

transfer the energy from the new substation to the new switchyard. The proposed switchyard will provide a connection to the existing 230 kV National Grid transmission line that provides access to the grid.

1.2 Detailed Description of the Proposed Action

1.2.1 Project Description

Appendix A includes engineering details for the Project Site including the locations of turbines, access roads, transmission line, and electrical components. Construction of the Project is expected to begin in March 2009 and end in November 2009; however, weather and other factors may increase construction duration to 12 months and/or delay the start of construction.

Selection of the various Project components were 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.

Turbine Description

As discussed in Section 1.1, the wind turbines that will be installed at the Noble Ball Hill Windpark will be GE 1.5-MW, 80-meter, MTS sle, T-Flange wind turbine generators. The turbine consists of a three-blade rotor that is 77 meters in diameter and centered 80 meters aboveground. The maximum height of each turbine will be 389 feet when the rotor blade is at the top of its rotation, and each with an approximate 18-foot diameter, slightly exposed concrete foundation. Each turbine included within the Project will have a nominal output of 1.5 MW. Noble has successfully constructed this same model at other sites in northern and western NYS and this wind turbine is also proposed at other sites currently under development by Noble. This turbine is well suited to the wind resource characteristics of New York. As a result, Noble has established a long-term relationship with GE that guaranteed access to turbines for this project which allows for construction to begin as soon as all approvals are received. Appendix A includes the drawings, specifications, and power curves of these turbines.

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 voltage side to underground cables that connect the turbines together electrically.

The turbines will require lighting in accordance with Federal Aviation Administration (FAA) standards to avoid 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 turbines around the Project perimeter, and those within the perimeter will be spaced a half mile apart, rather than on all structures). There will be no lights during the day. There will be red flashing lights 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.

Collection System Description

The Project requires approximately 23.8 miles of underground electric power lines (18.7 miles in the Town of Villenova and 5.1 miles in the Town of Hanover) installed in trenches and about 174 feet (.03 miles) of overhead 34.5 kV electrical power lines in the Town of Villenova to collect the power from the pad-mount transformers and transfer it to the proposed substation in the Town of Hanover. The underground portion of the collection system will be installed in a trench that is typically 54 inches (4.5 feet) to 66 inches (5.5 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. There will be one overhead portion (approximately 174 feet) of the collection line which will be installed on 45-to-55-foot wooden utility poles similar to existing utility poles in the area. This section of overhead collection line will not be visible from the road at any location.

The overall electrical system will be designed and constructed in accordance with the guidelines of the NYS Building Code, 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 overall good utility practice.

Transmission Line Description

The Project requires approximately 6 miles of new 115-kV electrical transmission lines to transfer the power from a new electrical substation in Hanover to a new switchyard in the Town of Hanover adjacent to the 230-kV National Grid Dunkirk-Gardenville Line. The new transmission line will be placed on 73 single-pole structures within a 100-foot-wide ROW. The poles will range between 65 and 75 feet in height, and spans between poles will generally be 420 feet but may be as much as 550 feet or as little as 240 feet, as a result of alignment, topography, or sensitive area avoidance.

Access Road Description

The Project requires construction and use of approximately 16 miles of access roads (13 miles in the Town of Villenova and 3 miles in the Town of Hanover) that will connect each wind turbine to a town or county roadway. These roads will be gravel-based, designed to meet the specific load-bearing requirements of trucks transporting concrete, aggregate, and turbine components to the turbine sites. After construction, the 35-foot temporary access roads will be scaled back to a 16-foot operational width allowing Noble to use the existing roadway for maintenance and operational purposes, as well as access by emergency services, if needed.

Substation and Switchyard Description

A new substation and switchyard will be constructed as part of the Project and will both be located in the Town of Hanover. The main function of the substation

1. Description of Proposed Action

is to step up the voltage transported through the collection lines from 34.5 kV to 115 kV. The basic elements of the substation are a control house, a main transformer, outdoor circuit breakers, capacitor banks, relaying equipment, high voltage bus work, metal clad switchgear, steel support structures, an underground grounding grid, and overhead lightning suppression conductors.

The transmission line will transmit the power to the new switchyard to be built by Noble in the Town of Hanover and will connect the power to the existing electrical grid. The basic elements of the switchyard are a control house, outdoor circuit breakers, capacitor banks, relaying equipment, high voltage bus work, steel support structures, an underground grounding grid, and overhead lightning suppression conductors.

All of the main outdoor electrical equipment and control houses will be installed on concrete foundations that are designed for the soil conditions at the substation and switchyard sites.

1.2.2 Construction Overview

Turbine Installation

Generally, all turbines for the Project will be installed in the same manner. A maximum 300 by 300-foot temporary staging area will be utilized at each turbine location for laying out equipment, turbine rotor assembly, and stockpiling topsoil. Within the 300 by 300-foot square staging area, generally a 200 by 200-foot square area will be cleared and graded to a slope of 5% or less to facilitate the layout of turbine components. Disturbance outside of this 200- by 200-foot square area will generally be limited to tree cutting necessary for rotor assembly and storage of excess topsoil, subsoil, or woody material including stumps, roots, logs, and/or wood chips. The total size and orientation of this area may be further modified to avoid impacts to wetlands and other sensitive resources.

Within the maximum 300 by 300-foot turbine staging area, a gravel crane pad, typically 120- by 40- feet with a slope of 1% or less in all directions, will be installed. The crane pad is used to support the crane as it lifts turbine components to their upright and installed positions. After turbine installation is completed, the crane pad will remain in place for future turbine maintenance. Pad-mounted transformers will be situated at each turbine site 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.

Each wind turbine will permanently occupy a round, slightly exposed base approximately 18 feet in diameter. 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 excava-

1. Description of Proposed Action

tion 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. Noble does not expect that blasting will be necessary for the Project. In the 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 Villenova and Hanover, the Chautauqua County Emergency Services Coordinator, and the Chautauqua County Department of Health for their review.

A total of 28 acres of on-site laydown areas will provide storage for materials, such as overhead poles, rods, ring forms, and other construction materials. The proposed locations of the laydown facilities are depicted on Figure 1.1-2; however, the final locations are subject to change based on landowner consent. Prior to agreeing to any change, Noble will complete appropriate surveys to ensure there are no impacts to wetlands and archaeological resources. The on-site laydown areas will also provide space for Noble and its contractors' construction trailers and parking for construction crews who 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, such as access roads and turbine sites, as needed. Necessary building permits required for placement of construction trailers will be obtained prior to installation.

During the Project construction phase, the large turbine components (i.e., tower sections, nacelle, and rotor blades), will be transported from GE vendors to ports of import and delivered directly to the site. Of the total 28 acres of laydown facilities, an approximately 3-acre equipment staging area will be located along the off-site Haul Route, on Route 39 near the intersection of Empire Road in the Town of Hanover. This area will be used as temporary short-term staging for verification of match marking, a quality receipt inspection, washing², and any necessary rigging adjustments prior to site delivery. Materials, such as cable reels, pad-mount transformers, and 34.5-kV junction boxes, will be delivered from off-site secured storage directly to site-specific locations to support specific scheduled construction activities. Specific equipment and materials 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.

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 range between 22 feet where one circuit is installed and up to 50 feet where four circuits will be installed in parallel.

² In accordance with the State Pollutant Discharge Elimination System (SPDES) permit, washing will be conducted with water only. No detergents, solvents, or other additives will be used. A separate SPDES permit is required for such activities.

1. Description of Proposed Action

Underground collection lines will be installed via direct burial using either a trenching machine or a track hoe. The cables will generally be buried in a trench to a depth of 4.5 feet. Cables will be buried in a trench to a depth of 5.5 feet in agricultural lands. Where multiple circuits are installed parallel to each other, a separation of approximately 8 feet is required between each trench. In the unlikely event that bedrock is encountered within the trench depth during installation, alternatives, such as ripping or blasting, will be evaluated. Blasting will not proceed until full approvals from the authority having jurisdiction have been obtained.

Construction of underground collection lines in narrow trenches in wetlands will not create an impervious boundary; therefore, will not cause any alteration in the subsurface hydrology of wetlands. However, where necessary, trench plugs will be used to prevent migration of water out of the wetland. Pre-existing contours will be restored after the trench is backfilled and the area is revegetated. No permanent filling of wetlands will occur in association with underground collection lines.

Underground collection lines will be installed via trenching at stream crossings. Streams that are not naturally dry at the time of crossing will be temporarily dammed, with the water pumped around the construction area to allow collection lines to be installed in dry conditions. The equipment that will be used to install the collection lines cuts a trench, places the cable, and backfills the trench in a single pass, thereby reducing the duration of stream disturbance.

While the majority of the collection system will consist of underground collection lines, overhead collection lines will be utilized in one location in the Generation portion of the Project to cross a stream, in order to minimize environmental impacts to the stream. Installation of overhead lines will require 35 feet of ROW. The ROW will be cleared of any trees and large woody vegetation that may pose a hazard to the line.

Transmission Line Installation

The transmission portion of the Project includes a new 6-mile overhead transmission line. A 100-foot ROW will be required to avoid interference with transmission lines. During construction, equipment travel will generally be limited to a 30-foot travel corridor, where practicable, and temporary 70-foot by 100-foot workspaces at pole locations. Wetland mats will be used in wetlands within a 30-foot corridor of the transmission ROW, immediately adjacent to the transmission line to accommodate equipment travel. Temporary workspaces at pole locations within wetlands will be reduced to an area 30 feet by 70 feet, which is required for drilling operations.

Construction of the proposed transmission line will occur in four general phases: ROW clearing and preparation, assembly of single-pole structures, stringing of the conductors, and, finally, cleanup and restoration.

1. Description of Proposed Action

The entire ROW width (100 feet) will be cleared of trees and maintained in an herbaceous or shrub-scrub state to provide appropriate transmission system clearance and maintain a reliable operating environment for the transmission line. In areas where woody vegetation needs to be removed from wetlands within the 100-foot ROW, it will be cut by hand and equipment used for removal will be positioned outside of the wetland boundary or on mats located within a 30-foot-wide construction corridor immediately adjacent to the transmission line. Tree stumps will be left intact except where necessary for pole installation or where they pose a safety-related construction constraint (e.g., within travel paths). In these areas stumps will be removed and disposed of in approved upland, non-active agricultural locations.

Wooden laminate monopoles will be installed to support the conductors. A crew will transport the poles, along with insulators and insulator hardware, to each pole location on the ROW. A drill rig or auger will be used to drill holes for the transmission poles to the required depth. The poles will be lifted individually and set in place by a crane or large forklift. Braces and davit arms will be individually hoisted and framed to the poles. The insulators, clamps, travelers, and other associated hardware will be installed on the pole.

Access Road Construction

Access roads will have a temporary width of 35 feet during construction. The temporary access road will be installed within a maximum 60-foot construction ROW (40 feet in wetlands) that will serve as extra work space to allow for construction of the temporary access road, storage of topsoil, and safe passage of equipment. Roads will be maintained at a permanent width of 16 feet for operation and maintenance of the turbines after the construction phase is complete. Where the roads are maintained above the existing ground grade an approximate 2-foot embankment is required on each side of the road to accommodate the final 16-foot surface. Conservatively, a 20-foot permanent width has been used for all impact calculations.

The 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. These access roads will also support any emergency or fire service equipment that may need access to the site. 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 and fords 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

1. Description of Proposed Action

away from the roadways. To prevent access by the general public, construction/access roads will be gated where they intersect public roads.

Following establishment of the permanent access road, the remainder of the construction ROW will be allowed to naturally revegetate. Natural revegetation of the construction ROW is likely to result in the establishment of native plants, due to existing seed banks and adjacent plant communities. An annual rye seed or mulch will be used to temporarily stabilize the soil. If necessary, 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 complements each farmer's operation. Periodic removal of woody vegetation will be required to maintain an herbaceous or successional shrub state composed of native species.

Substation and Switchyard Construction

The switchyard will be designed in accordance with National Grid standards and with the Northeast Power Coordinating Council Criteria for Bulk Power Stations and criteria set for by Homeland Security. The construction of these facilities involves grading, construction of foundations for the transformers, steel work, breakers, control house, and other outdoor equipment; the erection and placement of the steel work and all outdoor equipment; and electrical work for all the required terminations. All excavation, trenching, and electrical system construction work will be done in accordance with the Project Storm Water Pollution Prevention Plan (SWPPP) (see Appendix G). Prior to construction, site-specific SWPPPs will be submitted to NYSDEC, as required. Construction work will require the use of bulldozers, a drill rig and concrete trucks, a trencher, a back-hoe, front end loaders, dump trucks, transportation trucks for the materials, boom trucks and cranes, and man-lift bucket trucks. The footprint for the substation will be approximately 200 by 300 feet and the footprint for the switchyard will be approximately 300 by 500 feet.

Local Haul Roads

Temporary improvements may be required along existing public roads within the Project Area to accommodate the turning radii required for delivery of equipment and materials for all portions of the Project. Details of the temporary road improvements required and a description of the Local Haul Route are included in the Haul Route Wetlands and Waterbodies Study (see Appendix F).

Best Management Practices

Best management practices (BMPs) will be used during construction. Measures that will be implemented to avoid or minimize impacts to environmental resources include, but are not limited to:

- Using appropriate erosion control and BMPs during construction;
- Limiting access of construction vehicles in sensitive areas;

1. Description of Proposed Action

- Using existing access roads to the extent possible;
- Crossing streams perpendicular to the direction of flow;
- Using wetland mats and temporary culverts and bridges where practicable;
- Installing overhead electrical lines from areas outside of wetlands and water-bodies where possible;
- Marking sensitive resources in the field prior to the start of construction;
- Ensuring that an environmental monitor is on site during construction;
- Stabilizing and revegetating disturbed areas as soon as possible; and
- Inspecting work post restoration to verify the success of restoration.

Environmental Monitoring

Construction activities will be monitored to ensure compliance with applicable permit conditions, the SWPPP, and BMPs. To facilitate this, Noble will create a project-specific Environmental Monitoring Plan. The plan will contain permit conditions and other commitments required of Noble during the Environmental Impact Statement (EIS) process including those associated with wetland and stream disturbance, vegetation removal, invasive species control, stormwater management, erosion control, and agricultural impacts. Noble will retain an environmental monitor(s) 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 Villenova, the Town of Hanover, and involved and interested agencies as needed and/or requested. The environmental monitor will have full stop-work authority.

1.2.3 Operation and Maintenance

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

Noble plans to operate the Project with eight full-time employees. Six of these employees will perform routine, preventative maintenance and unplanned work on the turbines under an O&M contract. A facility manager and an administrative assistant will be responsible for all O&M 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 local landowners. Large repair tasks will be accomplished using both Project employees and contractors. Noble will construct an O&M facility on approximately 5 acres within the Project Area, which would house these activities. The O&M building will be approximately 50 feet by 100 feet. The O&M facility is proposed

1. Description of Proposed Action

to be constructed within one of the laydown areas depicted on Figure 1.1-2; however, the final location is subject to change based on landowner consent. Prior to agreeing to any change, Noble will complete appropriate surveys to ensure there are no impacts to wetlands and archaeological resources.

The operational staff will maintain the turbines, including routine maintenance, long-term maintenance, and emergency work. 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. In all cases, the facility staff will be responsible for facilitating the needed repair either through internal resources or with the aid of additional contractor support. In the event that temporary impacts are required for future maintenance, Noble will obtain necessary permits from the USACE and NYSDEC on an as-needed basis.

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 expected that the Project will require only minimal use of herbicides to control vegetation along access roads, turbine maintenance areas, or electrical collection ROWs. Generally, access roads 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. If the use of herbicides becomes necessary to control vegetation, application will be performed by a certified contractor and in accordance with all applicable regulations and BMPs. 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 all 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.