A DECOMMISSIONING PLAN FOR

Livingston Wind Project

Livingston County, Illinois

MARCH 11, 2022 (UPDATED APRIL 12, 2022)

PREPARED FOR:

EDF renewables

PREPARED BY:

Westwood

Westwood

Decommissioning Plan

Livingston Wind Project

Livingston County, Illinois

Prepared for:

EDF Renewables
10 Second Street NE, Suite 400Minneapolis, MN 55413

Prepared by:

Westwood Professional Services
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
(952) 937-5150

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Attachments

1.0 Introduction / Project Description

The Livingston Wind Project (Facility) is a wind power generation project proposed by EDF Renewables (Applicant) in Livingston County, Illinois. The Facility includes the construction of permanent facilities of 78 GE 3.4-megawatt (MW) wind turbines with 140-meter rotor diameters and 81-meter hub heights, access roads, three (3) meteorological (met) tower, a substation, underground collection lines, a transmission line, and an operation and maintenance (O&M) facility. Please refer to the Site Map in Attachment A for a layout diagram of the facility.

This Decommissioning Plan has been prepared in accordance with the Livingston County, IL Code of Ordinances Sec. 56-624. – Decommissioning plan/deconstruction plan requirements, as well as the Agricultural Impact Mitigation Agreement through the Illinois Department of Agriculture. The purpose of the Plan is to describe the means and methods that can be used to remove project facilities, and reclaim, restore, and return the land altered during the construction and operation of the wind project to its predevelopment condition to the extent feasible. The Plan identifies components which may be removed, and the areas that may be restored once the Facility has surpassed the useful lifespan of the turbines and facilities. The plan is required to be updated every 3 years.

The useful life of commercial size turbines is generally considered to be 40 years. At that time, the project will either be decommissioned or repowered with newer technology. This decommissioning plan reflects the full decommissioning of the Facility, including removal of all infrastructure and equipment, and reclamation of the site to match previous land use, unless otherwise specified.

2.0 Proposed Future Land Use

Prior to the development of the Facility, the land use of the project area was primarily agricultural land. After the developed areas of the Facilities are decommissioned, they will be returned to their predevelopment condition, meaning they will be tilled to a farmable condition. Please refer to Section 3.2 for a detailed description of reclamation activities.

3.0 Engineering Techniques

Decommissioning of the wind farm includes multiple phases and activities such as:

- Application of necessary sediment and erosion controls during and following decommissioning activities.
- Public road modifications (if required) and access road improvements to accommodate heavy equipment traffic during decommissioning.
- Removal of aboveground components (turbines, transformers, and substation) for either resale or scrap.
- Removal of turbine foundations to a depth of 5 feet below grade.
- Removal of other underground components (junction boxes, transformer and substation foundations) to a depth of 5 feet below grade.

- Removal of private access roads (unless the landowners request the roads to remain) and decompaction.
- Reclamation, re-grading, and restoration of disturbed areas including topsoil reapplication and decompaction of soils.
- Repair and/or restoration of public roads and culverts to pre-decommissioning conditions, as required.

During decommissioning the landowners will be consulted to identify the extent and type of work to be completed. Some Facility infrastructure, such as the access roads, may be left in place at the landowners' requests. Underground utility lines, if deeper than 5 feet below ground surface elevation, may be left in place to minimize land disturbance and associated impacts to future land use.

Decommissioning will include the removal and transportation of all turbine components from the Facility site. Decommissioning will also include the removal of electrical components, foundations, and any other associated facilities in the manner described in the Plan, unless otherwise agreed upon by Applicant and the applicable landowner(s). All dismantling, removal, recycling, and disposal of materials generated during decommissioning will comply with rules, regulations, and prevailing Federal, State, and local laws at the time decommissioning is initiated, and will use approved local or regional disposal or recycling sites as available. Recyclable materials will be recycled to the furthest extent practicable. Non-recyclable materials will be disposed of in accordance with State and Federal law.

3.1 Decommissioning of Project Components

3.1.1 Public Road Improvement and Access Road Modifications and Removal

As the cost estimate is based on scrapping and recycling turbine components where possible, sections of public roads that have insufficient strength to accommodate the construction traffic necessary for decommissioning will need to be improved prior to the start of hauling operations. Intersection turning radius modifications are not anticipated since turbine components will be cut to fit on standard semitrailer trucks. The roads subjected to decommissioning traffic will be restored to a condition equal to or better than the condition of the road prior to decommissioning activities. A pre-decommissioning road survey will be prepared for the decommissioning activities, similar to a pre-construction survey, so that road conditions pre- and post-decommissioning can be accurately assessed. Aggregate removed from the Facility access roads is a potential source for the public road restoration material.

3.1.2 Wind Turbine Felling

This cost estimate assumes that the turbines not being resold will be brought to the ground using the technique of "felling." Once on the ground, the turbines will be disassembled and processed for recycling. The felling technique has been used on numerous wind decommissioning projects and has several advantages over disassembly using large crawler cranes. Felling of turbine eliminates the use of crane paths and crane pads that are otherwise necessary to disassemble the components of a turbine. In addition to the costs associated with preparing crane paths and pads, this method will reduce the total disturbed area that needs to be reclaimed and

restored during the decommissioning process. The elimination of the use of large cranes also reduces the number of trucks delivering and removing equipment, and reduces the time required for decommissioning. Felling consists of disconnecting electrical connections and draining oil, hydraulic fluid, and any other liquids from the turbine. A long cable is attached to the nacelle and to a heavy piece of equipment, such as a bulldozer, positioned on the access road. Wedge shaped areas are then cut out of the tower steel using cutting torches to create a hinge that will direct the turbine to fall on the access road when pulled by the dozer.

3.1.3 Turbine Foundation Removal and Restoration

The turbine foundations are constructed from concrete and rebar. Little topsoil stripping will be required since the portion of the foundation less than five feet deep is within the gravel ring around each turbine. The foundation will first be exposed using backhoes or other earth moving equipment. The pedestal (upper part of the turbine foundation) will then be removed to a depth of at least five feet below grade using hydraulic vibratory hammers to break up the concrete. The rebar can be cut with torches or cutoff saws. The concrete will be broken into pieces sized for transport. The foundation debris will be hauled off site to be recycled or disposed of, depending on market prices for aggregate at the time of decommissioning. The rebar will be recycled.

Following removal of the turbine foundation, the resulting void will be backfilled with native subsoils and compacted to at least 85% of the fill material's standard Proctor density. Topsoil will be reapplied to the site and graded to match surrounding grade to preserve existing drainage patterns. The topsoil and subsoil will be decompacted to a minimum depth of 18 inches and revegetated to match pre-construction conditions or prepared for planting if farming activities are to resume.

3.1.4 Access Roads

Removal of access roads will entail removal of the road base aggregate and any other materials used for constructing the roads. During removal, the topsoil adjacent to both sides of the roads will be stripped and stockpiled in a windrow paralleling the road. The road base materials will then be removed by bulldozers, wheeled loaders, or backhoes, and hauled off-site in dump trucks to be recycled or disposed of at an off-site facility. On-site processing may allow much of the aggregate to be re-used to improve public roads. The aggregate base can often be used by local landowners for driveway or clean fill. Another option is to use the aggregate base as "daily cover" at a landfill, where it is usually accepted without cost. If geotextile fabric was utilized under the aggregate base, it will be removed and disposed of in a landfill off-site. The access road removal will proceed from the turbine area to the public roads to limit tracking and provide stable access during removal. Following removal, topsoil will be reapplied and graded to blend with surrounding contours to promote pre-construction drainage patterns. Topsoil to cover the access roads, turbine rings, and met tower rings will be acquired from the areas where it was stockpiled (or wasted) during the original construction. Since topsoil stayed with each landowner during the construction of the wind farm there will be adequate topsoil to restore each area to its pre-construction condition. The soil and topsoil will then be decompacted to a

minimum depth of 18 inches and restored to pre-construction tillable conditions or revegetated.

3.1.5 Underground Electrical Collection Lines

The electrical cables and fiber optic conduits contain no material known to be harmful to the environment but will still be removed to five feet below grad unless otherwise negotiated with individual landowners. Aboveground cables, such as cables entering and exiting the turbine foundations, junction boxes, or substation components, will be removed. Following any necessary removal, the area affected will be restored by reapplication of topsoil to match the surrounding grade and preserve existing drainage patterns. The topsoil and subsoil will be decompacted to a minimum depth of 18 inches and revegetated to match pre-construction conditions.

3.1.6 Substation

Decommissioning of the project substation will be performed with the rest of the Facility. All steel, conductors, switches, transformers, and other components of the substation will be disassembled and taken off-site to be recycled or reused. Foundations and underground components will be removed to a depth of 5 feet. The rock base will be removed using bulldozers and backhoes or front loaders. The material will be hauled from the site using dump trucks to be recycled or disposed at on off-site facility. Additionally, any permanent storm water treatment facilities will be removed. Topsoil will be reapplied to match surrounding grade to preserve existing drainage patterns. Topsoil and subsoil will be decompacted to a minimum depth of 18 inches and the site will be revegetated to match pre-construction conditions.

3.1.7 Operations and Maintenance Building

The O&M Building is a sturdy, general purpose steel building. If the building is not repurposed, decommissioning will include disconnection of the utilities, demolition of the building structure, foundation, and rock base parking lot, and associated vegetated/stormwater handling facilities. All associated materials will be removed from the site using wheeled loaders or backhoes and bulldozers and hauled off site in dump trucks. All materials which are able to be recycled will be brought to appropriate facilities and sold; the remaining materials will be disposed of at an approved landfill facility. Subgrade soils will be de-compacted and graded to blend with the adjacent topography. Topsoil will be reapplied at the site and graded to blend with the surrounding grade to maintain existing drainage patterns. Topsoil will be reapplied to match existing surrounding grade to preserve existing drainage patterns, and the site will be tilled either to a farmable condition or re-vegetated, depending upon location.

3.2 Reclamation

In addition to the reclamation activities described above for each decommissioning activity, all unexcavated areas compacted by equipment and activity during the decommissioning will be decompacted to a depth of 18 inches or to a depth as needed to ensure proper density of topsoil consistent and compatible with the surrounding area and

associated land use. All materials and debris associated with the Facility decommissioning will be removed and properly recycled or disposed of at off-site facilities.

As necessary, the topsoil will be stripped and isolated prior to removal of structures and facilities for reapplication to promote future land use activities. Preservation of topsoil will be key for re-establishing vegetation at the site. The topsoil will be reapplied following backfill, as necessary, and graded to blend with adjacent contours to maintain pre-construction drainage patterns. Decompaction of the soil and topsoil will be done to a minimum depth of 18 inches.

Areas formerly used for agriculture shall be re-tilled to a farmable condition. In areas not to be used for crops, the topsoil will then be revegetated using seed mixes approved by the local Farm Service Agency, Soil and Water Conservation District, Natural Resource Conservation Service, or other state agency. The selected seed mix must be suitable for the site's annual precipitation and elevation. Temporary erosion protection such as nurse crop (annual grass to aid in establishment of permanent species), mulch, hydromulch, or erosion control blanket will be applied in accordance with the requirements of the project Storm Water Pollution Prevention Plan (SWPPP) until permanent vegetation has been established.

4.0 Best Management Practices (BMPs)

During decommissioning, erosion and sediment control BMPs will be implemented to minimize potential for erosion of site soils and sedimentation of surface waters and waters of the state. Because decommissioning will entail disturbance of more than one acre of soil, the Applicant will prepare a SWPPP and obtain coverage under the state-specific National Pollutant Discharge Elimination System (NPDES) permit prior to initiating soil disturbing activities. Potential BMPs to be implemented during decommissioning activities are described below and will be subject to refinement in the SWPPP. The decommissioning team will review the permitting requirements at the time of decommissioning, and obtain any other necessary permits, which may include a U.S. Army Corps of Engineers Section 404 Permit to Discharge Dredged or Fill Material.

4.1 Erosion Control

Erosion control measures will be refined based on the standard of practice current at the time the SWPPP is developed for decommissioning. All disturbed areas without permanent impermeable or gravel surfaces, or planned for use as crop land, will be vegetated for final stabilization. All slopes steeper than 4:1 should be protected with erosion control blankets. Restoration should include seed application prior to application of the blanket. All slopes 4:1 or flatter should be restored with seed and mulch, which will be disc anchored.

Project Phasing/Design BMP: Time periods during which disturbed soils are exposed should be minimized to the degree possible. Stabilization of soils will generally be accomplished immediately following decommissioning of the access roads, turbine sites, electrical and fiber optic cables, step-up substation, and O&M facilities. Where this is not possible, temporarily exposed soils will be temporarily stabilized with vegetation in accordance with the SWPPP for decommissioning.

Erosion Control Blankets and Seed BMP: Erosion control blanket (double sided netting with wood fiber or weed-free straw fiber blanket) will be used as temporary stabilization for areas of slopes steeper than 4:1 and for areas of concentrated flow, such as ditches, swales, and similar areas around culverts. Seed will be applied in these areas with the blanket for temporary and/or permanent vegetative growth as necessary. The SWPPP developed for decommissioning will provide detailed specifications for erosion control blankets to be used under various slope and drainage conditions.

Ditch/Channel Protection: Where new channels are formed, as in the case of culverts removed from access roads and the removal of low water crossings, the resulting channel will be protected with erosion control blankets as described in the section above.

Surface Roughening: Surface roughening or slope tracking is the act of running a dozer or other heavy tracked equipment perpendicular to the grade of disturbed slopes with a grade of 3H:1V and steeper with a continuous length of 75 feet or greater. The tracks will provide a rough surface to decrease erosion potential during an interim period until a smooth grade, seed and erosion control blanket can be applied.

Temporary Mulch Cover and Seed BMP: Temporary mulch cover (wood fiber to resist loss from grazing by wildlife or domestic animals) will be applied at a rate of two tons per acre to provide temporary erosion protection of exposed soils areas with slopes flatter than or equal to 3:1. Seed will be applied with the mulch for temporary and/or permanent vegetative growth as called for in the SWPPP. Mulch will be used for all soil types where slopes are flatter than 3:1 and no significant concentrated flows are present. The mulch will be disc-anchored to the soil to keep it from blowing away. The mulch prohibits the impact of the rain drop from dislodging soil and subsequently carrying the soil away during sheet drainage. In sandy soils tackifier may be used to assist the disc anchoring if the mulch cannot be secured to the sandy soils.

Soil Stockpiles: Topsoil that is stripped from the construction site and base materials will be stockpiled on site. Stockpile areas will be located in areas that will not interfere with the decommissioning activities, and be located away from pavement, site drainage routes, or other areas of concentrated flow. Stockpiles should also be located away from wetlands and surface waters. Perimeter controls, such as silt fence, will be installed around all stockpiles if stockpiles are not placed within existing silt fences or other sediment control, where the potential exists for material to be eroded and transported to sensitive nature resources. Soils that are stockpiled for longer durations will be temporarily seeded and mulched or stabilized with a bonded fiber polymer emulsion.

Permanent seed and temporary mulch and / or erosion control blanket BMP: In areas at final grade that will not be used for agriculture, permanent seed will be applied to promote vegetative cover for permanent erosion control. Temporary mulch and/or erosion control blanket will be applied as appropriate in areas to provide temporary erosion protection until the permanent seed is established.

4.2 Sediment Control

Removal of Ditch Crossing BMP: Temporary ditch crossings may be needed to accommodate the movements of cranes or other heavy equipment. Perimeter controls such as silt fence will be used at crossing locations to minimize runoff from exposed soils.

Crossings will be done during dry conditions, if possible. If a stream is wet at the time of the crossing, alternative BMPs will be applied. These could include a temporary dam and bypass pump to install the crossing in dry conditions. Timber construction mats will be used as needed to prevent compaction and rutting at crossing locations. All temporary fills and construction mats will be removed immediately after the crossing is successfully completed and the temporarily disturbed area restored using the appropriate BMPs as described above.

Dewatering: A temporary sump and rock base will be used if a temporary pump is used to dewater an area of accumulated water. If a rock base cannot be used, the pump intake will be elevated to draw water from the top of the water column to avoid the intake and discharge of turbid water. Energy dissipation riprap will be applied to the discharge area of the pump hose. The water will be discharged to a large flat vegetated area for filtration/infiltration prior to draining into receiving waters of conveyances/ditches. If discharge water is unavoidably turbid, dewatering bags, temporary traps, rock weepers, or other adequate BMP will be used to control sediment discharge.

Silt Fence BMP or Fiber Logs: Silt fences or fiber logs will be used as perimeter controls downgradient of exposed soils during construction to capture suspended sediment particles on site, to extent possible. The standard silt fence or fiber logs will also be used in smaller watershed areas where the contributing areas are typically less than 1/4 acre of drainage per 100 feet of standard silt fence or the fiber logs. Standard silt fence or fiber logs will also be used for stockpiles 8 feet high or higher which have slopes of 3:1 or steeper. Standard silt fence or fiber logs should not be used in areas of highly erodible soils which are found within streams, slopes, or banks of creeks and streams within the Facility's site.

Rock Entrance/Exit Tracking Control BMP: Rock construction entrances will be installed where access to a construction area is needed from adjacent paved surfaces.

Street Scraping/Sweeping BMP: Street scraping and sweeping will be used to retrieve sediment tracked or washed onto paved surfaces at the end of each working day, or as needed.

4.3 Controlling Stormwater Flowing onto and through the Project

Given the low gradient of the slopes in the project area, controlling stormwater flow that enters the project area will likely require minimal effort during decommissioning activities. Only newly disturbed areas may require new, temporary stormwater control.

Diversion Berms/Swales/Ditches: It may be necessary to direct diverted flow toward temporary settling basins via berms, swales, or ditches. If diversion controls are deemed necessary for decommissioning activities, these must be stabilized by temporary mulch and seeding, erosion control blankets, or by installing riprap to protect the channel from erosive forces.

Rock Check Dams: It may be necessary to install temporary check dams within swales or ditches that convey storm water from areas disturbed by decommissioning activities. Rock check dams are effective for velocity control, sediment control, and to augment temporary stabilization of channels. Filter fabric can be utilized to help filter the flow, minimize the scour of the soil under the rock, and facilitate removal of the check dams once permanent

stabilization is achieved. The height of check dams should be at least two feet. Spacing depends upon slope. Downgradient rock checks should have the top elevation at the same elevation as the bottom of the previous (upgradient) rock check.

Hay Bale Check Dams: Hay bale check dams may be used for velocity control within swales of the project to slow the water runoff within the drainage channels/swales. The bales should be approximately three feet in length and anchored into the soil. The midpoint elevation of the top of the bale (i.e., ponding height) must be lower than the end points of the bale where the bale meets grade, to prohibit water from flowing around the bales thus causing erosion and scour. If the bales cannot be applied properly in the field, the use of rock checks as a replacement is recommended.

Temporary Sedimentation Basins: Sedimentation basins serve to remove sediment from runoff from disturbed areas of the site. The basins allow runoff to be detained long enough to allow the majority of the sediment to settle out prior to discharge. The location and dimensions of temporary sedimentation basins, if any are necessary, will be verified in accordance with the Illinois Environmental Protection Agency (IEPA) requirements at the time of decommissioning.

4.4 Permitting

All decommissioning and reclamation activities will comply with Federal and State permit requirements. Decommissioning activities that will disturb more than one acre of soil will require coverage under the state-specific NPDES permit for construction stormwater. The permits will be applied for and received prior to decommissioning construction activities commencing. A SWPPP will be developed prior to filing for construction stormwater permit coverage.

If necessary for decommissioning activities, wetlands and waters permits will be obtained as needed from the US Army Corps of Engineers (USACE) or the Illinois Environmental Protection Agency (IEPA). A Spill Prevention, Control and Countermeasures (SPCC) Plan for decommissioning will likely be required for decommissioning work as well.

4.5 Health and Safety Standards

Work will be conducted in strict accordance with Applicant's health and safety plan. The construction contractor hired to perform the decommissioning will also be required to prepare a site-specific health and safety plan. All site workers, including subcontractors, will be required to read, understand, and abide by the Plans. A site safety office will be designated by the construction contractor to ensure compliance. This official will have stop-work authority over all activities on the site should unsafe conditions or lapses in the safety plan be observed.

5.0 Timeline

Decommissioning of the wind farm will be initiated within 30 days of any non-functioning wind turbine unless the Facility has shown to the county zoning administrator that it is diligently repairing such wind turbine/components or when the project reaches its end of life. It is anticipated that the decommissioning activities for the project can be completed in an

approximately 9-month period. The estimated costs for decommissioning are tied to assumptions about the amount of equipment mobilized, the crew sizes, weather and climate conditions, and the productivity of the equipment and crews.

6.0 Decommissioning Costs

The cost estimate for decommissioning and reclamation of the Facility was prepared in current dollars, with the salvage value of equipment or materials calculated separately. The estimate includes:

(i) An analysis of the physical activities necessary to implement the approved reclamation plan, with physical construction and demolition costs based on applicable Department of Transportation unit bid prices from surrounding states and RS Means material and labor cost indices;

(ii) The level of effort or number of crews required to perform each of the activities; and

(iii) An amount to cover contingencies above the calculated cost.

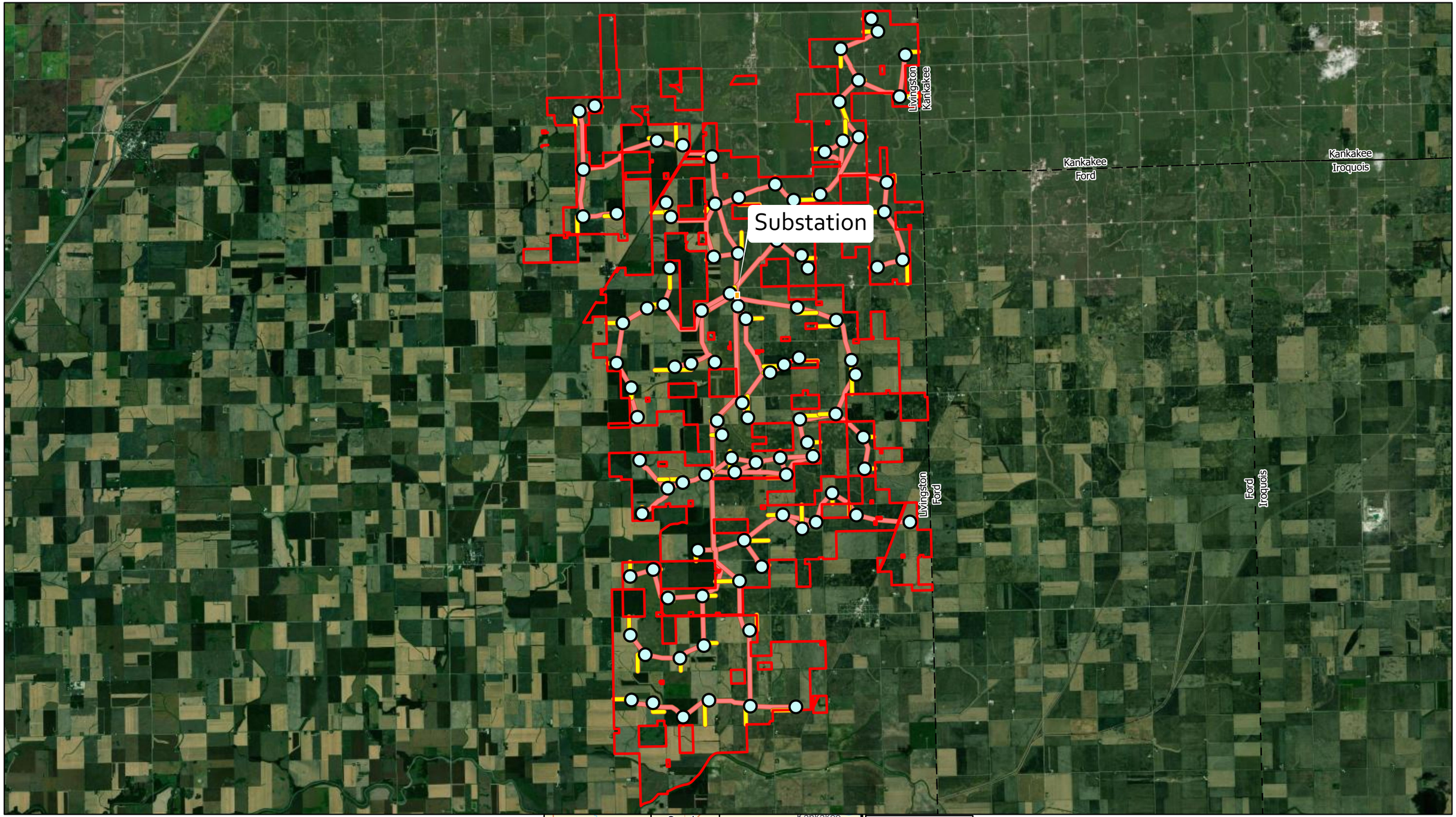
The following information was used to develop the cost estimate:

1. Project quantities for the Facility are based on initial site layout data.
2. The Estimate is shown on a total cost and a per-turbine basis. The decommissioning plan and cost estimate will be revised every three (3) years.
3. Turbines that are not resold will be assumed to have all applicable components recycled as scrap. The estimate uses a current structural scrap price of $460.00 per ton, in the Midwest region, based on prices posted on scrapmonster.com, March 8, 2022. The posted prices are three months old. The posted spot prices used in the cost estimate were discounted be twenty-five percent (25%) to reflect the difficultly of realizing spot prices from local recyclers.
4. Electrical transformers have significant value for aluminum or copper used in the windings and the steel used in other parts of the transformer. Newer transformers can be resold. Older transformers are recycled as scrap. Few companies accept used transformers for resale or recycling so finding pricing is difficult. For this estimate we used pricing posted scrapmonster.com of $0.42 per pound for used transformers. We assumed the posted price is similar to the price offered by Windy City Metals located in Chicago Heights, Illinois, which was identified as the regional transformer recycling location.
5. Spot prices for insulated copper wire (85% recovery) are $1.81 per pound, scrap electrical motors are $0.39 per pound, and E.C. aluminum wire is $1.18 per pound. The posted spot prices used in the cost estimate were discounted be twenty-five percent (25%) to reflect the difficultly of realizing spot prices from local recyclers.

The total estimated cost of the decommissioning of the Livingston Wind Project is approximately $14,979,800 ($192,100.00 per turbine), including crop loss. Estimated salvage/scrap value of the turbines, transformers, and other materials is approximately $7,090,100 ($90,900 per turbine). The net decommissioning costs after accounting for resale and salvage values is approximately $7,889,700.00, or $101,200.00 per turbine.

Attachment A

Site Map



Data Source(s): Westwood (2022); Esri WMS Basemap Imagery (Accessed 2022); USGS (2022); FEMA (2022); USDA (2022)

Westwood

Toll Free (888) 937-5150 westwoodps.com

Legend

- Turbines
- Access Roads
- Project Boundary
- Collection Lines

★ -Project Location

Livingston County Wind Project

Livingston County, IL

N

0 2.8 Miles

Site Map

March 4, 2022

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Attachment B

Decommissioning Cost Estimate

Livingston Wind Project Decommissioning Cost Estimate				
	Quantity	Unit	Unit Cost	Total Cost
Number of Turbines	78	Each		
Mobilization/Demobilization	1	Lump Sum	$647,000.00	$647,000
Permitting				
County Permits	1	Lump Sum	$ 5,000.00	$5,000
State Permits (SWPPP, SPCC)	1	Lump Sum	$ 20,000.00	$20,000
Subtotal Permits				$25,000
Wind Turbine Generators				
Disconnect Turbine Wiring	78	Each	$2,631.20	$205,234
Fell Turbine	78	Each	$2,227.90	$173,776
Process to Size and Load Turbine Components	17,929	Tons	$179.25	$3,213,745
Haul Turbine Components Offsite for Recycling (except blades)	17,929	Tons	$7.01	$125,631
Haul Turbine Components For Disposal (except blades)	5,377	Tons	$7.19	$38,669
Turbine Components Disposal (except blades)	5,377	Tons	$81.00	$435,532
Haul Fiberglass Blades For Disposal (Newton, IA)	3,818	Tons	$52.74	$201,330
Fiberglass Blades Disposal	3,818	Tons	$81.00	$309,219
Excavate Around Turbine Foundation	78	Each	$12.63	$985
Remove Turbine Foundation to a Depth of 5 feet and Load	4,095	Cubic Yards	$183.30	$750,683
Backfill Excavation Area from Turbine Foundation Removal	78	Each	$236.84	$18,474
Haul Concrete (Turbine Foundation)	8,293	Tons	$7.19	$59,641
Disposal of Concrete from Turbine Foundation	8,314	Tons	$81.00	$673,409
Remove and Load Transformer	78	Each	$507.39	$39,576
Freight Transformer to Recycler	78	Each	$124.47	$9,709
Remove Transformer Pad	145	Cubic Yards	$189.28	$27,511
Transformer Disposal (Including Oil) - All material can be recycled	78	Each	$0.00	$0
Haul Concrete (Transformer Pad)	294	Tons	$7.19	$2,117
Disposal of Concrete from Transformer Pad	294	Tons	$81.00	$23,841
Decompact Wind Turbine Generator Site	78	Each	$86.91	$6,779
Grade Wind Turbine Generator Site	78	Each	$940.80	$73,382
Erosion and Sediment Control at Turbine/Transformer Site	78	Each	$489.00	$38,142
Revegetation at Turbine/Transformer Sites	78	Each	$4,050.00	$315,900
Subtotal Wind Turbine Generators				$6,743,286
Met Tower (Free Standing)				3
Disconnect Tower Wiring	3	Each	$657.80	$1,973
Dismantel, Disassemble, and Load Tower Components	3	Each	$2,843.20	$8,530
Freight Tower Components Offsite for Recycling	12.1	Tons	$7.01	$85
Excavate Around Tower Foundation	2	Each	$8.42	$17
Remove Tower Foundation to a depth of 5 feet and Load	2	Cubic Yards	$183.30	$446
Haul Concrete (Tower Foundation)	4.9	Tons	$7.19	$35
Disposal of Concrete from Met Tower	4.9	Tons	$81.00	$400
Grade Met Tower Site	3	Each	$301.26	$904
Erosion and Sediment Control	3	Each	$6,520.00	$19,560
Till to Farmable Condition	0.34	Acre	$150.48	$51
Subtotal Met Towers (Free Standing)				$32,000
Electrical Collection (Remove at Junction Boxes)				
Removal of Underground Collector System Cables (34.5 kV)	432,358	Linear Feet	$2.10	$906,611
Haul Underground Collector System Cables (34.5 kV)	540.4	Tons	$7.01	$3,787
Disposal of Removed Cables (See Salvage Value)	540.4	Tons	$0.00	$0
Removal of Junction Box	15	Each	$100.00	$1,500
Erosion and Sediment Control at Junction Box Location	15	Each	$100.00	$1,500
Revegetation at Junction Box Location	15	Each	$108.00	$1,620
Subtotal Electrical Collection				$915,019

Access Roads				117,738
Remove and Load Gravel Surfacing from Access Roads	43,607	Cubic Yards	$2.59	$113,033
Haul Gravel Removed from Access Roads	70,643	Tons	$7.19	$508,035
Disposal of Gravel Removed from Access Roads (Use as "Daily Cover")	70,643	Tons	$0.00	$0
Remove and Load Culvert from Beneath Access Roads	16	Each	$448.00	$7,168
Haul Culvert Removed from Access Roads	8	Tons	$7.19	$59
Disposal of Culverts	8	Tons	$10.00	$82
Remove Low Water Crossing from Access Roads	10	Each	$3,400.00	$34,000
Decompact Access Road Corridor	117,738	Linear Feet	$0.14	$16,372
Grade Access Road Corridor	117,738	Linear Feet	$1.51	$177,228
Erosion and Sediment Control Along Access Roads	17,661	Linear Feet	$3.26	$57,574
Revegetation on Access Roads	64.9	Acres	$11,761.20	$762,942
Subtotal Access Roads				$1,676,492
Substation				
Disassembly and Removal of Main Power Transformer(s)	2	Each	$2,000.00	$4,000
Freight Transformer(s) Offsite for Recycling	2	Each	$2,190.00	$4,380
Freight Transformer Oil Offsite	25,660	Gallons	$0.09	$2,309
Disposal of Transformer (Including Oil) - has Salvage Value	2	Each	$0.00	$0
Excavate Around Transformer Foundation(s)	2	Each	100	$200
Remove Complete Transformer Foundation(s)	2	Each	30800	$61,600
Backfill Excavation Area from Transformer Foundation Removal	2	Each	900	$1,800
Haul Concrete (Transformer, Switch Gear, etc. Foundations)	0	Tons	$7.19	$0
Disposal of Concrete from Transformer Foundation	0	Tons	$81.00	$0
Demolish Substation Site Improvements (fences, etc)	1	Lump Sum	$2,500.00	$2,500
Demolish Control Building and Foundation	1	Lump Sum	$6,000.00	$6,000
Remove Medium/High Voltage Equipment	1	Lump Sum	$1,500.00	$1,500
Remove Structural Steel Substation Frame	1	Lump Sum	$1,000.00	$1,000
Remove Copper Ground Grid	1	Lump Sum	$6,271.96	$6,272
Load Copper Wire	20,000	Feet	$0.46	$9,122
Haul Copper Wire to Recycling	7	Tons	$7.01	$46
Haul - Demolition Materials, Removed Equipment & Structural Steel	1	Lump Sum	$287.66	$288
Disposal of Demolition Materials, Removed Equipment and Structural Steel	1	Lump Sum	$0.00	$0
Remove and Load Gravel Surfacing from Substation Site	5,878	Cubic Yards	$2.59	$15,237
Haul Gravel Removed from Substation Site	8,729	Tons	$7.19	$62,777
Disposal of Gravel from Substation Site (Use as "Daily Cover")	8,729	Tons	$0.00	$0
Decompact Substation Site	5	Acres	$252.39	$1,379
Grade Substation Site	1	Each	$6,271.96	$6,272
Erosion and Sediment Control at Substation Site	1	Lump Sum	$4,890.00	$4,890
Topsoil and Revegetation on Substation Site	5.47	Acres	$11,761.20	$64,278
Subtotal Substation				$255,850
O&M Building				1
Demolish O&M Building and Foundation	1	Lump Sum	$5,000.00	$5,000
Demolish O&M Site Improvements (fences, etc)	1	Lump Sum	$3,000.00	$3,000
Haul Concrete (O&M Building Foundation)	248	Cubic Yards	$18.00	$4,467
Crush Concrete (O&M Building Foundation)	248	Cubic Yards	$17.00	$4,219
Disposal of Crushed Concrete from O&M Building Foundation	248	Cubic Yards	$10.00	$2,481
Cap and Abandon Well	1	Lump Sum	$1,000.00	$1,000
Remove & Restore Septic and Drainfield area	1	Lump Sum	$3,000.00	$3,000
Disposal of O&M Building Demolition and Removed Site Improvements	1	Lump Sum	$2,500.00	$2,500
Remove and Load Gravel Surfacing of O&M Site	3,747	Cubic Yards	$2.59	$9,713
Haul Gravel Removed from O&M Site	3,747	Cubic Yards	$7.62	$28,539
Disposal of Gravel from O&M Site	3,747	Cubic Yards	$0.00	$0
Decompact O&M Building Site	1	Lump Sum	$605.74	$606
Grade O&M Building Site	1	Lump Sum	$6,556.96	$6,557
Erosion and Sediment Control at O&M Building Site	1	Lump Sum	$4,238.00	$4,238
Topsoil and Revegetation at O&M Building Site	2.4	Acres	$11,761.20	$28,227
Subtotal O&M Building				$103,546

Public Roads Restoration	73.2	Miles	$44,000.00	$3,219,792
Total Direct Costs				$13,617,985
Contingency (10%)				$1,361,798
Total Demolition Costs				$14,979,783
Cost Per Turbine				$192,048.51
Total Cost				$14,979,800
Salvage/Recycle/Resale				
Turbine Towers (Structural Steel)	10,717	Tons	$345.00	$3,697,217
Turbine Nacelles (Structural Steel)	6,387	Tons	$345.00	$2,203,617
Met Towers (Structural Steel)	12.1	Tons	$345.00	$2,082
Substation (Structural Steel)	35.0	Tons	$345.00	$6,038
Substation Ground Grid (Copper)	13,060	Pounds	$3.04	$19,835
Steel Towers (Structural Steel)	0	Tons	$345.00	$0
Turbine Generators	1,649,960	Pounds	$0.29	$482,613
Aluminum Electrical Conductor (Underground)	1,080,895	Pounds	$0.29	$316,162
Aluminum and Steel Conductor (Suspended-Aluminum Weight)	0	Pounds	$0.89	$0
Aluminum and Steel Conductor (Suspended-Steel Weight)	0	Pounds	$0.17	$0
Transformers (copper windings)	806,868	Pounds	$0.32	$254,163
Transformer (Steel)	238	Tons	$345.00	$82,159
Transformers (oil)	37,419	Gallons	$0.70	$26,194
Subtotal Salvage				$7,090,100
Total Demolition Minus Resale and Salvage Value				$7,889,700
Total Demolition Minus Salvage per Turbine				$101,200