

Jericho Rise Wind Farm

Decommissioning Plan (Updated October 2015)

A Decommissioning Plan for the Project was included as Exhibit 8 in the Local Permit Application that was submitted in 2007, and is appended to this document. The original plan describes: 1) the estimated life of the Project and turbines; 2) the estimated cost of decommissioning; 3) how said estimate was determined; 4) the method of ensuring that funds will be available for decommissioning and restoration; 5) acknowledgement that the decommissioning costs will be re-estimated, by a licensed engineer, every three years and that the decommissioning costs will be kept current indexed to inflation, and; 6) the manner in which WECS will be decommissioned and the site will be restored and remains accurate, except for the cost estimates. A revised estimate of the cost of turbine decommissioning is included below in Table 1. Based on this cost estimate and the currently proposed 37 turbine layout, the total cost of decommissioning the Project in 2015 dollars is \$3,779,057.9, although this cost will be offset by the salvage value of the towers and turbine components.

Table 1. Estimated Cost of Decommissioning in 2015 Dollars per Wind Turbine.

Removal of Tower	270 man hours x \$97.55/hour Cranes (2), 5 days x \$6,885.58/day	\$26,338.5 \$34,427.90
Removal of Concrete to 48 inches below grade	150 man hours x \$97.55/hour Equipment, 3 days x \$2,868.99/day	\$14,632.5 \$8,606.97
Removal of Collection System	100 man hours x \$97.55/hour Equipment, 2 days x \$4,016.59/day	\$9,755 \$8,033.18
Seeding and Re-vegetation (Assumes 2 acres/turbine, including collection system)	3 man hours x \$97.55/hour	\$292.65
Total Removal Costs Per Turbine		\$102,136.7
Scrap Value of Tower Steel	200 tons x \$172.14/ton	\$34,428
Scrap Value of Generator Components	Per turbine	\$5,737.98
Total Salvage Value Per Turbine		\$40,165.88
Estimated Per Turbine Net Cost of Decommissioning (Total Removal Cost Less Estimated Salvage Value)		\$61,970.82

Consistent with the original Decommissioning Plan, the Applicant will continuously maintain a surety bond or equivalent financial security instrument payable to the Town for the removal of wind turbines and appurtenant facilities, in a form and amount approved by the Chateaugay and Belmont Town Boards for the period of the life of the facility. The

Applicant will in writing, request approval of a proposed surety bond or financial security instrument in a proposed amount not less than \$10,000 per turbine, or a total of \$370,000 (assuming 37 turbines), renewable on an annual basis, for the removal of non-functioning turbines and associated facilities as shown in Table 1. In addition to this initial bond, the Applicant proposes to secure a second, larger bond at or by the fifteenth year of operation for the total estimated cost of decommissioning to be determined by an independent licensed engineer during the fifteenth year of operation.

The estimated costs associated with decommissioning and restoration will be evaluated by an independent licensed engineer retained by the Applicant on a cycle beginning after the operations date of the wind farm and will be reviewed every three years thereafter for the life of the wind farm. A report summarizing the results of each review will be submitted to the Town Boards. Any adjustment in the security value recommended by the engineer's report will be made within 60 days of delivery of the report to the Town Boards.

**Exhibit 8
Decommissioning Plan**

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Jericho Rise Wind Farm Decommissioning Plan

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Appendix A. Estimated Cost of Decommissioning Per Turbine

1.0 Anticipated Life of WECS

Megawatt-scale wind turbine generators available on the market today have a life expectancy of more than 20 years. The tubular steel towers supporting the generators are of simple design and with basic routine maintenance will serve many years beyond the life expectancy of the generators.

As the turbine generators to be installed for the Jericho Rise Wind Farm (Project) approach the end of their expected life, technological advances should make available more efficient and cost-effective generators that will economically drive the replacement of the existing generators and thus prolong the economic life of the Project. In the event that this doesn't happen and the Wind Energy Conversion System (WECS) needs to be decommissioned, the following write-up provides a description of the decommissioning work and the estimated costs associated with that work.

2.0 Estimated Cost of Decommissioning

The estimated decommissioning costs per WECS were prepared using available information from a variety of credible industry sources. As provided in Appendix A, the current cost of decommissioning WECS is estimated to be approximately \$54,000 per turbine in 2007 dollars, although this cost will be offset by the salvage value of the towers and the turbine components. According to Article II § 17(c), this estimate shall be reevaluated every three years for changes in costs of decommissioning and restoration as well as adjusted for inflation.

3.0 Ensuring Decommissioning and Site Restoration Funds

The Applicant will continuously maintain a surety bond or equivalent financial security instrument payable to the Town for the removal of non-functioning WECS and appurtenant facilities, in a form and amount approved by the Town Board for the period of the life of the facility. Prior to the commencement of construction of any WECS included in the Project, the Applicant will, in writing, request approval of a proposed surety bond or financial security instrument in a proposed amount not less than \$10,000 per turbine, or a total of \$530,000 (assuming 53 WECS), renewable on an annual basis, for the removal of non-functioning turbines and associated facilities as described in Appendix A.

The costs associated with decommissioning and restoration will be studied by an independent licensed engineer retained by the Applicant on a cycle beginning after the operations date of the wind farm and every three years thereafter for the life of the wind farm. A report of each study will be submitted to the Town Board. Any adjustment in the security value recommended by the engineer's report will be made within 60 days of delivery of the report to the Town Board.

In addition to this initial bond, the Applicant proposes to secure a second, larger bond at or by the fifteenth year of operation for the total estimated cost of decommissioning to be determined by an independent licensed engineer during the fifteenth year of operation.

4.0 Decommissioning Process Description

All decommissioning and restoration activities will adhere to the requirements of appropriate governing authorities, and will be in accordance with all applicable federal, state, and local permits.

The decommissioning and restoration process comprises removal of above-ground structures; removal of below-ground structures to a depth of 48 inches; restoration of topsoil, re-vegetation and seeding; and a two year monitoring and remediation period. Access roads, fencing and residual minor improvements will not be removed unless the underlying landowner requests that they be removed.

Above-ground structures include the turbines, transformers, overhead collection lines, wind farm-owned portions of the substation, maintenance buildings, and access gates. Below-ground structures include turbine foundations, collection system conduits, and drainage structures.

The process of removing structures involves evaluating and categorizing all components and materials into categories of recondition and reuse, salvage, recycling, and disposal. In the interest of increased efficiency and minimal transportation impacts, components and material may be stored on-site in a pre-approved location until the bulk of similar components or materials are ready for transport. The components and material will be transported to the appropriate facilities for reconditioning, salvage, recycling, or disposal.

4.1 WECS removal

Access roads to turbines may be widened temporarily to sufficient width to accommodate movement of appropriately sized cranes or other machinery required for the disassembly and removal of the turbines. High value components will be stripped. The remaining material will be reduced to shippable dimension and transported off site for proper disposal. Control cabinets, electronic components, and internal cables will be removed. The blades, hub and nacelle will be lowered to grade for disassembly. The tower sections will be lowered to the ground where they will be further disassembled into transportable sections. The blades, hub, nacelle, and tower sections will either be transported whole for reconditioning and reuse or dissembled into salvageable, recyclable, or disposable components. The area will be thoroughly cleaned and all debris removed.

4.2 WECS foundation removal

Topsoil will be removed from an area surrounding the foundation and stored for later replacement. Turbine foundations will be excavated to a depth sufficient to remove all anchor bolts, rebar, conduits, cable, and concrete to a depth of 48 inches below grade. After removal of all noted foundation materials, the hole will be filled with clean sub-grade material of quality comparable to the immediate surrounding area. The sub-grade material will be compacted to a density similar to surrounding sub-grade material. All unexcavated areas compacted by equipment used in decommissioning shall be de-compacted in a manner to adequately restore the topsoil and sub-grade material to the proper density consistent and compatible with the surrounding area. The area will be thoroughly cleaned and all debris removed.

4.3 Underground electrical collection system

The cables and conduits contain no materials known to be harmful to the environment and will be cut back to a depth of at least 48 inches. All cable and conduit buried greater than 48 inches will be left in place and abandoned.

4.4 Overhead collection lines

The conductors will be removed and stored in a pre-approved location. Switches and other hardware will be removed and delivered to a processing company for recycling. The supporting poles will be removed and the holes filled in with compatible sub-grade material. In areas where environmental damage from complete removal may outweigh the benefits, the poles will be

sawed flush with the surrounding grade (determined by appropriate governing authority). The poles will be stored in a pre-approved location. Stored conductors and poles will be later removed and transported to appropriate facilities for salvage or disposal. The area will be thoroughly cleaned and all debris removed

4.5 Substation

Disassembly of the substation(s) will include only the areas owned by the Applicant (any System Upgrades made by the Applicant and conveyed to the transmission owner or any improvements made to the NYSEG local distribution system will remain in place). Steel, conductors, switches, transformers, etc. will be reconditioned and reused, sold as scrap, recycled, or disposed of appropriately depending upon market value. Foundations and underground components will be removed to a depth of 48 inches and the excavation filled, contoured, and re-vegetated. All unexcavated areas compacted by equipment used in decommissioning shall be de-compacted in a manner to adequately restore the topsoil and sub-grade material to the proper density consistent and compatible with the surrounding area. The area will be thoroughly cleaned and all debris removed

Improvements to Town and County roads that were not removed after construction at the request of the Town or County will likely remain in place.

5.0 Site Restoration Process Description

To the extent necessary, topsoil will be removed prior to removal of structures from all work areas and stockpiled, clearly designated, and separate from other excavated material. Prior to topsoil replacement, all rocks four (4) inches or greater will be removed from the surface of the subsoil. The topsoil will be de-compacted to match the density and consistency of the immediate surrounding area. The topsoil will be replaced to original depth, and original surface contours reestablished where possible. All rocks four (4) inches or larger will be removed from the surface of the topsoil. Any topsoil deficiency and trench settling shall be mitigated with imported topsoil consistent with the quality of the affected site.

In accordance with guidelines provided by New York State Department of Agriculture and Markets, topsoil de-compaction and replacement will be avoided after October 1, unless approved by the landowner in consultation with the New York State Department of Agriculture and Markets since areas restored after October 1 may not obtain sufficient growth to prevent erosion over the winter months. If areas are restored after October 1, provision will be made to restore any eroded areas in the springtime to establish proper growth.

Following decommissioning activities, the sub-grade material and topsoil from all affected agricultural areas will be de-compacted and restored to a density and depth consistent with the surrounding fields or to a depth of 18 inches. The affected areas will be inspected, thoroughly cleaned, and all debris removed.

All disturbed soil surfaces within agricultural fields will be seeded with a seed mix agreed upon with the landowner in order to maintain consistency with the surrounding agricultural uses. All other disturbed areas will be restored to a condition and forage density reasonably similar to original condition. In all areas restoration shall include, as reasonably required, leveling, terracing, mulching, and other necessary steps to prevent soil erosion, to ensure establishment of suitable grasses and forbs, and to control noxious weeds and pests.

In accordance with the guidelines of the New York State Department of Agriculture and Markets, a monitoring and remediation period of two years immediately following the completion of any decommissioning and restoration activities will be provided. The two-year period allows for the effects of climatic cycles such as frost action, precipitation and growing seasons to occur from which various monitoring determinations can be made. Any remaining agriculture impacts can be identified during this period and follow-up restoration efforts will be implemented.

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APPENDIX A

ESTIMATED COST OF DECOMMISSIONING PER TURBINE

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Estimated Cost of Decommissioning Per Turbine*

Decommissioning cost per tower (in current dollars)		
Removal of a Tower:	270 man-hours x \$85/hour	\$22,950.00
	Cranes (2), 5 days use x \$6,000/day	\$30,000.00
Removal of concrete to 48" below grade:	150 man-hours x \$85/hour	\$12,750.00
	Equipment, 3 days use x \$2,500/day	\$7,500.00
Removal Collection System (average of 2,112 feet/turbine):	100 man-hours x \$85/hour	\$8,500.00
	Equipment, 2 days use x \$3,500/day	\$7,000.00
Seeding and Re-vegetation (average of ~2 acres/turbine including collection system):	3 man-hours x \$85/hour	\$255.00
Total Removal Costs		\$88,955.00
Salvage value per unit:	Scrap value of tower steel (200 tons x \$150/ton):	\$30,000.00
	Scrap value of generator components:	\$5,000.00
Total Salvage Value		\$35,000.00
Estimated cost of decommissioning, minus salvage value**		\$53,955.00

* Costs estimated using a variety of credible industry sources, current market prices, and current dollar value.

** The costs associated with decommissioning and restoration will be studied by an independent licensed engineer on a cycle beginning after the operations date of the wind farm and every three years thereafter for the life of the wind farm.

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