

Sunflower Wind Project, LLC

c/o Novatus Energy, LLC
767 Third Ave, 17th Floor, New York, NY 10017

May 25, 2018

North Dakota Public Service Commission
Attn: Jerry Lien
12th Floor, Dept. 408
600 E Boulevard Avenue
Bismarck, ND 58505

Re: Sunflower Wind Project – Decommissioning Plan Supplement
Case No. PU-14-105

To Whom It May Concern:

In accordance with North Dakota Administrative Code Chapter 69-09-09 Wind Facility Decommissioning, Sunflower Wind Project, LLC, which owns the 104MW Sunflower Wind Farm located in Stark and Morton Counties, hereby submits this Decommissioning Plan Supplement to include a detailed plan of financial assurance sufficient to ensure decommissioning, a revised decommissioning cost estimate certified by a professional engineer in the State of North Dakota to complete the requirements as amended effective July 1, 2017.

As an Existing facility, Sunflower Wind Project, LLC will provide financial assurance after the tenth year of operation, in accordance with ND Administrative Code Chapter 69-09-09-09 Section 7. Financial assurance will be in the form of a self-guarantee from Sunflower Wind Project, LLC pursuant to Chapter 69-09-09 Section 08 paragraph 5. Sunflower Wind Project, LLC will have been in continuous operation for more than five years, and meets the financial standards set forth in Chapter 69-09-09 Section 08 paragraph 5(b)(2) and Chapter 69-09-09 Section 08 paragraph 6, as illustrated in attached Exhibit A.

A revised Decommissioning cost estimate for the facility prepared by Pellinen Engineering is attached as Exhibit B. This cost estimate has been confirmed by Pellinen Engineering, a professional engineer firm licensed by the State of North Dakota. The cost estimate demonstrates the costs including salvage value of the turbines and equipment, the method used for determining the decommissioning cost estimate, and anticipated manner in which the Project will be decommissioned. The anticipated life of the Sunflower wind farm is 30 years. There are no expected effects on present and future natural resource development.

Should you have any questions or need additional information, please do not hesitate to contact Pat Caramante at 631-552-5904 or pcaramante@novatusenergy.com.

Sincerely,

SUNFLOWER WIND PROJECT, LLC, a
Delaware limited liability company

PJ Caramante

Patrick Caramante, SVP- EC&O
Authorized Signatory

I hereby certify that I have reviewed the attached cost estimate and that I am a duly Licensed Professional Engineer under the laws of the state of North Dakota.

Signed:

Mathew I. Pellinen

Mathew I. Pellinen

License #:

PE-27309



Attachments:

Exhibit A – Financial Assurance

Exhibit B – Decommissioning Cost Estimate

Exhibit A

Financial Assurance

Financial Assurance for Decommissioning – Sunflower Wind Project		
	Requirement per ND Admin. Code 69-09-09 Section 08 paragraph 5(b)(2)	<u>Project Owner Self Guarantee</u> Sunflower Wind Project, LLC as of 12/31/17, audited
Tangible Net Worth	\$10,000,000	\$132,134,000
Ratio: total liabilities to net worth	2.5x or less	0.035
Ratio: current assets to current liability	1.2x or greater	1.77
	Requirement per ND Admin Code 69-09-09 Section 08 paragraph 6	
Amount of decommissioning obligation	\$3,700,890.23	
Amount of self-guarantee as % of Owner's Tangible Net Worth	25% or less	2.8%

Exhibit B
Decommissioning Cost Estimate

Decommission Plan

Sunflower Wind Project

Stark and Morton Counties, North Dakota

Prepared for:
Sunflower Wind LLC

Prepared by:
M.I. Pellinen Engineering LLC



I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the Laws of the state of North Dakota. This plan is for the use of Sunflower Wind LLC and the applicable regulator agencies. Any reliance of this document by any other third party is strictly prohibited. The material in this document reflects M.I. Pellinen Engineering's professional judgement in light of the scope, schedule and other limitations stated in the document. The opinions in this document are based on conditions and information existing at the time this document was published and do not take into account any subsequent changes.

Signature: 

Official Stamp:

Printed Name: Mathew I. Pellinen, PE

Date: 5/24/18 License Number: PE-27309



TABLE OF CONTENTS

- 1 PROJECT INFORMATION 3
- 2 DECOMMISSIONING SCOPE..... 3
- 3 DECOMMISSIONING TASKS AND COSTS..... 4
 - 3.1 PROJECT MANAGEMENT AND OVERHEAD..... 4
 - 3.2 WIND TURBING REMOVAL 4
 - 3.3 FOUNDATION REMOVAL 5
 - 3.4 ELECTRICAL COLLECTION SYSTEM 6
 - 3.5 ACCESS ROADS AND TURBINE PADS 6
 - 3.6 MET TOWER REMOVAL 7
 - 3.7 ELECTRICAL SUBSTATION REMOVAL 8
 - 3.8 ELECTRICAL TRANSMISSION SYSTEM 9
 - 3.9 MATERIAL REMOVAL..... 9
- 4 DECOMMISSIONING REVENUES 10
 - 4.1 Wind Turbine Values 10
 - 4.2 Internal transformers 10
 - 4.3 MET tower values 10
 - 4.4 Substation Components Value 11
 - 4.5 Substation Transformer Value..... 11
 - 4.6 Transmission Wiring Value 11
- 5 Decommissioning Cost Summary 11
 - 5.1 Disassembly and Removal Cost Summary..... 11
 - 5.2 Decommissioning Revenues Summary..... 12
- 6 Conclusion 12



1 PROJECT INFORMATION

The Sunflower Wind Project is a wind project consisting of 52 Vestas V100-2.0 MW-80 m HH wind turbine generators (WTG) located in Stark and Morton Counties, North Dakota.

Properly maintained wind turbines are anticipated to have a minimum life of 20-30 years. At the end of the project life, depending on market conditions and project viability, the wind turbines may be upgraded with new or refurbished nacelles, towers and/or blades to extend the life of the WTG. Alternatively, the wind turbines and towers may be decommissioned, removed and the components salvaged.

This Decommissioning Plan provides a description of the decommissioning and restoration phase of the project, including a list of the primary wind farm components and sequence of dismantling and removal activities. A summary of estimated costs and revenues associated with the decommissioning phase is also included.

2 DECOMMISSIONING SCOPE

The main components of the project include:

- Above-ground components
 - Turbines – towers, nacelle, step-up transformer, hub and three blades per WTG
 - Access roads and turbine pads
 - MET towers
 - Electrical Substation
 - Above ground transmission lines
- Below-ground components
 - Turbine foundations
 - Underground electrical collection system

The wind farm components and decommissioning activities necessary to restore the project area, as near as possible, to pre-construction conditions are described within this document. All above-ground structures will be removed. Concrete and other components of wind turbines and the underground collection system located more than four (4) feet below the soil surface will be abandoned in place. Public roads damaged or modified during the decommissioning and reclamation process shall be repaired upon completion of the project. All disturbed areas will be regraded to be consistent with surrounding areas and reseeded to promote revegetation. Wage rates used are based on the 2018 prevailing wage rates for Stark and Morton Counties.

Decommissioning activities are anticipated to be completed in a three to four month timeframe. Monitoring and site restoration may extend beyond this time period to ensure successful revegetation and rehabilitation. The anticipated sequence of decommissioning and removal is described below:

- De-energize turbines
- Dismantle and remove rotors and nacelles



- Remove towers and internal components including step-up transformers
- Remove portions of wind turbine foundations with four feet (48 inches) of the ground surface and backfill sites with approved materials
- Remove crane pads installed for decommissioning and grade turbine sites
- Remove access roads
- Restore and vegetate disturbed land

3 DECOMMISSIONING TASKS AND COSTS

3.1 PROJECT MANAGEMENT AND OVERHEAD

The decommissioning process will include a project team that will manage the decommissioning scope. The costs will include the project oversight, mobilization costs, incidentals and contingencies.

Project Management	
Mobilization and demobilization of crane and assist cranes	\$185,000.00
Mobilization of other equipment (dozers, backhoes, etc.)	\$50,000.00
	\$235,000.00
Project Oversight	\$300,000.00
Incidentals (5% of cost estimate)	\$350,000.00
Contingency (10% of cost estimate)	\$650,000.00
	\$1,300,000.00

Total for Project Management: \$1,535,000.00

3.2 WIND TURBINE REMOVAL

The wind turbines will be deactivated from the surrounding electrical system and made safe for disassembly. Liquid wastes, including gear box oil and hydraulic fluids will be removed and properly disposed of. Step-up transformers, control cabinets, electronic components and internal electrical wiring will be removed and salvaged.

The decommissioning process will include the dismantle and removing the rotor, nacelle and towers and transport entire WTG off-site. The tower sections will be disassembled into transportable sections.

The costs will include the crane rentals, man power and transportation of the disassembled towers.

Wind Turbine Removal

1. Labor Costs - Disassembly

Number of Turbines	52	Each
10-man crew for 20 hours per WTG	200	Hr/WTG
Current Labor Rate	\$23.45	/man-hour



			\$243,880.00
2. Crane Rental			
Number of Turbines	52	Each	
Number of cranes (erector and assist cranes)	2	Each	
Disassemble WTG per Week	2	Each	
Rental Costs for All Cranes	\$38,000.00	/week	
			\$988,000.00
3. Labor Costs - Cut-up			
Number of Turbines	52	Each	
5-man crew for 20 hours per WTG	100	Hr/WTG	
Current Labor Rate	\$23.20	/man-hour	
			\$120,640.00
4. Transportation			
Number of Turbines	52	Each	
Number of Transport Vehicles	10	/WTG	
Cost Per Trip	\$1,500.00	/trip	
			\$780,000.00
5. Nacelle housing, blade, and other component disposal			
Number of Turbines	52	Each	
Estimated Weight of Components (Pounds)	67300	lbs/WTG	
Total Estimated Weight of Components (Tons)	1749.8	Tons	
Disposal fee	\$35.00	/ton	
			\$61,243.00

Total for WTG Disassembly: \$2,193,763.00
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3.3 FOUNDATION REMOVAL

After the wind turbines are removed, topsoil in the area of the wind turbine foundation will be removed to a proper temporary storage pile. Concrete demolition will be completed on the upper four feet (48 inches) of the pedestal. This will include the anchor bolts, rebar, conduits, cables and concrete to the required depth. The site will be back-filled with clean fill, graded and the land contours restores to preconstruction conditions.

Remove WTG Foundation

Number of Turbines	52	Each	
Equipment Rental and Labor Costs per WTG Foundation	\$6,600.00	/WTG	
Number of Transport Vehicles	4	/WTG	
Rubble Transportation	\$560.00	/dump truck trip	
			\$459,680.00



3.4 ELECTRICAL COLLECTION SYSTEM

The collection system will not interfere with future activities on the site because it was placed four feet (48 inches) or more below ground surface. Because of this, complete cable removal is not required at decommissioning. Cable will be completely deactivated and abandoned in place. Junction boxes and collection cable located within four feet of the surface will be removed. Minimal decommissioning costs are associated with the collection system and junction boxes so the removal costs have been included in other costs.

3.5 ACCESS ROADS AND TURBINE PADS

After decommissioning activities are completed, the access roads and crane pad aggregate will be removed and the areas filled with native soil as necessary. Land will be graded and restored to pre-construction contours. Restoration will likely be performed in conjunction with the turbine foundation and access road restoration.

Access Roads will be removed unless written communication is received from the landowners requesting that the road be retained.

Necessary improvements for intersection widening and existing road maintenance have been included for turbine transportation offsite.

Turbine Site Rehabilitation – Crane Pads

1. Gravel Removal

Number of Turbines	52	Each
Gravel Quantity	125	CY/WTG
Labor and Equipment Rate	\$20.00	/CY
		\$130,000.00

2. Gravel Transportation

Number of Turbines	52	Each
Number of Transport Vehicles	9	/WTG
Rubble Transportation	\$560.00	/dump truck trip
		\$262,080.00

3. Final Grading

Number of Turbines	52	Each
Dozer Hours	8	hr/WTG
Labor and Equipment Rate	\$220.00	/hr
		\$91,520.00

Total for WTG Site Rehabilitation:	\$483,600.00
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Access Road Rehabilitation

1. Gravel Removal

Length of Road (Permanent and Temporary)	100,000	LF
Width of Gravel Removal	16	feet



Depth of Gravel Removal	8	Inches
Volume of Gravel	39,506	CY
Labor and Equipment Rate	\$20.00	/CY
\$790,123.00		

2. Gravel Transportation

Volume of Gravel	39,506	CY
Number of Transport Vehicles (15 CY/trip)	2,634	Trips
Rubble Transportation	\$560.00	/dump truck trip
\$1,474,897.12		

3. Final Grading

Length of Road (Permanent and Temporary)	10,0000	LF
Disturbed Area	444,444	SY
Labor and Equipment Rate	\$0.40	/SY
\$177,777.78		

Total for Road Rehabilitation:	\$2,442,797.90
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Off-site Road Rehabilitation

Intersection Upgrades for Transportation	4200	CY
Labor and Equipment Rate	\$31.00	/CY
\$130,200.00		
Dust Control, Road Maintenance and Road Repairs (1%)	\$75,000.00	LS
\$75,000.00		

Total for Off-site Road Rehabilitation:	\$205,200.00
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Total for Site Work/Civil:	\$3,131,597.90
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3.6 MET TOWER REMOVAL

The decommissioning process will include the dismantle and removing two (2) MET towers and transport entire MET towers off-site. The costs will include the crane rentals, man power and transportation of the disassembled towers.

1. Labor Costs - Disassembly

Number of MET Towers	2	Each
5-man crew for 16 hours per MET	80	Hr/MET
Current Labor Rate	\$23.45	/man-hour
\$3,752.00		

2. Equipment Rental



Number of MET Towers	2	Each
Equipment Rental Hours per MET	16	Hr/MET
Rental Costs for Equipment	\$220.00	/hr
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\$7,040.00		

3. Transportation

Number of MET Towers	2	Each
Number of Transport Vehicles	1	/MET
Cost Per Trip	\$960.00	/trip
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\$1,920.00		

4. Remove MET Foundation

Number of MET Towers	2	Each
Estimated Rubble	3	CY/MET
Equipment Rental and Labor Costs per MET Foundation	\$110.00	/CY /dump truck trip
Rubble Transportation	\$560.00	trip
<hr/>		
\$1,220.00		

Total for MET Tower Disassembly: \$13,932.00

3.7 ELECTRICAL SUBSTATION REMOVAL

The substation will be removed during decommissioning. The substation foundation, transformers and fencing will be removed and properly disposed or recycled according to regulations current at the time of decommissioning. Foundations and underground components will be removed to a depth of 48 inches and the excavation filled, contoured and revegetated.

1. Labor Costs - Disassembly

5-man crew for 3 weeks	600	Hr
Current Labor Rate	\$52.00	/man-hour
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\$31,200.00		

2. Equipment Rental

Equipment Rental	3	Week
Rental Costs for Equipment	\$34,600.00	/week
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\$103,800.00		

3. Transportation

Number of Transport Vehicles	11	Each
Cost Per Trip	\$560.00	/trip
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\$6,160.00		

4. Remove Gravel

Estimated Gravel	2,800	CY
Equipment Rental and Labor Costs	\$20.00	/CY



Gravel Transportation	\$560.00	/dump truck trip
\$160,533.33		
5. Final Grading		
Disturbed Area	9300	SY
Labor and Equipment Rate	\$0.40	/SY
\$3,720.00		
Total for Substation Disassembly: \$305,413.33		

3.8 ELECTRICAL TRANSMISSION SYSTEM

The poles, conductors, switches and other hardware will be removed and processed for recycling. The supporting poles will be removed and the holes filled in with sub-grade material.

Total Length of Lines	310	Feet
3-man Crew	1	Day
Labor Rate	\$52.00	/hr
Labor Costs	\$1,248.00	
Equipment Rental Rate	\$2,000.00	/day
\$3,248.00		
Number of Transport Vehicles for Spools	1	Each
Cost Per Trip for Spools	\$1,500.00	/trip
\$ 1,500.00		
Number of Transport Vehicles for Wood Poles	1	Each
Cost Per Trip for Wood Poles	\$1,100.00	/trip
\$1,100.00		
Total Transmission Line Removal: \$5,848.00		

3.9 MATERIAL REMOVAL

It has been assumed that all gravel and concrete rubble generated during decommissioning activities will not be transported offsite but will be used onsite. It will be placed as fill at toes of slopes or at other locations in need of fill as desired by the property owner. The transportation costs to haul the material on-site have been included in the above costs. All unexcavated areas compacted by equipment used in decommissioning will be de-compacted in a manner to adequately restore the topsoil and subgrade material to the proper density consistent and compatible with the surrounding area. The areas will be thoroughly cleaned and all debris removed.



4 DECOMMISSIONING REVENUES

Revenue from decommissioning will be realized through the sale of wind farm components and construction material. Turbine components will be sold with a secondary market or as salvage. For the purposes of this report, estimated recovery values are based on the salvage value, as this is the more conservative estimate of revenue.

The market value of both steel and aluminum fluctuate daily and have varied widely over the past five years. The salvage values are based on the current price of steel and aluminum in the Hebron, North Dakota area.

4.1 WIND TURBINE VALUES

The following component estimated weights were used for this report. No scrap value was assumed for the blades or nacelle shell.

Base Section	108,270	lbs
Mid Section	113,560	lbs
Top Section	76,950	lbs
Hub & Nose Cone	41,090	lbs
Nacelle	138,250	lbs
	478,120	lbs/WTG

Current Price of #1 Steel	\$ 280.00	/ton
Number of WTGs	52	Each

Estimated Scrap Value of WTG: \$3,480,713.60

4.2 INTERNAL TRANSFORMERS

For the purpose of this report, the salvage value of the internal transformer is estimated to be 10% of the original transformer cost.

Estimated original cost for internal transformers:	\$40,000.00	Each
Estimated salvage value (10%):	\$4,000.00	Each
Number of WTGs:	52	Each

Estimated Salvage Value of Transformers: 208,000.00

4.3 MET TOWER VALUES

The following component estimated weights were used for this report.

MET Tower component weight:	11,180	lbs
Current Price of #1 Steel:	\$280.00	/ton



Number of MET towers	2	Each
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Estimated Salvage Value of MET Towers:	\$ 3,130.40
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4.4 SUBSTATION COMPONENTS VALUE

For the purpose of this report, the salvage value of the Substation is estimated to be 2% of the original substation costs.

Estimated original cost for Substation:	\$3,600,000.00	Each
Estimated salvage value (2%):	\$72,000.00	Each

Estimated Salvage Value of Substation:	\$72,000.00
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4.5 SUBSTATION TRANSFORMER VALUE

For the purpose of this report, the salvage value of the internal transformer is estimated to be 10% of the original transformer cost.

Estimated original cost for Substation transformer:	\$1,800,000.00	Each
Estimated salvage value (10%):	\$180,000.00	Each

Estimated Salvage Value of Substation Transformer:	\$180,000.00
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4.6 TRANSMISSION WIRING VALUE

Overhead wiring consists of aluminum (steel reinforced) conductors.

Estimated length of wiring	930	feet
Estimated weight of aluminum wiring	0.5	ton
Current price of aluminum scrap	\$1,000.00	/ton

Estimated Salvage Value of Transmission Wiring:	\$500.00
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5 DECOMMISSIONING COST SUMMARY

5.1 DISASSEMBLY AND REMOVAL COST SUMMARY

Project Management	\$1,535,000.00
Wind Turbine Removal	\$2,193,763.00
Foundation Removal	\$459,680.00
Access Roads and Turbine Pads	\$3,131,597.90
MET Tower Removal	\$13,932.00



Electrical Substation Removal	\$305,413.33
Electrical Transmission System	\$5,848.00
Disassembly and Removal Total:	\$7,645,234.23

5.2 DECOMMISSIONING REVENUES SUMMARY

Wind Turbine Values	\$3,480,713.60
Internal Transformers	\$208,000.00
MET Tower Values	\$3,130.40
Substation Components Value	\$72,000.00
Substation Transformer Value	\$180,000.00
Transmission Wiring Value	\$500.00
Decommissioning Revenues Total:	\$3,944,344.00

Net Estimated Opinion of Cost for Decommissioning: \$ 3,700,890.23

6 CONCLUSION

This engineer's estimate produces a conservative estimate of the cost of decommissioning the Sunflower Wind Project. Each individual component of the plan has been conservatively estimated. It is our professional opinion that the actual cost for decommissioning would be lower than the estimate presented here.

