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February 4, 2015

Via Electronic Filing

Ms. Barcy McNeal
Public Utilities Commission of Ohio
Administration/Docketing
180 East Broad Street, 11th Floor
Columbus, OH 43215-3793

Re: Letter of Notification of Compliance by Trishe Wind Ohio, LLC, Case No. 13-197-EL-BGN

Dear Ms. McNeal:

The December 16, 2013 Opinion, Order, and Certificate approving Northwest Ohio Wind Energy, LLC's [now known as Trishe Wind Ohio, LLC ("Trishe")] Certificate of Environmental Compatibility and Public Need ("Certificate") and the October 1, 2013 Supplement to Amended Application ("Supplement") established a set of conditions and supplemental commitments as part of the Certificate.

Within this set of conditions and commitments, **"Certificate Condition No. 40(a)"** requires that:

The Applicant, facility owner, and and/or facility operator shall comply with the following conditions regarding decommissioning:

> **(a) Provide the final decommissioning plan to Staff and the county engineer for review and confirmation of compliance with this condition, at least 30 days prior to the pre-construction conference. . . .**

Attached for filing is a copy of the decommissioning study. This letter is to inform the OPSB Staff that Trishe is in compliance with the above-mentioned commitment as it applies to the entire project.

If you have any questions please call at the number listed above.

Sincerely,

Sally W. Bloomfield

Sally W. Bloomfield

cc: Grant Zeto
Chris Cunningham

Report on the

DECOMMISSIONING OBLIGATION COST EVALUATION NORTHWEST OHIO WIND ENERGY WIND FARM

Starwood Energy Group Global, Inc

Project No. 82035

January 2015

Decommissioning Obligation Cost Evaluation
Northwest Ohio Wind Energy Wind Farm

prepared for

Starwood Energy Group Global, Inc
Greenwich, Connecticut

January 2015
Project No. 82035

prepared by

Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

Burns & McDonnell (BMcD) was retained by Starwood Energy Group Global, LLC (Starwood) to conduct the Northwest Ohio Wind Farm Decommissioning Study, the "Project." The Project uses the Gamesa G114 wind turbine generators and has a total nominal rating of approximately 100 megawatts (MW). The purpose of the decommissioning cost evaluation was to review the wind farm and to make a recommendation to Starwood regarding the total cost to retire the facility at the end of its useful life.

1.2 RESULTS

BMcD estimates that the Project should have an expected useful life of 20 years or more. When Starwood determines that the Project should be retired, the above-grade steel structures and turbine nacelles are assumed to have significant scrap value to a salvage contractor. Removal of the turbine nacelles, towers, and associated equipment is assumed to have sufficient value as scrap to completely offset the removal costs of these items. However, Starwood will also incur costs for removal and disposal of the blades and foundations and other project facilities and for the restoration of the site following the removal of salvageable equipment.

The decommissioning costs include the costs to return the site to a condition compatible with the surrounding land, similar to the conditions that existed before development of the Project. Included are the costs to retire the power generating equipment owned by Starwood as well as the costs to retire the Starwood -owned balance of plant facilities. All equipment, structures, and supporting facilities will be removed to a depth of three feet below grade. At plant construction, underground cable for the power collection system is assumed to be buried at a depth of four feet below grade or greater and, therefore, will be abandoned in place at decommissioning.

The schedule for completing the demolition is estimated to take four months which consists of one month of permitting activities and three months of demolition activities.

Based on the results of this evaluation, the estimated decommissioning obligation cost for the Northwest Ohio Wind Farm Project is estimated to be approximately $(218,000) for turbine decommissioning costs plus $904,000 for balance of plant project site decommissioning costs, resulting in total decommissioning costs of approximately $686,000.

2.0 INTRODUCTION

2.1 SITE

The Project is located in Paulding County, Ohio, approximately 90 miles southwest of Toledo, Ohio. Appendix A contains project maps of the proposed wind farm location and layout.

2.2 WIND TURBINE UNITS

The Project consists of 50 wind turbines, each rated at 2.0 MW, resulting in a total nominal rating for the project of approximately 100 MW. Each wind turbine will consist of a single pole steel tower, with the turbine nacelle mounted at the top. Each nacelle will include three blades that are each approximately 114 feet in length and mounted to the nacelle rotor.

Each wind turbine tower will be supported by a concrete foundation. Foundation design drawings were provided for review and serve as the basis for foundation removal cost in this study. Each foundation design implements an 18 foot diameter circular concrete pedestal, approximately 4.5 feet tall, which will be situated on top of a spread footing and will be the connection point for the wind turbine tower. The spread footings are all octagonal, typical of other similar projects, with a diameter of approximately 63 feet.

Each wind turbine will have an access road to support construction and allow for vehicle access to facilitate inspections and maintenance of the turbines and associated equipment. To the extent possible, existing roads will be utilized; however, new roads will be required as well. Some of the existing roads will require improvement to a condition suitable to support construction and operation of the Project. Additional and upgraded access roads are all assumed to be crushed rock surfaced roads.

2.3 SUBSTATION AND INTERCONNECTION

The Project site includes an underground 34.5 kilovolt (kV) electrical power collection system that collects the electrical power from the wind turbines and routes it to a central project substation. This Project also includes approximately 31 miles of underground 34.5 kV power collection system circuits. The project substation increases the voltage from 34.5 kV to 138 kV. The equipment in the project substation is supported on drilled shaft concrete pier foundations. The project substation is surrounded by a perimeter fence and the area inside the fence is surfaced with crushed rock.

2.4 MAINTENANCE/WAREHOUSE FACILITY

The Project will include an operation and maintenance (O&M) facility on the project site. This facility is assumed to consist of a metal building on a concrete slab foundation with approximate size of 6,000 square feet. The Project also includes a crushed rock surfaced laydown yard, and four meteorological towers.

3.0 DECOMMISSIONING

3.1 DECOMISSIONING PLAN

BMcD estimates the Project should have an expected useful life of 20 years or more. The above-grade steel and copper equipment, turbine nacelles, towers, and associated equipment is assumed to have sufficient value as scrap to completely offset the removal costs of these items. However, Starwood will incur costs for removal and disposal of the blades and foundations and other project facilities and for the restoration of the site following the removal of salvageable equipment.

The wind turbine blades will be removed from the wind turbine nacelle rotors using a crane, cut into manageable sized sections, loaded onto a trailer, and hauled to a local landfill for disposal. The wind turbine blades are constructed from a composite material that is assumed to have no salvage value at the time of decommissioning. The turbine nacelles will be removed from the towers with a crane and loaded onto a trailer. The towers will be disassembled and loaded onto a trailer as well. The demolition contractor will take ownership of the turbine nacelles and towers and all salvage value will be retained by the demolition contractor. The nacelles and towers will have a significant value for salvage or scrap due to a high content of steel and copper. The salvage value of the nacelles and towers will be utilized to offset the costs for removal.

The equipment in the project facility substations and surrounding fencing will be removed and the demolition contractor will take ownership of the equipment with all salvage value to be retained by the demolition contractor. The Project substation equipment will have a significant value for salvage or scrap due to a high content of steel and copper. It is assumed that the salvage value of this electrical equipment will be used to offset the demolition costs. All substation fencing will be removed, loaded into a dump truck or trailer, and hauled to a local landfill for disposal. The underground cabling for the power collection system within the wind farm is assumed to be buried at a depth of greater than four feet, and therefore will be abandoned in place. However, the scrap value of aluminum could be equal to or greater than the cost to remove it depending on the value of aluminum at the time of decommissioning and should be evaluated by the demolition contractor prior to decommissioning activities.

All underground improvements, including concrete foundations will be removed to a depth of three feet below grade. This will include the removal of the wind turbine foundations and project substation foundations. The concrete will be demolished, loaded into a dump truck and hauled to a local landfill for disposal. The portions of the concrete foundations that are greater than three feet below grade will be

abandoned in place. The 18 foot diameter circular concrete pedestal, situated on top of the wind turbine spread footings, will be completely removed. Voids left from the removal of the concrete footings will be backfilled with surrounding subsoil and topsoil and fine graded to ensure suitable drainage.

Finally, to the extent required, crushed rock surfacing will be removed. The lease agreements with the landowners allow the turbine access roads to be left in place at the end of the facility life at the option of the landowner. For purposes of this study, it is assumed that all of the turbine access roads will be removed as part of the decommissioning of the facility. Areas where crushed rock surfacing has been removed will be fine graded to ensure suitable drainage. In all areas where the ground has been disturbed as part of decommissioning activities, the ground will be seeded to prevent erosion. The removed crushed rock will be loaded into a dump truck and the demolition contractor will take ownership of the crushed rock. It is assumed that the crushed rock can be reused by the contractor. The cost to remove the crushed rock and load it into dump trucks will be at the expense of Starwood; however, no hauling or disposal costs will be incurred by Starwood.

3.2 DECOMMISSIONING COSTS

The decommissioning cost estimate includes the cost to return the site to a condition compatible with the surrounding land, similar to the conditions that existed before development of the Project. Included are the costs to retire the wind turbines owned by Starwood as well as the cost to retire the Starwood -owned balance of plant facilities. Tables 3.1 and 3.2 present the decommissioning costs for the wind turbines and balance of plant, respectively for the Flat Rock Wind Farm.

Table 3.1

Starwood Estimated Cost for Wind Turbine Decommissioning (2014$)

Estimated Cost	$	3,092,000
10% Contingency	$	309,000
Scrap Value	$	(3,619,000)
Total Cost	$	(218,000)

Table 3.2

Starwood Estimated Cost for Balance of Plant Decommissioning (2014$)

Estimated Cost	$	1,045,000
10% Contingency	$	105,000
Scrap Value	$	(246,000)
Total Cost	$	904,000

Breakdowns of the above costs are included in Appendix B.

3.3 DECOMMISSIONING SCHEDULE AND PERMITS

The schedule for completing the demolition activities is estimated to take four months which consists of one month of permitting activities followed by three months of demolition activities. The actual schedule for the Project will depend on how many crews the demolition contractor chooses to mobilize.

The demolition activities will consist of the following crews and activities:

- Crane and crew to focus on removing turbines to ground level
- Dismantling crew to focus on cutting up blades and removing salvageable scrap from the towers and nacelles
- Demolition crew to focus on demolition of the below grade equipment such as the turbine foundations and removal of the crushed rock access roads
- Grading and seeding crew to restore the site to its prior state following completion of the Project

At a minimum, the following permits, plans, and/or approvals will likely be required prior to initiating demolition activities:

- Safety Plan Development
- Demolition Permit
- Waste Disposal Permit
- Stormwater Pollution Prevention Plan (SWPPP) Permit
- Air Monitoring (Dust) Plan / Equipment Mobilization

While the above list is intended to cover the major permits and approvals that will likely be required, local requirements may require additional site specific permits and/or approvals that may not be listed above. Detailed study is recommended as part of the normal pre-demolition planning activities to confirm the exact permitting requirements that may be needed to execute the Project.

A typical schedule for the Project is provided in Appendix C.

3.4 DECOMMISSIONING ASSUMPTIONS

The following assumptions were made as the basis for the cost estimates:

1. An offsite landfill is used for disposal of demolition waste.
    a. Approximately 30 miles from site location

   b. Disposal costs for clean waste at $48/ton

2. No hazardous construction material abatement is required.
3. No environmental costs have been included to address site clean up of contaminated soils, hazardous materials, or other conditions present on-site having a negative environmental impact.
4. Wind turbine nacelles, wind turbine towers, transformers, switches, breakers, cabling, and other electrical equipment are removed from the Project by the demolition contractor and ownership transferred to the contractor with all salvage and scrap value to be retained by the contractor.
5. Demolition costs for the meteorological towers have been accounted for and included in the wind turbine demolition costs.
6. Buildings are removed as part of site demolition activities.
7. All fencing is removed as part of site demolition activities.
8. The Project substation removal cost is included with the Northwest Ohio Wind Farm Estimated Cost for Balance of Plant Decommissioning.
9. The O&M building removal cost is included with the Northwest Ohio Wind Farm Estimated Cost for Balance of Plant Decommissioning.
10. Underground electrical power collection system cabling will be abandoned in place as it is assumed to be four feet below finished grade or greater.
11. Any foundations will be removed to three feet below finished grade.
12. All crushed rock surfacing around equipment and all crushed rock surfacing associated with the turbine access roads will be removed, including the laydown area.
13. The topsoil or subsoil will be stripped and stockpiled proximal to the work site to keep the soil separate and secure from contamination, therefore never removed from the site during construction. The existing topsoil and subsoil will be re-graded in areas where crushed rock surfacing and foundations have been removed to achieve suitable site drainage to natural drainage patterns.
14. Disturbed site areas will be graded. In all areas where the ground has been disturbed as part of decommissioning activities, the ground will be seeded to prevent erosion.
15. Market conditions may result in cost variations at the time of contract execution.

4.0 STATEMENT OF LIMITATIONS

In preparation of this decommissioning obligation cost evaluation, BMcD has relied upon information provided by Starwood. While BMcD has no reason to believe that the information provided to BMcD, and upon which BMcD has relied, is inaccurate or incomplete in any material respect, BMcD has not independently verified such information and cannot guarantee its accuracy or completeness.

Engineer's estimates and projections of demolition costs are based on Engineer's experience, qualifications and judgment. Since Engineer has no control over weather, cost and availability of labor, material and equipment, labor productivity, construction contractors' procedures and methods, and other factors, Engineer does not guarantee the accuracy of its estimates and projections.

Engineer's estimates do not include allowances for unforeseen environmental liabilities associated with unexpected environmental contamination due to events not considered part of normal operations, such as fuel tank ruptures, oil spills, etc. Estimates also do not include allowances for environmental remediation associated with changes in classification of hazardous materials.

APPENDIX A

PROJECT MAP

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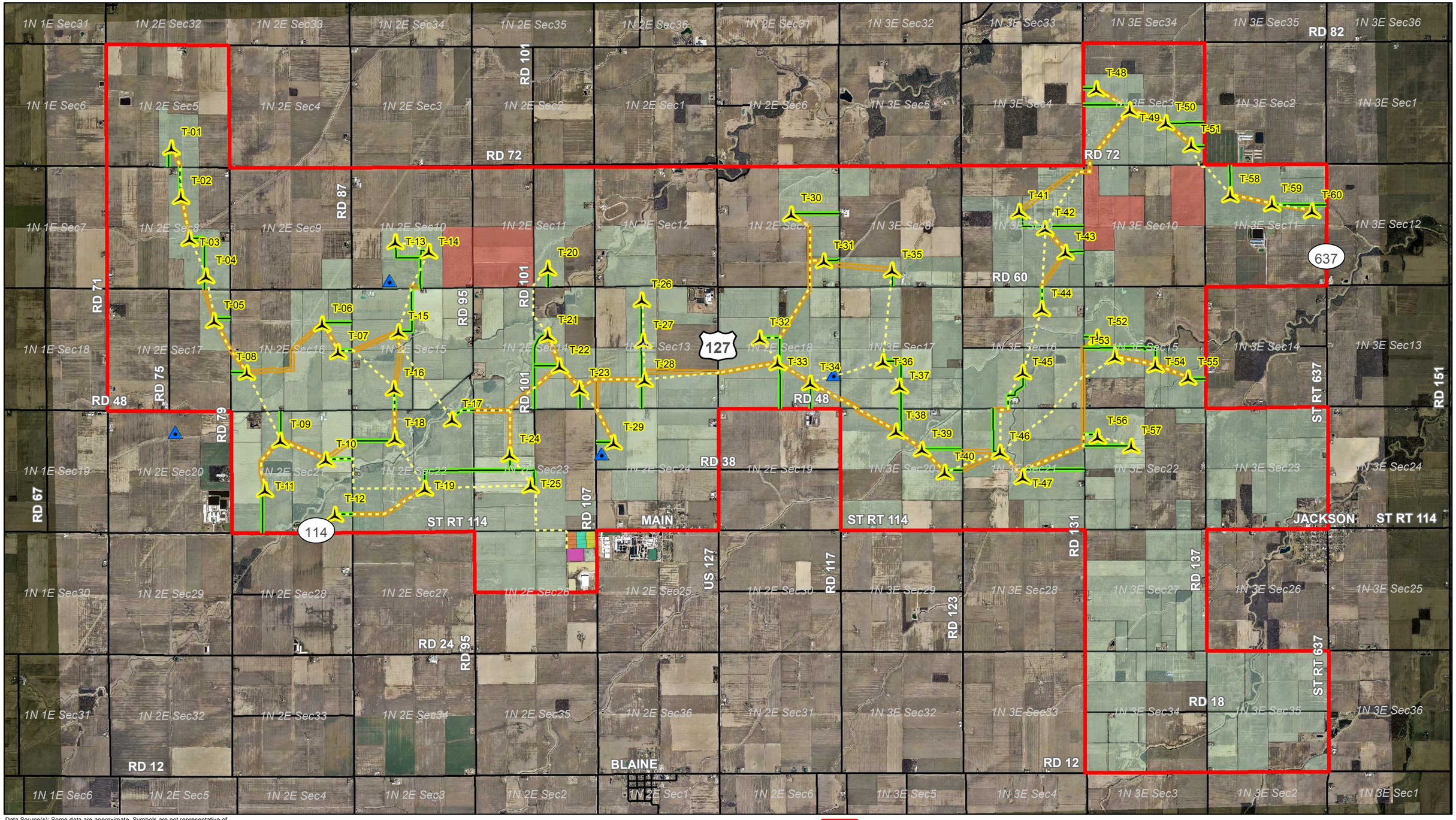

Data Source(s): Some data are approximate. Symbols are not representative of any dimension. Roads from Ohio Geographically Referenced Information Program (2005); Ohio Statewide Imagery Program (2012); National Wind (2013); and Westwood (2013).

Westwood

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N

0 0.75 Miles

- Wind Turbine
- Met Tower
- Underground Collection Line
- Access Road
- Crane Path
- Laydown
- O&M
- Batch Plant
- Step-Up Facility
- Leased Land
- Project Boundary
- Pursuing Easement
- ROAD
- 1N 2E Sec5 Section Number

Northwest Ohio Wind Energy

Paulding County, Ohio

Site Layout

October 9, 2014

Map Document: P:\20101023.01\GIS\NW_SiteLayoutMap_141009.mxd 10/9/2014 12:14:20 PM

APPENDIX B

DECOMMISSIONING COST BREAKDOWN

Northwest Ohio Wind Energy wind farm
Decommissioning Obligation Cost Evaluation
Project No. 82035
Cost Estimate Breakdown (50 Gamesa G114 Turbines)

Wind Turbine Nacelle & Tower Removal Cost			
Nacelle & Tower Removal	$	444,000	
Hauling	$	1,792,000	
Total	**$**	**2,236,000**	
Nacelle & Tower Scrap Value	**$**	**(3,619,000)**	[1]
Wind Turbine Blade & Foundation Removal Cost			
Blade & Foundation Removal	$	497,000	
Hauling	$	60,000	
Disposal	$	299,000	
Total	**$**	**856,000**	
Blade & Foundation Scrap Value	**$**	**-**	[1]
Total Estimated Cost	**$**	**3,092,000**	
Contingency (10%)	**$**	**309,000**	
Total Turbine Scrap Value	**$**	**(3,619,000)**	[1]
Net Total Cost with Contingency	**$**	**(218,000)**	

[1] Salvage values based on steel value of $230 per ton and copper value of $2.75 per pound.

Northwest Ohio Wind Energy wind farm
Decommissioning Obligation Cost Evaluation
Project No. 82035
Cost Estimate Breakdown (50 Gamesa G114 Turbines)

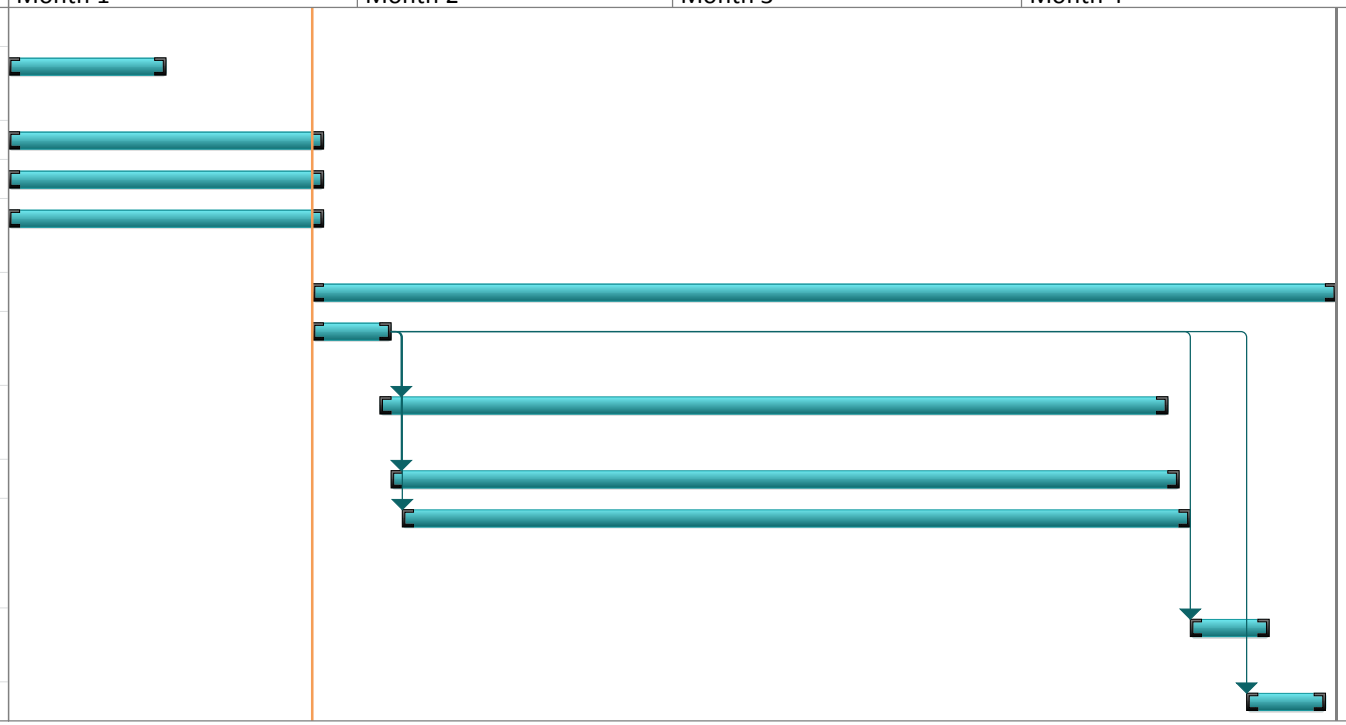
Substation Removal Cost			
Above Ground Equipment Removal	$	5,000	
Above Ground Equipment Hauling	$	8,000	
Demolition (Foundations, Fencing, Crushed Rock Removal)	$	24,000	
Demolition Hauling	$	3,000	
Disposal	$	13,000	
Total	**$**	**53,000**	
Transformer Copper Scrap Value	**$**	**(89,000)**	[1]
O&M Facility Building Removal Cost			
Building & Foundation Demolition	$	90,000	
Hauling	$	3,000	
Disposal	$	14,000	
Total	**$**	**107,000**	
Building Scrap Value	**$**	**-**	[1]
Transmission Line Removal Cost			
Conductor and Tower Removal	$	170,000	
Foundation Demolition	$	68,000	
Hauling	$	15,000	
Disposal	$	47,000	
Total	**$**	**300,000**	
Steel & Conductor Scrap Value	**$**	**(157,000)**	[1]
Crushed Rock Road Surface Removal Cost			
Surfacing Removal	$	491,000	
Hauling	$	-	
Disposal	$	-	
Total	**$**	**491,000**	
Crushed Rock Scrap Value	**$**	**-**	[1]
Seeding Cost	**$**	**94,000**	
Total Estimated Cost	**$**	**1,045,000**	
Contingency (10%)	**$**	**105,000**	
Total BOP Scrap Value	**$**	**(246,000)**	[1]
Total with Contingency	**$**	**904,000**	

[1] Salvage values based on steel value of $230 per ton and copper value of $2.75 per pound.

APPENDIX C

TYPICAL PROJECT SCHEDULE

ID	Task Name	Duration
1		
2	Safety Plan Development	2 wks
3	Demolition Permit	4 wks
4	Waste Disposal Permit	4 wks
5	SWPPP/Stormwater Permit	4 wks
6	Dust Monitoring	13 wks
7	Mobilize Heavy Equipment	1 wk
8	Remove Turbines (5 per week)	10 wks
9	Demo Foundations	10 wks
10	Dismantle and Strip Salvage Steel and Copper	10 wks
11	Remove Debris & Clean Up Site	1 wk
12	Backfill and Seed	1 wk



Project: Schedule
Date: Wed 1/28/15

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

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in

Case No(s). 13-0197-EL-BGN

Summary: Correspondence of Trishe Wind Ohio, LLC in Compliance with Certificate Condition No. 40(a) electronically filed by Teresa Orahood on behalf of Sally Bloomfield