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Decommissioning Plan

Ball Hill Wind Energy Project Decommissioning Plan

The expected useful life of the Project components is 25 to 30 years, although it is reasonable to expect that this life can and will be extended by proper maintenance.

Wind Energy Conversion Facilities/Systems Decommissioning Process Description

Equipment Removal

1. Turbine Removal – Appropriate sized cranes will be mobilized and the hub, along with blades and nacelle, will be removed to ground level for a scrap company to breakdown and strip high-value components. The remaining material will be reduced to shippable dimensions and transported off site for proper disposal. The internal cabling will be removed and stored prior to delivery to a scrap company for recovery of high-value copper conductor materials. The tower sections will be lowered to grade so they can be cut into transportable sections for delivery to a scrap iron purchaser. Control cabinets in the base will be stripped of high-value components and the balance will be turned over to a scrap company for haul and disposal. The area will be thoroughly cleaned and all debris will be removed.
2. Substation Transformer(s) – Transformers will be removed and, depending on the condition, will be sold for re-use or sent to a specialty scrap company for recycling where any hazardous materials would be properly disposed of.

Foundation Removal

Turbine and Substation Equipment Foundations – Topsoil will be removed to a proper storage pile to expose subgrade materials, and that area will be excavated to expose the turbine foundation pedestal. All anchor bolts, rebar, conduits, and concrete in the pedestal will be removed to a minimum depth of 48 inches below grade in agricultural lands in accordance with New York State Department of Agriculture and Markets (NYSDAM) guidelines, and a minimum depth of 36 inches below grade in all other areas. After removal of all noted foundation materials, the holes will be filled with clean compatible subgrade material that is compacted to a density similar to the surrounding fields, covered with the topsoil from the protected stockpile of material, and then graded to match adjacent contours. All unexcavated areas compacted by equipment used during decommissioning shall be tilled in a manner adequate to restore the topsoil and subgrade material to the proper density consistent with the surrounding fields. The area will be thoroughly cleaned and all debris removed. All restoration activities in agricultural fields will be done in accordance with NYSDAM guidelines.

Underground Electrical Collection System

The underground electrical collection system will be designed and installed such that the main conductors will have a minimum of 42 inches of cover and at least 48 inches of cover in agricultural lands. The design includes the installation of a warning tape and a tracer cable system to warn anyone who may be digging in the area both during plant operations and after decommissioning. The design is planned for safety by ensuring sufficient cover over the system to ensure that the conductors will not be disturbed during normal agricultural operations.

Cables will be cut back in the area of the pad mounts to minimum depth of 48 inches below grade in agricultural land, and a minimum of 36 inches below grade in all other areas. The remaining cabling may be removed for recovery of high-value copper and aluminum conductor material or left in place.

Roadways/Rigging Pads

After completion of decommissioning activities at each turbine site and access road, rigging pad removal shall commence. Gravel will be removed from road and rigging pad surfaces and transported from the site to an approved disposal location. The disposal location will be approved by the appropriate governing authority prior to the start of the decommissioning program. Geo-textile fabric (a tightly woven separation fabric placed during construction on the subgrade under the gravel to keep the gravel from being pushed down into the subgrade during wet periods) will be recovered and hauled off site to an appropriate disposal site. All drainage structures (including culverts and riprap) will be removed, hauled off-site to an appropriate disposal site, and these areas will then be backfilled with clean, compatible sub-grade material. All road and other areas compacted during original construction or by equipment used in the decommissioning shall be tilled in a manner adequate to restore the subgrade material to the proper density and depth consistent with the surrounding fields. Low areas will be filled with clean, compatible subgrade material. After proper subgrade depth is established, topsoil will be placed to a depth, density, and finished contour consistent with the surrounding field. All restoration activities in agricultural fields will be done in accordance with NYSDAM guidelines.

Access security gates will be maintained at all times until the road removal process is complete and the area is ready to be demobilized. The gate shall be removed and all materials recycled to the greatest extent possible. The ditch crossing will be removed if requested by the landowner and approved by the appropriate authorities having jurisdiction over roads and drainage. The area will be thoroughly cleaned and all debris will be removed.

All decommissioning activities shall be performed in accordance with all applicable federal, state, and local requirements in effect at the time of decommissioning.

Financial Security for Decommissioning Costs

As detailed below, the costs of decommissioning Project components, average salvage values for various components, and a net decommissioning cost per turbine have been carefully estimated by LVI Services, the nation's largest remediation and facility services firm. In accordance with the Town of Villenova Wind Law, Ball Hill will establish financial security in a form and amount acceptable to the Town which may be a decommissioning bond or fund payable to the Town and can consist of a letter of credit. The net decommissioning costs based on average salvage values and projected labor rates, updated to 2016 at rates provided by LVI, are estimated to be \$22,705.83 per wind energy conversion system (WECS). The financial security instrument will be maintained by Ball Hill or its successors for the life of the Project and can be accessed by the town for decommissioning, if needed.

Updating of Decommissioning Costs

Applicant will review and revise all estimated decommissioning costs on or before each five-year anniversary of the Project's first date of commercial operations, and notify the Town of Villenova of any changes. The details of the timing and nature of the updated calculations will be included in the Host Community Agreement between the Applicant and the Town.

Revegetation and Reseeding

All Project areas not under cultivation or reserved for some other use by property owners will be revegetated or reseeded, as appropriate. Revegetation of the disturbed areas will be part of the restoration of the area to surrounding land use in the same manner as described for restoring areas temporarily impacted during construction. Reseeding in agricultural areas will be conducted in accordance with NYSDAM guidelines.

Table 12 Budgetary Estimate/Opinion of Cost for Ball Hill Wind Energy Conversion Facility Decommissioning

(prepared by LVI Environmental Services, Inc., 7/13/08 and adjusted per LVI for 2016)

Turbine Equipment Removal

Remove Blades/Hub				
Item	Quantity	Unit	Unit Cost	Extended
Supervision	8	hour	93.50	748.00
Crane w/ Operator	1	day	3,190.	3,190.00
Operators	16	hour	88.00	1,408.00
Labor	8	hour	71.50	572.00
Support Equipment*	1	day	990.00	990.00
Consumables/Fuel	8	hour	176.00	1,408.00
Concrete/Clean Fill Recycling	0	ton	7.70	0.00
C&D Waste Disposal	25	ton	71.50	1,787.50
Steel Salvage	0	ton	(220.00)	0.00
Aluminum Cable Salvage	0	pound	(0.45)	0.00
Copper Cable Salvage	0	pound	(2.38)	0.00
Component Salvage	0	each	0.00	0.00
Sub Total				10,103.50
				10,103.50

*Support Equipment consists of one (1) 100K Lb. excavator with attachments, one (1) loader, one (1) skidsteer, one (1) pickup truck and one (1) site trailer.

Remove Nacelle				
Item	Quantity	Unit	Unit Cost	Extended
Supervision	4	hour	93.50	340.00
Crane w/ Operator	1	day	3,190.00	3,190.00
Operators	16	hour	88.00	1,408.00
Labor	8	hour	71.50	572.00
Support Equipment*	1	day	990.00	990.00
Consumables/Fuel	8	hour	176.00	1,408.00
Concrete/Clean Fill Recycling	0	ton	7.70	0.00
C&D Waste Disposal	0	ton	65.00	0.00
Steel Salvage	3	ton	(220.00)	0.00
Aluminum Cable Salvage	150	pound	(0.45)	0.00
Copper Cable Salvage	50	pound	(2.38)	0.00
Component Salvage	1	each	(5,000.00)	(5,000.00)
Sub Total				2,908.00
				2,908.00

Dismantle Tower

Item	Quantity	Unit	Unit Cost	Extended	
Supervision	8	hour	93.50	748.00	
Crane w/ Operator	2	day	3,190.	6,380.0	
Operators	32	hour	88.00	2,816.0	
Labor	32	hour	71.50	2,288.0	
Support Equipment*	2	day	990.00	1,980.0	
Consumables/Fuel	16	hour	176.00	2,816.0	
Concrete/Clean Fill Recycling	0	ton	7.70	0.00	
C&D Waste Disposal	0	ton	71.50	0.00	
Steel Salvage	138	ton	(220.00)	(30,360.00)	
Aluminum Cable Salvage	475	pound	(0.45)	(213.75)	
Copper Cable Salvage	130	pound	(2.38)	(309.40)	
Component Salvage		each		0.00	
Sub Total				(13,855.15)	(13,855.15)

Foundation Removal

Item	Quantity	Unit	Unit Cost	Extended	
Supervision	8	hour	93.50	748.00	
Crane w/ Operator	0	day	3,190.	0.00	
Operators	32	hour	88.00	2,816.0	
Labor	0	hour	65.00	0.00	
Support Equipment*	2	day	990.00	1,980.0	
Consumables/Fuel	16	hour	176.00	2,816.0	
Concrete/Clean Fill Recycling	676	ton	7.70	5,205.2	
C&D Waste Disposal	0	ton	65.00	0.00	
Steel Salvage (Rebar)	6	ton	(190.00)	(1,140.00)	
Aluminum Cable Salvage	100	pound	(0.45)	(45.00)	
Copper Cable Salvage	30	pound	(2.38)	(71.40)	
Component Salvage	1	each	(250.0)	(250.00)	
Sub Total				12,058.80	12,058.80

Backfill/Restoration

Item	Quantity	Unit	Unit Cost	Extended	
Supervision	8	hour	93.50	748.00	
Crane w/ Operator	0	day	3,190.	0.00	
Operators	16	hour	88.00	1,408.00	
Labor	8	hour	71.50	572.00	
Support Equipment*	1	day	990.0	990.00	
Consumables/Fuel	4	hour	176.0	704.00	
Topsoil	45	cubic yard	19.80	891.00	
Re-seed/Vegetation	470	square foot	0.22	1034.00	
Steel Salvage	0	ton	(220.00)	0.00	
Aluminum Cable Salvage	0	pound	(0.45)	0.00	
Copper Cable Salvage	0	pound	(2.38)	0.00	
Component Salvage	0	each		0.00	
Sub Total				6,347.00	6,347.00

TOTAL per Tower/Turbine	\$17,562
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No. of Towers/Turbines	29
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TOTAL for Towers/Turbines	\$509,302
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Collection, Substation & Roads**Overhead Collection**

Item	Quantity	Unit	Unit Cost	Extended	
Supervision	8	hour	93.50	748.00	
Crane w/ Operator	0	day	3,190.	0.00	
Operators	8	hour	88.00	704.00	
Labor	16	hour	71.50	1,144.00	
Support Equipment*	1	day	990.00	990.00	
Consumables/Fuel	8	hour	176.00	1,408.00	
Concrete/Clean Fill Recycling	0	ton	7.70	0.00	
C&D Waste Disposal	5	ton	71.50	357.50	
Steel Salvage	0	ton	(220.00)	0.00	
Aluminum Cable Salvage	20	pound	(0.45)	(9.00)	
Copper Cable Salvage	30	pound	(2.38)	(71.40)	
Component Salvage	0	each	0.00	0.00	
Sub Total				5,271.10	5,271.10

Underground Collection

Item	Quantity	Unit	Unit Cost	Extended	
Supervision	160	hour	93.50	14,960.00	
Crane w/ Operator	0	day	3,190.00	0.00	
Operators	160	hour	88.00	14,080.00	
Labor	160	hour	71.50	11,440.00	
Support Equipment*	20	day	990.00	19,800.00	
Consumables/Fuel	160	hour	176.00	28,160.00	
Concrete/Clean Fill Recycling	0	ton	7.70	0.00	
C&D Waste Disposal	80	ton	71.50	5,720.00	
Steel Salvage	0	ton	(220.00)	0.00	
Aluminum Cable Salvage	186750	pound	(0.45)	(84,037.50)	
Copper Cable Salvage	13275	pound	(2.38)	(31,594.50)	
Component Salvage	0	each	0.00	0.00	
Sub Total				(21,472.00)	(21,472.00)

Substation

Item	Quantity	Unit	Unit Cost	Extended	
Supervision	16	hour	93.50	1,496.00	
Crane w/ Operator	0	day	3,190.00	0.00	
Operators	32	hour	88.00	2,816.00	
Labor	16	hour	71.50	1,144.00	
Support Equipment*	2	day	990.00	1,980.00	
Consumables/Fuel	16	hour	176.00	2,816.00	
Concrete/Clean Fill Recycling	60	ton	7.70	462.00	
C&D Waste Disposal	10	ton	71.50	715.00	
Steel Salvage	5	ton	(220.00)	(1,100.00)	
Aluminum Cable Salvage	1000	pound	(0.45)	(450.00)	
Copper Cable Salvage	150	pound	(2.38)	(357.00)	
Component Salvage	1	each	(2,000.00)	(2,000.00)	
Sub Total				7,522.00	7,522.00

Roads

Item	Quantity	Unit	Unit Cost	Extended	
Supervision	144	hour	93.50	13,464.00	
Crane w/ Operator	0	day	3,190.	0.00	
Operators	288	hour	88.00	25,344.00	
Labor	144	hour	71.50	10,296.00	
Support Equipment*	18	day	990.00	17,820.00	
Consumables/Fuel	144	hour	176.00	25,344.00	
Concrete/Clean Fill Recycling	8100	ton	7.70	62,370.00	
C&D Waste Disposal	45	ton	71.50	3,217.50	
Steel Salvage	0	ton	(220.00)	0.00	
Aluminum Cable Salvage	0	pound	(0.45)	0.00	
Copper Cable Salvage	0	pound	(2.38)	0.00	
Component Salvage	0	each	0.00	0.00	
Sub Total				157,845.50	157,845.50

GRAND TOTAL \$658,469

Per WECS: \$22,705.83