



30 West Superior Street, Suite 200 Duluth, Minnesota 55802-2093 218.355.3232  
www.alletecleanenergy.com

David R. Moeller  
Senior Attorney  
218-723-3963  
dmoeller@allete.com

October 13, 2015

**VIA EMAIL and U.S. MAIL**

Mr. Darrell Nitschke  
Executive Secretary  
North Dakota Public Service Commission  
600 E. Boulevard Ave., Dept. 408  
Bismarck, ND 58505-0480

RE: Thunder Spirit Wind Project  
Adams County Siting Application  
Case No. PU-11-601

Dear Mr. Nitschke:

Enclosed please find the original of Thunder Spirit Wind's Decommissioning and Restoration Plan in the above-referenced case.

Please let me know if you have any questions regarding this filing.

Yours truly,

A handwritten signature in black ink that reads "David R. Moeller". The signature is written in a cursive, slightly slanted style.

David R. Moeller

DRM:sr

Attachment

cc: Wells McGiffert, Thunder Spirit Wind

Frank Frederickson, Thunder Spirit Wind Dan McCourtney, Thunder Spirit Wind

**Thunder Spirit Wind Project  
Adams County Siting Application**

**Case No. PU-11-601**

**Introduction**

Thunder Spirit Wind (Thunder Spirit) submits the following Decommissioning Plan as required by ND Administrative Code Section 69-09-09-06.

The Thunder Spirit Wind Project is located in Adams County approximately 5 miles Northeast of Hettinger, North Dakota. Construction of the Thunder Spirit Wind Project began in 2013 and major work resumed in May 2015, and is expected to be complete by year end 2015. The forty-three 2.5 MW Nordex turbines are expected to be in commercial operation by year end 2015.

**Decommissioning and Restoration**

Thunder Spirit will remove the wind facilities in accordance with North Dakota Wind Turbine Decommissioning guidelines (ND Chapter 69-09-09). This includes:

- Dismantling and removal of all towers, turbine generators, transformers, and overhead conductors
- Removal of underground cables to a depth of twenty-four inches (60.96 centimeters)
- Removal of foundations, buildings, and ancillary equipment to a depth of 3 feet
- Removal of surface road material and restoration of the roads and turbine sites to substantially the same physical condition that existed immediately before construction
- Grading, adding topsoil, and reseeded according to natural resource conservation service technical guide recommendations and other agency recommendations, areas disturbed by the construction of the facility or decommissioning activities, unless the landowner requests in writing that the access roads or other land surface areas be retained.

**Decommissioning Costs**

Consistent with other generation units located in North Dakota, Thunder Spirit will set aside decommissioning funds, to assure that Thunder Spirit will meet any North Dakota decommissioning obligations. If ordered by the North Dakota Public Service Commission, after the tenth (10th) year of operation, Thunder Spirit will secure a performance or surety bond, letter of credit, corporate guarantee, or other form of financial assurance acceptable to the Commission to cover the anticipated costs of decommissioning.

**Salvage Values 2.5 MW Turbine**

Cost per turbine			
Tower/Nacelle/Bedplate/Cabinets	lbs	\$/lb	
	357,150	0.09	\$32,143.50
Bolt Cage / foundation steel	16,000	0.09	\$1,440.00
Hub	70,000	0.09	\$6,300.00
Main shaft / generator	33,060	0.09	\$2,975.40
Copper cables / bus bars	15,900	2.15	\$34,185.00
Aluminum platforms/ladders etc	20,750	0.7	\$14,525.00
Permanent Magnets	4,400	1.5	\$6,600.00
GSU Transformers			<u>\$7,000.00</u>
			\$105,168.90

**Removals (per turbine)**

Crane	\$17,000.00
Operator	\$10,350.00
Iron Workers	\$16,350.00
Crane Mob & Demob	\$30,000.00
Remove 4' of foundation	\$10,000.00
Trucking	<u>\$7,000.00</u>
Cost per turbine	\$90,700.00

**Restoration (per turbine)**

Mob / Demob	\$2,000.00
Equipment and operators	\$11,000.00
De-compaction / seeding	<u>\$2,400.00</u>
	\$15,400.00

Estimated Cost per turbine to  
 remove turbines and restore  
 landscape. \$931.10

Note: The difference between the estimated Salvage Values and Costs for Removals and Restoration is less than 5%, which is within the accuracy of this estimate. As a result, it can be assumed the net decommissioning cost is negligible, or zero.

### **Decommissioning Period**

Thunder Spirit Wind will begin decommissioning the commercial wind energy conversion facility within eight months after the time the facility reaches the end of its useful life, as determined in ND Administrative Code Section 69-09-09-03. Decommissioning will be completed within eighteen months after the facility or turbine reaches the end of its useful life.

The useful life of the Thunder Spirit Substation and other associated facilities may extend well beyond the useful life of the wind turbines and the Project Certificate term. Thunder Spirit anticipates that the cost to decommission the substation will also be totally offset by the salvage value of the components.

Thunder Spirit also reserves the right to explore alternatives regarding Project decommissioning at the end of the Project Certificate term. Retrofitting the turbines and power system with upgrades based on new technology may allow the wind facility to produce efficiently and successfully for many more years.