental constraints, including visual and noise impacts, impacts on wetlands and streams, and important wildlife habitat; and (6) the presence of land use constraints including zoning and building restrictions. The selection process was designed to facilitate the evaluation of different potential project sites and turbine locations as Noble obtained property rights within a preferred project area sufficient to develop a wind energy facility.

1.3.1 Project Site Selection

Preliminary Screening

In November 2004, Noble began a wide area study of several potential project areas within multiple project regions. Many potential project areas were identified in northern and western NYS. The Project Site within the Towns of Wethersfield and Eagle was one of 11 prospective sites evaluated within the western New York Project Area, which includes several locations within Wyoming, Cattaraugus, Livingston, Chautauqua, Steuben, and Allegany counties. Noble evaluated these potential sites using the following criteria:

- **Availability of sufficient wind resources.** Wind turbines must be sited in locations where there is sufficient wind flow of adequate speeds and duration. Potential project sites were evaluated using topographic maps and the New York State Wind Resource Map produced by TrueWind™ in 2001 and updated in 2005. Generally, wind speeds averaging at least 7.5 meters per second (m/s) are needed for commercial wind energy project viability. A project area with adequate wind resources was identified in southern Wyoming and northern Allegheny counties and potential project sites were investigated within this Project Area.
- **Proximity to existing roads and transmission lines.** A key consideration for wind project siting is the accessibility of an existing utility system to deliver

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the power generated into the energy grid. Use of existing transmission facilities minimizes environmental impacts associated with construction of new power transmission facilities, which would include clearing ROW and other construction impacts. The NYSEG Stolle-Meyer 230-kV transmission line that runs through Orangeville, New York makes electrical transmission possible. The availability and proximity of this high-voltage transmission line also enhances the efficiency of the Project, versus delivery at lower voltage, by reducing transmission line “losses.”

The Project Area is accessible via NYS Route 78, NYS Route 39, and NYS Route 362. Transportation in and through Wyoming County and the Towns of Wethersfield and Eagle is provided by a well-developed system of local and county roads. The roads are suitable for delivery of the equipment needed to construct and maintain the Project. The Project Area also includes many existing farm and logging roads. Improving these existing roads for Project access will minimize the disturbance of additional areas for new roads.

- **Availability of privately owned lands.** The Project Area is primarily comprised of privately owned lands. Many of the properties are larger parcels that are used for farming activities and have a low population density, making them attractive for wind energy development. Larger, sparsely settled parcels require fewer easements and less encroachment on residential uses.

Members of the Noble Project team met with landowners and residents of the community to determine whether there would be sufficient participation of landowners to develop a viable project. As a result of these discussions and meetings, the Project team determined that there was sufficient support to proceed with development of a wind project. Because Noble is a private developer, Project Site selection was limited to those locations where it is able to enter into voluntary agreements with landowners for development.

- **Presence of environmental and land use constraints.** Noble conducted a preliminary analysis of the Project Area to determine the environmental and land use constraints present at the potential project site locations (Fatal Flaw Analysis). This Fatal Flaw Analysis revealed that there was a relative lack of potential disturbance to sensitive ecological resources, land and water resources, cultural and visual resources, and landowners within the Project Area.

Identification of Preferred Project Site and Turbine Locations

For those properties within the Project Area that satisfied the preliminary screening criteria, further analysis was conducted to identify land use and environmental constraints that could potentially be “fatal flaws” in the Project development. The specific issues addressed in the Fatal Flaw Analysis included:

- Geology and soils;

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- Water resources;
- Wetlands;
- Threatened and endangered species;
- Bird and bat issues;
- Traffic and transportation;
- Land use;
- Environmental justice issues;
- Cultural resources; and
- Visual impacts.

If no fatal flaws were identified, the wind resources were further verified through the installation of meteorological towers within the Project Area to collect site-specific data. These data were compared to the NYS Wind Resource Map and modeled to predict electrical production from each potential turbine location.

Noble obtained agreements with landowners within the Project Area that would allow for the construction of turbines, access roads, and collection and transmission lines on their property. The Project Site was not finalized until a sufficient number of landowner agreements were in place to site all of the Project facilities (see Figure 1.1-2) and applicable local laws were passed.

When land acquisition activities were completed, an “area constraints map” was developed to determine where turbines, roads, and transmission system components could be located. To the greatest extent possible, areas were eliminated from consideration as turbine locations if they were located on a NYSDEC or NWI-mapped wetland or area that appeared to be “wet,” based on a review of soils mapping and or a site investigation. Areas were also eliminated from consideration if they were located:

- Within a legally required setback area designated for a road, residence, or structure;
- Where legally mandated, sound pressure levels would be exceeded as in the case of a residence, school, church, library, hospital, or park;
- In proximity to an airport based on FAA and other applicable requirements; or
- Within a microwave or other radiowave pathway.

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Once turbine locations were selected, access roads and collection lines were sited to minimize impacts to wetlands and other sensitive environmental features, to maximize use of existing road and transmission infrastructure, to avoid engineering constraints, and to meet the approval of the individual landowners.

Care was taken to choose a project site that would minimize impact to the use of active agricultural lands. During the facility location identification phase, Noble met with Michael Saviola of the New York State Department of Agriculture and Markets (NYSDAM) to discuss proposed locations of wind turbines, access roads, and electrical collection systems. In accordance with NYSDAM guidance, turbines and access roads located on active farms were placed on the edge of agricultural fields to the greatest extent possible without increasing impacts on wetlands. This minimized the loss of agricultural land and use of wooded areas. To the extent practical, roads and interconnects were located on the edge of agricultural land to minimize impacts on agricultural operations, including reducing the incidence of crossing drain tiles.

Noble also met with Chuck Rosenberg and Ken Roblee of NYSDEC, as well as Steven Metivier of the United States Army Corps of Engineers (USACE), to introduce the Project and to discuss proposed locations of wind turbines, access roads, and electrical collection systems. As a result of these meetings, turbine locations and access roads were modified to further minimize impacts on wetlands and other sensitive resources.

Data on the mapped constraints were entered into Windfarmer, a turbine siting modeling program, to determine optimum turbine locations within the Project Area. In addition to the mapped constraints, the Windfarmer model takes into account meteorological data and noise calculations to optimize turbine locations and turbine efficiency within a given area.

The turbine locations identified within the Project Area using the Windfarmer program were field-verified to ensure that:

- Impacts on wetlands and other environmentally sensitive areas were avoided to the extent practical;
- Landowner concerns were addressed;
- Setback requirements were met; and
- Engineering constraints were minimized.

Adjustments were made and modeling was repeated until preliminary turbine sites were optimized.

Road and Interconnect Location Selection

During the process of field-verifying the proposed turbine location, access roads and electrical collection line placement were also considered. In the interest of minimizing impacts, every effort was made to minimize the number of access road/interconnection systems needed. Each system was designed to:

- Co-locate electrical lines and roads within the same corridor, where possible;
- Optimize the use of previously disturbed areas such as farmlands and roads; and
- Avoid crossing wetlands and streams.

Once a route was selected based on these primary criteria, a secondary analysis was performed to determine whether the proposed route had any engineering constraints. Where avoidance of agricultural fields was not practical due to other engineering and/or environmental constraints, appropriate placement of access roads, turbines and the collection system was determined in consultation with the individual landowners and the NYSDAM “Guidelines for Agricultural Mitigation for Windpower Projects,” so as to minimize agricultural impact (see Appendix S).

The final Project design showing turbine, roads, and interconnect locations is presented as Figure 1.1-2. A further discussion of the evaluation process to site roads and collection lines to minimize impacts on wetlands and proposed mitigation strategies is presented in Section 2.8, Wetlands: Impacts and Mitigation, and Appendices E and R. The specific criteria Noble utilized for the siting of overhead and underground collection lines is discussed below in Section 1.3.2.

1.3.2 Project Alternatives Evaluated**Smaller Project Size**

Noble evaluated reducing the size of the Project by using a smaller number of turbines. However, reducing the Project’s size would jeopardize its financial viability and also reduce the energy portfolio, environmental, and economic benefits of the Project. This evaluation included the possibility of reducing the Project’s generation capacity to less than 80 MW, which would render the Project non-jurisdictional for a Certificate of Public Convenience and Necessity under Article 68 of the NYS Public Service Law.

Wind generating projects have certain fixed “infrastructure” costs that are independent of the size of the facility. For example, the cost of the utility interconnection and facility substation cost will not vary significantly with the size of the facility. The financial viability of a project depends on its ability to recover these fixed costs by maximizing electricity generation.

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Prices for electricity produced by the Project are based on the cost to generate electricity. As 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 (kWh) output must be reduced as much as possible by maximizing Project output. Some smaller wind energy projects that have been built have been made possible only because of large financial grants. Reducing Project output without a corresponding reduction in fixed costs will create a negative impact on its overall financial viability and discourage investment. Because most of the fixed costs of a larger wind project would be born by a smaller facility, the only significant cost savings from a downsized project would be the avoided cost of turbines. Since the fixed costs of the Project comprise a large portion of the construction and operational costs, it is important that the Project be large enough to produce adequate energy to become attractive to power purchasers and investors. Given the regulatory costs associated with the development, institutional investors have not shown an interest in windparks in rural areas in NYS that are less than 80 MW. For this reason, the PSC's Section 68 review might actually amount to review of the no-build alternative discussed in the DEIS.

The Project has been sized to maximize its output to defray its fixed costs, maximize its environmental benefits through the production of clean energy, and maximize local economic benefits through landowner easement payments, payments in lieu of taxes (PILOT), and other direct and indirect local economic benefits, all while minimizing environmental and other impacts on the Project Site. A smaller project would produce fewer global benefits (i.e., clean energy, emissions reductions, and reductions in fossil fuel use), and fewer local economic benefits to the region and the state, without any necessary corresponding reduction in environmental impacts. It also would be contrary to the State's goals of increasing the use of renewable sources of electricity to the same extent as the Project that has been proposed. In order to meet the state's goal that 25% of its electrical supply come from renewable sources by 2013, the state must encourage the development of large-scale projects.

Additionally, a project less than 80 MW would change the localized environmental impacts slightly in a few different ways. The footprint and visibility would be slightly reduced because the Project would consist of at least 32 fewer turbines. Reducing the amount of disturbed forest land and vegetation would be environmentally beneficial; in addition, there may be the opportunity to reduce impacts on wetlands because fewer access roads would be required. However, given the minimal impacts to forest land, vegetation and wetlands of the Project as proposed, the overall benefit of a reduced-sized would not be significant. Visually, a reduction in the number of turbines may provide a minimal benefit at a particular receptor, but it would do little to change the overall impact of the wind Project on the regional landscape. There would also be a minimal reduction in the need for collection lines and the associated visual impacts. Thus, the reduction of the size

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of the Project, even by approximately 32 turbines, would only marginally change its aesthetic profile.

Turbine Selection

The commercial wind industry has moved toward the use of larger wind turbine generators because they are more cost-effective than smaller machines (i.e., they have a more favorable ratio of rotor-swept area to generator size). For land-based use, the industry has developed turbines with generating capacities in the range of 1.5 MW to approximately 2 MW. Smaller turbines are available; however, a significantly larger number of turbines would be required to produce comparable amounts of power from smaller turbines. To maintain an equivalent level of power generation within a given project, more of the smaller turbines would be required. This would increase temporary and permanent disturbance of soils, vegetation, and water resources as the number of towers and the length of required access roads and interconnections increases. Potential operational impacts (e.g., noise and avian mortality) would also likely 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 substantially increase the cost of turbine maintenance due to higher wind turbulence in the blade area and the cost of turbine maintenance.

The use of larger turbines (2 MW) was considered for the Project; however, most turbines larger than 1.65 MW have not been operating in the United States for any appreciable period of time. The technology for large turbines is developing, but these larger machines have not been sufficiently tested to ensure reliability for this Project. Larger turbines generally sit atop taller towers and have a greater potential for visual, avian, and other impacts.

Economies of scale dictate that the largest turbines that meet the regulatory requirements and fully utilize the available wind resource will be selected. Prominent manufacturers have machines in this range. GE 1.5 turbines were ultimately selected for several reasons: they are among the quietest operating machines, the GE company is strong and it's willing to stand behind its equipment, the turbines incorporates state-of-the-art operating features, and GE and Noble management personnel have a long and positive working relationship. Noble also uses this turbine model for the Noble Bliss Windpark.

Alternative Project Design

The design and layout of the Project components have been continuously evaluated since the decision was made to pursue a project in the Towns of Wethersfield and Eagle. Over the past 12 months, various turbine totals and layouts were evaluated in an attempt to maximize energy efficiency while minimizing adverse environmental impacts. The Project layout, as proposed, has been engineered to capture the area's high wind energy resource while minimizing wake effects on downwind turbines. The original computer-generated optimal siting plan for the

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turbines, from a wind resource perspective, has been modified by landowner agreements/considerations and recognition of the need to protect sensitive resources such as wetlands, wildlife habitat, and agricultural land. The final proposed location of turbines and associated facilities reflects input and guidance received from landowners and Project consultants focusing on cultural resources, noise, land use, and ecological impacts. The layout, as proposed, results in a carefully achieved balance of energy production, environmental protection, and community involvement. Relocation of any turbine would have a ripple effect, in that the location of all other turbines would have to be reexamined and possibly changed in order to maintain an efficient and workable Project design. Therefore, reduction of environmental impacts in one location could result in increased impacts in another location and/or reduced power generation. In the case of visual impact, removal, or relocation of one or two individual turbines from an 85-turbine layout is unlikely to result in a significant change in Project visibility and visual impact from most locations.

Each of the proposed turbines has been located outside the boundaries of wetlands. Impacts on wetlands in the current proposed layout result from some stream crossings and some unavoidable wetland areas that are crossed by roads and/or collection lines. If the Project layout were to be modified to eliminate all impacts on wetlands, the Project would not be feasible. Even if the Project's feasibility were not destroyed, other impacts would be unacceptably increased. Examples of increased impacts include the additional lengths of roads and collection lines that would be required to avoid all wetlands. For every foot of road increased, there would be an increase of up to 60 square feet of disturbance to forest, farmland, and/or wildlife habitat. Each additional mile of road would add approximately 7 acres of soil and vegetation disturbance. The proposed layout avoids impacts on wetlands to the maximum extent possible without a major increase in the length of the roads. In addition to the increased length of roads within the Project Area, layout changes to further reduce wetland impacts would require the construction of additional road entrances at existing public roads to access some turbines that would be otherwise inaccessible due to small wetlands or streams. This would create additional visual impacts on the rural character of the area due to the numerous entrance roads cutting into forests and open spaces and would create additional traffic impacts in the areas and general inconveniences for the people living in the area. The proposed design has as many as seven turbines along one access road with a single entrance from a public road. Relocating the roads to totally avoid wetlands would increase the construction activity that would be visible from public roads.

At the outset of Project design activities, Noble utilized specific criteria for the preliminary siting of collection/distribution lines. "First order" criteria for collection line routing were: (1) shortening the length of circuits to minimize electrical losses; (2) availability of property rights; and (3) absence of environmental "fatal flaws." Once preliminary collection/distribution routes were identified, the advantages and disadvantages of overhead versus underground collection lines for

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each segment of the line were considered. Both overhead and underground installations have the potential to impact streams and wetlands. Impacts can be minimized by using various construction techniques, some of which are directional drilling, maintaining buried cable depths in agricultural areas coordinated with landowner operations, and by strategic pole placements. After careful analysis, a mixed approach was selected, utilizing both underground and aboveground installations where the best balance of environmental impact, cost, reliability, and safety/maintenance factors can be achieved.

It is planned that approximately 98% of the electrical interconnect system will be buried. Approximately 0.5 mile of overhead lines are used in places to span wetlands and streams to avoid installing multiple underground lines in certain locations. A totally underground collection system would significantly increase cost and require installation of additional lines due to the lower thermal limits of underground collection lines. This has the potential to increase impacts on vegetation, soils, and wetlands. Adding some overhead lines, as proposed, will reduce impacts on soil and water resources but will cause some visual impact. To minimize adverse visual impacts, the majority of overhead lines will be carried on single wooden poles, similar in appearance to distribution lines that currently run along most of the roads within the Project Area. The overhead lines have been routed along field edges and hedgerows to minimize the need for right-of-way clearing and to minimize additional impacts on agricultural land and farming operations.

Permanent access road widths will be the minimum necessary to maintain the Project (anticipated being 12 feet wide in most places) and have been sited in accordance with the NYSDAM guidelines to minimize loss of agricultural land and impacts on farming operations. Consequently, alternative Project designs likely to pose equal or greater risk of adverse environmental impacts while yielding equal or less electrical output were rejected.

Alternative Construction Phasing

Construction timelines are intentionally compressed and minimized as a mitigation measure to limit construction-related impacts by keeping the period of the impact on the community as short as possible without creating an extreme overload of the local resources. Alternatively, transportation, construction noise, dust generation, and other impacts overall would be reduced by having a compressed construction season. Noble intends to engage in the construction of multiple access roadways, turbine foundations, collection trenches, and transmission pathways simultaneously. This is also necessary due to the adverse conditions present during the winter months within the Project Area.

Conversely, the division of construction timelines into two or more phases was evaluated. This option would allow for a multi-year construction schedule in order to reduce certain impacts such as disruption to agricultural activities. Phased construction could also be considered as mitigation to transportation, noise, dust,

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and other impacts overall. Levels of impacts generated could be kept to a minimum throughout each phase.

Upon further review, it was determined that benefits to phased construction would be offset by the longer construction presence. Those impacted preferred the shortest timeframe option (non-phased construction).

No-Build Alternative

Selection of the no-build alternative would preclude the development of a wind-park in an area with favorable wind resources and infrastructure to support such a project. In the northeastern United States, good wind energy project sites are limited and those that do exist are primarily located in areas that will have similar social and environmental concerns. Therefore, the selection of the no-build alternative would force continued reliance in the northeast on non-renewable energy resources (e.g., fossil fuels and nuclear materials). Energy production with such non-renewable sources results in a plethora of severe direct and indirect adverse environmental impacts (e.g., air emissions, water consumption, toxic effluents and thermal emissions, by-product wastes, significant infrastructure needs and related land use impacts, visual impacts, noise impacts, traffic impacts, and health impacts), and socioeconomic effects (e.g., decreased energy diversity and reliability, fluctuating and increased consumer costs, and uncertainties regarding the ability to meet increasing energy demands).

Furthermore, the benefits of adding approximately 127.5 MW of clean, renewable electric energy to the power grid would be lost. Electric generation by fossil fuel-fired facilities presents serious consequences in the form of, among other things, air emissions (i.e., carbon dioxide, sulfur dioxide, nitrogen oxides, particulate matter, and mercury). The continued reliance on fossil-fuel-fired generators would negate the reductions in emissions expected from operations of the Project that are estimated at 12,218 tons of sulfur dioxide (a precursor of acid rain), 5,823 tons of nitrogen oxide (a smog precursor), mercury² (a deadly poison), and 3,859,244 tons of carbon dioxide (a greenhouse gas) would fail to be displaced over 20 years (GE Energy March 23, 2005). The adverse environmental and health effects of air emissions from combustion of fossil fuels are well-documented and include global warming, acid rain, smog, respiratory health effects, and significant long-term impacts on wildlife. Air emissions and global warming have been cited as serious concerns for bird populations in North America in *A Birdwatcher's Guide to Global Warming* (Price and Glick 2004). This guide advocates renewable energy sources such as wind to help slow global warming and reduce the threat it poses to people and wildlife.

² The actual displacement of mercury emissions as a result of the Project is difficult to quantify. Individual power plants have different mercury emission rates based on the type of fuel and equipment utilized. Furthermore, current regulatory conditions make it difficult to accurately estimate future mercury emissions.

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Beyond air emissions, fossil fuel-fired facilities have other significant environmental impacts. These include, among others, massive water withdrawals/consumption for cooling (which entrain and impinge fish), the release of toxic effluents resulting from plant operations, thermal releases (when cooling waters are returned to the water body from which they were withdrawn), and visual impacts resulting from the facilities' structure and vapor/steam plume. To the extent that new technologies are required under the Clean Water Act to reduce water withdrawals, such technologies have their own attendant adverse environmental impacts (e.g., construction and maintenance of massive structures in water bodies, thereby causing long-term habitat disturbance). In any event, even with modern pollution control devices, significant adverse impacts remain. The cumulative effect of the operation of many fossil fuel power plants continues to pose an environmental threat that will only worsen with continued and expanded usage necessary to meet the ever-increasing demand for energy.

Beyond environmental impacts, fossil fuel power plant facilities also have significant adverse socioeconomic effects. Strict air emissions regulations and control measures, along with other environmental requirements to permit new or re-powered fossil fueled facilities, have increased the capital and operating costs of power plants and the ultimate cost of electricity for the consumer.

Further, the infrastructure required for efficient energy distribution is in some instances lacking, leading to price fluctuations and unreliability of energy supply. For example, although natural gas is heralded as the cleanest of the fossil fuels, it nonetheless has substantial drawbacks, both socioeconomic and environmental. Natural gas is transported through a network of pipelines throughout the country, but this network is not always capable of transporting the required gas to various regions. This results in significant price swings and increased costs to consumers due to supply and demand forces. In extreme instances, supply disruptions may force use of dirtier fuels such as fuel oil.³ In addition, natural gas facilities suffer from many of the same adverse environmental impacts as do coal-fired and oil-fired plants, particularly with respect to water withdrawals, thermal releases, and visual impacts. Thus, fossil fuel-fired facilities, which depend on non-renewable resources, have undeniable and well-defined significant environmental and social costs.

Nuclear facilities pose their own unique set of dangers, including the disposal of radioactive waste (high-level and low-level), impacts on the marine environment from thermal water discharge, and the potential danger of a catastrophic radioactive release as the result of an accident or terrorism. Moreover, the stigma associated with, and public perception of, nuclear facilities (both the power plants themselves and radioactive waste disposal sites) render the siting of any new facilities difficult.

³ Diversity in the mix of energy sources that supply our electricity can help reduce price fluctuations for the consumer.

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In marked contrast, wind energy plants do not produce air emissions or other pollutants, nor do they utilize finite fossil fuel resources in the production of energy. Thus, wind projects provide a compensatory benefit to the environment generally—and wildlife particularly—by displacing other types of electricity generation that are harmful to the biosphere (American Wind Energy Association December 8, 2003). Wind projects do, however, require appropriate wind resources, and they are generally distributed over a larger land area than fossil fuel facilities. These characteristics make rural areas appropriate for wind project development. Rural areas often are used for farming or logging, and wind energy facilities are wholly compatible with these two land uses. They do not require the project sponsor to take control of land; instead, an easement is signed and the land remains the property of the rural landowner. Thus, revenues are paid to the landowner, and these monies help sustain economic vitality in the rural area (United States Department of Energy 2003). In addition to easement payments to private landowners, the Project is expected to make significant PILOT and other payments to local taxing jurisdictions, and make road improvements as a result of construction and post-construction remediation. The no-build alternative would deprive the rural area of this direct economic benefit as well as preclude development of an environmentally benign and beneficial energy production technology.

Importantly, both the United States' and NYS's energy policies explicitly recognize the need to supplement non-renewable energy production resources with renewable energy resources. Thus, they encourage development of renewable sources and support renewable sources as a vital part of the local and national long-term energy strategy (e.g., New York State Energy Planning Board 2002; New York State Public Service Commission 2006).

This Project utilizes a renewable resource, is environmentally benign compared to fossil fuel-fired and nuclear-powered facilities, and is environmentally and socio-economically beneficial (both locally and globally). Due to continued improvements in renewable energy technology, a commercial-sized wind farm, such as the Project, can generate electricity that is competitive with electricity produced from fossil fuels and can do so with significantly lower impact on the overall environment than comparable conventional non-renewable energy projects. The Project is consistent with the long-term energy goals of both the United States and the state of New York. Finally, the Project would actually create environmental benefits (including for avian species and other wildlife) by displacing more environmentally harmful means of energy production.

1.4 Project Purpose, Needs, and Benefits

1.4.1 Project Purpose and Need

The Noble Wethersfield Windpark will generate electricity, using no fuels or water and with zero emissions or waste discharge and provide it to the New York Independent System Operator (NYISO) grid using wind, a renewable resource. The Project will have capacity sufficient to generate approximately 127.5 MW of

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power that will help to meet New York State's Renewable Portfolio Standard (RPS) and fill the need for a more diverse national energy portfolio that would include a higher percentage of energy generated while utilizing renewable resources. Renewable energy projects reduce reliance on both domestic and foreign fossil fuel resources and diversify the range of resources used to produce the electricity that supplies state and national electrical needs. In addition, renewable energy projects reduce air emissions from fossil fuel combustion. These emissions are detrimental to air quality and have been documented to adversely affect human health.

On September 22, 2004, NYS PSC Chairman, William Flynn, and Governor George Pataki adopted an RPS requiring that 25% of the state's electric supply come from renewable sources by the year 2013. In addition, Governor Pataki's Executive Order 111 directs state agencies to increase their purchases of green energy. This Executive Order requires all state agencies, departments, and authorities to purchase 10% of their energy from renewable energy sources by 2005, with the amount increasing to 20% by 2010 (New York State Governor's Office of Regulatory Reform 2003). The New York State Comptroller has estimated that the RPS program will create 43,000 new jobs statewide.

New York State's renewable energy policy is consistent with the National Energy Policy, which states that the United States has the technology needed to meet our principal energy challenges including:

- Promoting energy conservation;
- Repairing and modernizing our energy infrastructure; and
- Increasing our energy supplies in ways that protect and improve our environment.

Renewable and alternative energy supplies help diversify our energy portfolio and result in few adverse environmental impacts. The current contribution of renewable and alternative energy resources to the state and the national total electricity supply is relatively small; however, the renewable and alternative energy sectors are growing. Continued growth of renewable and alternative energy is vital to delivering clean energy to fuel our future economic growth. The federal government provides tax incentives to further the development and use of renewable energy technologies⁴.

⁴ The renewable Electricity Production Tax Credit provides a tax credit for each kWh of energy produced by eligible renewable generators including wind. The tax credit was originally established under the authority provided in 26 U.S.C §45 and was renewed in the Energy Policy Act of 2005, §1301.

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According to the provisions of Article 4, Section 68 of the NYS Public Service Law, no entity can begin the construction of an electric plant generating more than 80 MW without first obtaining a CPCN from the PSC. By issuing the certificate the PSC grants its permission for and approval of the construction and operation of the Project. The PSC can only issue a certificate for a project it finds is necessary or convenient for the service of the public. Noble filed a Petition for a CPCN for the Noble Wethersfield Windpark with the PSC in January 2007.

1.4.2 Project Benefits

The construction and operation of the Project will result in positive environmental, economic, and energy benefits.

The Project is expected to reduce power plant air pollution in NYS by about 5,823 tons of nitrogen oxides (NO_x), 12,218 tons of sulfur dioxide (SO₂), and 3,859,244 tons of carbon dioxide (CO₂) over 20 years by displacing fossil fuel-based electric generation (GE Energy March 23, 2005). Mercury emissions will also be reduced as a result of the Project. The process required to quantify the decrease in mercury emissions requires a significant research effort to identify the individual coal sources for displaced plants as each coal source produces varying mercury emissions. It should be noted that any reduction in mercury emissions is environmentally beneficial.

Local economic benefits of the Project will include:

- Temporary and permanent employment;
- Increased commerce in the Towns due to spending by project employees, suppliers, and local merchants;
- An increased flow of revenue to the County, Town(s), and School District(s) through a PILOT program;
- An increased flow of revenue to landowners through easement agreements; and
- Increased economic diversification.

Construction of the Project will result in the direct employment of up to 242 electrical workers, crane operators, equipment operators, carpenters, and other construction workers (with a total estimated payroll and benefits of \$10.1 million) and create 262 additional direct, indirect, and induced jobs countywide (with a total estimated payroll and benefits of \$7.2 million). A significant percentage of the construction workers employed during the eight-month construction period will be hired from within the local community to the extent that qualified workers are available. Personnel specially trained in specific procedures for wind turbine

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construction will be brought in and temporarily housed in the area during the construction phase of the Project.

During plant operations the Project will employ 11 skilled operators, management, and administrative personnel (with a total estimated payroll and benefits of \$1.05 million) and create 29 more direct, indirect, and induced jobs countywide (with a total estimated payroll and benefits of \$790,000).

The Project will spend a total of about \$34.6 million countywide during construction. Total economic benefits during construction are estimated at \$54.9 million, including payrolls, supplies, materials, hotel stays, meals, and economic multiplier effects. During plant operation, the Project will spend an estimated \$2.2 million annually, exclusive of property taxes. Total annual economic benefits during operation are estimated at about \$4 million (including PILOTs) including payrolls, supplies, materials, windpark easement payments, and economic multiplier effects. Total countywide economic benefits, based upon regional multipliers applied to direct Project expenditures in original capital investment and ongoing operational expense, are estimated to be about \$164 million over 20 years.

The Project will extensively utilize and support providers of local services, suppliers, and area manufacturers during both construction and operation.

Noble has proposed to provide payments to both Towns and other taxing authorities in the form of a PILOT program. These payments will result in a significant increase in local revenue for the taxing authorities.

The Project will assist in the revitalization of the local economy by providing steady income through easement payments to farmers and other landowners. Most of the landowners are farmers, and the additional income from annual lease payments is expected to help stabilize their income and provide some relief from the cash-flow fluctuations that are inherent in the agricultural industry.

Additional value to the local economy will result from increased diversification of the county and state economic bases. Economic diversification ensures greater stability of the economy by minimizing financial high and low cycles associated with a specific industry. This effect is particularly important in rural areas, where more goods and services are imported and more dollars leave the region.

Finally, all of the foregoing benefits will be provided without any corresponding increased burden on local school and other public services.

1.5 Table of Required Permits and Consultations

Table 1.5-1 indicates each of the permits that Noble Wethersfield Windpark, LLC has or will apply for in order to construct and operate the Project.

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Table 1.5-1 Required Permits and Consultations

Permit or Consultation Required	Agency
License to Operate a Wind Energy Conversion Device/Farm, Town Road Use Agreement	Town of Wethersfield Town Board
Wind Energy Conversion Facility License Agreement, Site Plan Approval, Town Road Use Agreement	Town of Eagle Town Board
Section 404: Waters of the United States Individual Wetland Certification	United States Army Corps of Engineers
Article 15 – Stream Disturbance Permit	New York State Department of Conservation
Article 24 – Freshwater Wetlands Permit	
Section 401: Water Quality Certification	
State Pollutant Discharge Elimination System Storm Water	
Determination of No Hazard to Air Navigation with Approved Lighting Plan	Federal Aviation Administration
State Road Use Permits	New York State Department of Transportation
County Road Use Agreements	Wyoming County Highway Superintendent
Consultation	United States Fish and Wildlife Service
Consultation	New York State Department of Agriculture and Markets
Consultation	New York State Office of Parks, Recreation and Historic Preservation
Section 68 Certificate of Public Convenience and Necessity	New York State Public Service Commission
Article VII Certificate of Environmental Compatibility and Public Need	
Payment in Lieu of Taxes (PILOT) Plan Approval	Wyoming County Industrial Development Agency