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September 4, 2009

Mr. Darrell Nitschke  
Executive Secretary  
Director of Administration  
North Dakota Public Service Commission  
600 East Boulevard, Dept 408  
Bismarck, ND 58505-0408

*Via E-Filing to [ndpsc@nd.gov](mailto:ndpsc@nd.gov)  
and UPS Overnight Mail*

**RE: Otter Tail Power Company 49.5 MW Wind Farm – Luverne – Steele County  
Public Convenience and Necessity  
Case No.: PU-08-766**

Dear Executive Secretary Nitschke:

Enclosed in the above-referenced matter are an original and seven (7) copies of a Decommissioning Plan and Cost Estimates.

This 49.5 MW portion of the Luverne Wind Farm was the subject of an Otter Tail Application for a Certificate of Public Convenience and Necessity in PU-08-766.

Thank you for your attention to this matter.

Sincerely,

A handwritten signature in blue ink, appearing to read "Mark B. Bring".

Mark B. Bring  
Associate General Counsel  
MBB:nlo

Enclosures

3 PU-18-343 Filed 09/04/2009 Pages: 7  
Decommissioning Plan and Cost Estimates  
Otter Tail Power Corporation  
Mark Bring, Associate General Counsel

**STATE OF NORTH DAKOTA  
PUBLIC SERVICE COMMISSION**

**Otter Tail Power Company  
Otter Tail 49.5 MW Project – Wind**

**Case No. PU-08-766**

**DECOMMISSIONING PLAN**

Pursuant to ND Administrative Code § 69-09-09-06 and § 69-09-09-07, please accept this filing as Otter Tail Power Company's proposed decommissioning plan for the 49.5 MW owned by Otter Tail Power Company at the Luverne Wind Farm. The decommissioning plan contains two scenarios, one which recoups the salvage value of the components and the other scenario under which decommissioning costs are based upon scrapping the components (except for the transformers).

**Salvage and Resale Value.** The resale value of a wind turbine refers to the potential salvage value at the end of its useful life. Future resale value will depend upon a variety of factors, including the extent of changes in the design of new systems, and upon the attractiveness of wind turbines relative to other alternative energy technologies. The salvage value of the wind energy system increases the ultimate rate of return on the investment. A conservative estimate for salvage value was used in the calculation of a selling price after 20 years, determining the wind turbines to be worth 10 percent of their original purchase price.

**Decommission Activities.** The costs and activities for the removal of the tower and wind turbine components, the meteorological tower, access roads, and the collection system have been evaluated, as follows:

Tower and Wind Turbine Components. The turbines are GE 1.5 MW on 80 meter steel towers. Activities have been estimated for dismantling the GE turbines, the tower sections and wind turbine blades. Removal of the tower wiring and transformer is also included. All components would be removed from the property. The salvage value for the tower, transformer and turbine is estimated to be 10 percent of their estimated value. (As indicated above, a conservative value has been used.)

Tower and Transformer Foundations. Tower and Step-up transformer foundations would be removed to a depth of three (3) feet below existing grade. Conduits and connections would be removed to a depth of two (2) feet below grade. The foundation sites would be graded to match surrounding contours and be restored to conditions that will support surrounding vegetation.

Other Structures. Substation and Station/Grounding Transformer foundations would be removed to a depth of three (3) feet below existing grade. Conduits and connections would be removed to a depth of two (2) feet below grade. The foundation sites would be graded to match surrounding contours and be restored to conditions that will support surrounding vegetation.

Tower Access Roads. Aggregate base roads would be scarified and graded into the adjacent soils to the approximate existing topography. This area would be covered with topsoil from the site and vegetation re-established.

Collection System. The collection system terminations near the transformer would be removed to a depth of two (2) feet below existing ground line. The collection system cabling is assumed to be left in place since the depth of installation is below the two (2) foot depth as per industry norms.

Disturbed areas would be restored and reclaimed to the same general topography existing just prior to commencing construction of the Luverne Wind Farm. Topsoil will be spread over the disturbed area at a depth similar to that in existence prior to the disturbance. The disturbed areas would be graded, top-soiled and reseeded according to Natural Resources Conservation Service guidelines, unless the landowner requests, in writing, that the access roads or other land surface areas be retained.

Within eight (8) months after the facility or turbine reaches the end of its useful life (after no electricity generation for a continuing period of 24 months), decommissioning shall begin and will be completed within eighteen (18) months after the facility or turbine reaches the end of its useful life.

The cost of the decommissioning would be paid for using funds obtained from internally generated cash flows.

If ordered by the North Dakota Public Service Commission, after the tenth (10<sup>th</sup>) year of operation, the owner/operator 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.

As indicated on the attached estimates, the total cost of salvage and restoration is estimated to be (\$308,348.00), and the total estimated cost if the components are scrapped is \$717,820.00.

If you have any questions or need additional clarification, please contact me.

Respectfully submitted,

OTTER TAIL POWER COMPANY



Harvey McMahan  
Manager, Wind Construction & Operations

**Project: 49.5 MW of Luverne Wind Farm  
Wind Tower Decommission and Site Restoration Estimate (Salvage Value)**

**1.0 Turbines and Towers:** Decommissioning turbines and towers for this estimate assumes a commercial or resale value of both the turbines and towers. Salvage will be performed in a manner consistent with material salvaging practices.

Turbines - GE 1.5 MW; Towers - 80M Steel Towers

	<u>Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>	<u>Assumptions:</u>
1.1 Dismantle Turbine & Towers	33 ea	\$ 124,800.00	\$ 4,118,400.00	Removal of electrical tower wiring included & hauling of tower turbines off-site (\$93.6k).
1.2 Removal of Transformers	33 ea	\$ 1,196.00	\$ 39,468.00	
1.3 Removal of Turbine Blades	33 ea	\$ 5,720.00	\$ 188,760.00	Removal & disposal of bolts included
1.4 Salvage Value of Towers	33 ea	\$ (20,800.00)	\$ (686,400.00)	
1.5 Salvage Value of Transformers	33 ea	\$ (4,160.00)	\$ (137,280.00)	
1.6 Salvage Value of Turbine	33 ea	\$ (130,000.00)	\$ (4,290,000.00)	
1.0 Turbine and Tower Totals:			\$ (767,052.00)	

**2.0 Tower Foundations:** Tower foundations will be removed to a depth of three (3) feet below existing grade. Step-up transformer foundations will be removed to three (3) feet below grade. Conduits and connections will be removed to a depth of three (3) feet below grade. Foundation sites will be graded to match surrounding contours and restored to conditions that will support surrounding vegetation.

Type: Spread Footing with Pedestal

	<u>Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>	<u>Assumptions:</u>
2.1 Foundation Removal, Disposal & Grading	33 ea	\$ 15,500.00	\$ 511,500.00	Demolition & removal of foundation concrete & steel Complete removal
2.2 Transformer Pad Removal & Disposal	33 ea	\$ 260.00	\$ 8,580.00	
2.0 Tower Foundation Totals:			\$ 520,080.00	

**3.0 Other Structures:** Substation and Station/Grounding Transformer foundations would be removed to a depth of three (3) feet below existing grade. Conduits and connections would be removed to a depth of two (2) feet below grade. The foundation sites would be graded to match surrounding contours and be restored to conditions that will support surrounding vegetation.

	<u>Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>	<u>Assumptions:</u>
3.1 80 meter Meteorological Towers	0 ea	\$ --	\$ --	
3.2 Substation Foundations, Fence, Steel & Grading	1 ea	\$ 10,000.00	\$ 10,000.00	
3.3 Substation Equipment Salvage	1 ea	\$ (300,000.00)	\$ (300,000.00)	
3.4 Control House Building Salvage	1 ea	\$ 10,000.00	\$ 10,000.00	
3.0 Other Structure Totals:			\$ (280,000.00)	

**4.0 Tower Access and Site Roads:** Aggregate base roads will be scarified and graded into the adjacent soils to approximate existing topography, covered with topsoil from the site and vegetation re-established.

Type: 41,232 (lf) linear feet of average 32 feet wide roads with 6 inches of compacted aggregate base

	<u>Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>	<u>Assumptions:</u>
4.1 Roadway Obliteration	41,232 lf	\$ 2.96	\$ 122,047.00	Aggregate base can be mixed and covered with topsoil
4.2 Topsoil Re-spread	69.50 ac	\$ 286.00	\$ 19,877.00	
4.3 Re-vegetation Seeding	69.50 ac	\$ 832.00	\$ 57,824.00	
4.0 Tower Access & Site Road Totals:			\$ 199,748.00	

**5.0 Collection System: Removal of termination sections near transformer to a depth of 24" below existing ground line.**

	<u>Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>	<u>Assumptions:</u>
5.1 Remove collection system Terminations	33 ea	\$ 572.00	\$ 18,876.00	
5.0 Collection System Totals:			<u>\$ 18,876.00</u>	
<b>Luverne Site Decommission Totals:</b>			<b>\$ (308,348.00)</b>	

**Project: 49.5 MW of Luverne Wind Farm  
Wind Tower Decommission and Site Restoration Estimate (Scrap Value)**

**1.0 Turbines and Towers:** Decommissioning turbines and towers for this estimate assumes no commercial or resale value for both the turbines and towers. Scrap practices will be performed in a manner consistent with demolition practices. Transformers will be salvaged.

Turbines - GE 1.5 MW; Towers - 80M Steel Towers

	<u>Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>	<u>Assumptions:</u>
1.1 Demolish Turbine & Towers	33 ea	\$ 20,800.00	\$ 686,400.00	Removal of electrical tower wiring included & scrapping of tower/turbines on-site.
1.2 Removal of Transformers	33 ea	\$ 1,196.00	\$ 39,468.00	
1.3 Removal of Turbine Blades	33 ea	\$ 5,720.00	\$ 188,760.00	
1.4 Scrap Value of Towers	33 ea	\$ (6,344.00)	\$ (209,352.00)	Removal due to fiberglass clean-up with disposal in an off-site facility. Scrap value @ \$36.40/ton based upon a 349,212 # tower.
1.5 Salvage Value of Transformers	33 ea	\$ (4,160.00)	\$ (137,280.00)	
1.6 Scrap Value of Turbine	33 ea	\$ (9,360.00)	\$ (308,880.00)	
1.0 Turbine and Tower Totals:			\$ 259,116.00	

**2.0 Tower Foundations:** Tower foundations will be removed to a depth of three (3) feet below existing grade. Step-up transformer foundations will be removed to three (3) feet below grade. Conduits and connections will be removed to a depth of two (2) feet below grade. Foundation sites will be graded to match surrounding contours and restored to conditions that will support surrounding vegetation.

Type: Spread Footing with Pedestal

	<u>Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>	<u>Assumptions:</u>
2.1 Foundation Removal, Disposal & Grading	33 ea	\$ 15,500.00	\$ 511,500.00	Demolition & removal of foundation concrete & steel Complete removal
2.2 Transformer Pad Removal & Disposal	33 ea	\$ 260.00	\$ 8,580.00	
2.0 Tower Foundation Totals:			\$ 520,080.00	

**3.0 Other Structures:** Substation and Station/Grounding Transformer foundations would be removed to a depth of three (3) feet below existing grade. Conduits and connections would be removed to a depth of two (2) feet below grade. The foundation sites would be graded to match surrounding contours and be restored to conditions that will support surrounding vegetation.

	<u>Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>	<u>Assumptions:</u>
3.1 80 meter Meteorological Towers	0 ea	\$ --	\$ --	
3.2 Substation Foundations, Fence, Steel & Grading	1 ea	\$ 10,000.00	\$ 10,000.00	
3.3 Substation Equipment Salvage	1 ea	\$(300,000.00)	\$ (300,000.00)	
3.4 Control House Building Salvage	1 ea	\$ 10,000.00	\$ 10,000.00	
3.0 Other Structure Totals:			\$ (280,000.00)	

**4.0 Tower Access and Site Roads:** Aggregate base roads will be scarified and graded into the adjacent soils to approximate existing topography, covered with topsoil from the site and vegetation re-established.

Type: 41,232 (lf) linear feet of average 32 feet wide roads with 6 inches of compacted aggregate base

	<u>Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>	<u>Assumptions:</u>
4.1 Roadway Obliteration	41,232 lf	\$ 2.96	\$ 122,047.00	Aggregate base can be mixed and covered with topsoil
4.2 Topsoil Re-spread	69.50 ac	\$ 286.00	\$ 19,877.00	
4.3 Re-vegetation Seeding	69.50 ac	\$ 832.00	\$ 57,824.00	
4.0 Tower Access & Site Road Totals:			\$ 199,748.00	

**5.0 Collection System: Removal of termination sections near transformer to a depth of 24" below existing ground line.**

	<u>Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>	<u>Assumptions:</u>
5.1 Remove collection system terminations	33 ea	\$ 572.00	\$ 18,876.00	
5.0 Collection System Totals:			<u>\$ 18,876.00</u>	
<b>Luverne Site Decommission Totals:</b>			<b>\$ 717,820.00</b>	