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May 27, 2011

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**VIA ELECTRONIC FILING**

Dr. Burl Haar  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7th Place E, Ste. 350  
St. Paul, MN 55101

**PUBLIC VERSION**

**Re: In the Matter of the Application of Ellerth Wind LLC for a Certificate of Need for a 98.9 MW Wind Project in Marshall County, Minnesota, PUC Docket No. IP-6855/CN-11-112**

Dear Dr. Haar:

Electronically filed herewith are the Public and Non-Public Trade Secret versions of the Certificate of Need ("CON") application for Ellerth Wind LLC's planned wind energy project in Marshall County, Minnesota. With this CON application, Ellerth Wind LLC requests authorization to build a 98.9 MW Large Wind Energy Conversion System and associated facilities. This application is being submitted via the Minnesota Public Utility Commission's e-filing system by Stoel Rives LLP on behalf of Ellerth Wind LLC. On February 9, 2011, Ellerth Wind LLC filed a request for exemptions from certain data requirements in Chapter 7849 of the Minnesota Rules and a variance of the 45-day waiting period between requesting exemptions and filing a CON application. The Commission granted all of the variance and exemption requests. Therefore, this CON application does not include data for which exemptions were granted.

Discrete parts of this CON application include proprietary information that, due to its commercially sensitive nature, has been designated as Trade Secret pursuant to Minn. Stat. § 13.37, subd. 1(b). For this reason, Ellerth Wind LLC is filing both Public and Non-Public Trade Secret versions of this CON application. Disclosure of such proprietary information, which includes cost data, would be economically harmful to Ellerth Wind LLC. The Trade Secret information is properly designated because it (1) is supplied by Ellerth Wind LLC, (2) is the subject of reasonable efforts by Ellerth Wind LLC under the circumstances to maintain its secrecy, and (3) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.

Ellerth Wind LLC requests that review of this CON application be combined to the extent possible with the associated Large Wind Energy Conversion System Site Permit Application, which Ellerth Wind LLC anticipates submitting soon.



Dr. Burl Haar  
May 27, 2011  
Page 2

Sincerely,

STOEL RIVES LLP

/s/ Sarah Johnson Phillips

Sarah Johnson Phillips

STOEL RIVES LLP

/s/ Kevin Johnson

Kevin Johnson

Attachments

**STATE OF MINNESOTA  
BEFORE THE  
PUBLIC UTILITIES COMMISSION**

|                   |              |
|-------------------|--------------|
| Ellen Anderson    | Chair        |
| David C. Boyd     | Commissioner |
| J. Dennis O'Brien | Commissioner |
| Phyllis Reha      | Commissioner |
| Betsy Wergin      | Commissioner |

**In the Matter of the Application of Ellerth  
Wind LLC for a Certificate of Need for a  
98.9 MW Wind Project in Marshall County,  
Minnesota.**

**MN PUC Docket No. IP-6855/CN-11-112**

**SUMMARY OF FILING**

Ellerth Wind LLC, a Delaware limited liability company, is proposing to construct a 98.9 MW wind project in Marshall County, Minnesota (the "Project"). The Project will be located approximately 10 kilometers west of the village of Newfolden, Minnesota in Marsh Grove, Foldahl, Wright, West Valley, Viking, and Comstock Townships. With this filing, Ellerth Wind LLC is requesting that the Minnesota Public Utilities Commission authorize construction of the Project, which is a Large Energy Facility as defined in Minn. Stat. § 216B.2421, subd. 2(1), by granting it a Certificate of Need pursuant to Minn. Stat. § 216B.243, subd. 2. The Project is intended to provide Minnesota and the surrounding region with renewable energy eligible to satisfy renewable energy requirements in Minnesota and surrounding states. Ellerth Wind LLC expects construction of the Project to commence in May 2012 with a commercial operation date in November 2012.

**PUBLIC VERSION**

**APPLICATION FOR CERTIFICATE OF NEED**

**ELLERTH WIND LLC**

**MARSHALL COUNTY, MINNESOTA**

**Docket No. IP-6855/CN-11-112**

**May 27, 2011**

**PUBLIC VERSION**  
**TRADE SECRET INFORMATION HAS BEEN REMOVED**

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**Table 1: LEGF Certificate of Need Rule Cross-Reference**

| <b>Minnesota Rule</b> | <b>Required Information</b>   | <b>Applicability/Location in the Document</b>  | <b>Exemption Granted</b> |
|-----------------------|---|--|--------------------------|
| <b>7849.0120</b>      | Criteria – Probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to applicant, customers, people of MN, and neighboring states | Section 2.2.1                                  | Yes (partial)            |
| <b>7849.0120</b>      | Criteria – A more reasonable and prudent alternative has not been demonstrated  | Sections 2.2.2 & 3.2.4                         | --                       |
| B1                    | Appropriate size, type, and timing compared to reasonable alternatives  | Sections 2.2.2(a), 2.2.2(b), 2.2.2(c), & 3.2.4 | No                       |
| B2                    | Cost of the facility and its energy compared to reasonable alternatives   | Sections 2.2.2(e) & 3.2.4                      | No                       |
| B3                    | Effect of the facility on natural and socioeconomic environments compared to the effects of reasonable alternatives   | Section 2.2.2(f) & 3.2.4                       | No                       |
| B4                    | Expected reliability compared to reasonable alternatives  | Section 2.2.2(d) & 3.2.4                       | No                       |
| <b>7849.0120</b>      | Criteria – Project will provide benefits to society   | Section 2.2.3                                  | --                       |
| C1                    | Relationship of the proposed facility or suitable modification to overall state energy needs  | Section 2.2.3(a)                               | No                       |
| C2                    | Effects of the facility on natural and socioeconomic environments compared to the effects of not building   | Section 2.2.3(b)                               | No                       |
| C3                    | Effects of the facility or suitable modification in inducing future development   | Section 2.2.3(c)                               | No                       |
| C4                    | Social beneficial uses of the output of the facility, or suitable modification, including its uses to protect or enhance environmental quality  | Section 2.2.3(d)                               | No                       |
| <b>7849.0120 D</b>    | Criteria – Proposed facility or suitable modification will not fail to comply with relevant policies, rules, and regulations of other state, federal, and local government agencies                 | Sections 2.2.4 &                               | No                       |
| <b>7849.0210</b>      | Filing Fees and Payment Schedule  | Section 1.1.2                                  | No                       |
| <b>7849.0240</b>      | Need Summary and Additional Considerations  |  |                          |
| Subpart 1             | Need Summary – Summary of major factors justifying need for the facility  | Section 2                                      | No                       |
| Subpart 2 A           | Additional Considerations – Socially beneficial uses of the output of the facility, including to protect or enhance environmental quality   | Section 2.3.1                                  | No                       |
| Subpart 2 B           | Additional Considerations – Promotional activities that may have given rise to the demand for the facility  | Section 2.3.2                                  | Yes                      |
| Subpart 2 C           | Additional Considerations – Effects of the facility in inducing future developments   | Section 2.3.3                                  | Yes                      |
| <b>7849.0250</b>      | Description of Proposed LEGF and Alternatives   | Section 3                                      | --                       |
| A1                    | Description – Nominal generating capability and   | Section 3.1.1                                  | No                       |

| <b>Minnesota Rule</b> | <b>Required Information</b>   | <b>Applicability/Loc<br/>ation in the<br/>Document</b>      | <b>Exemption<br/>Granted</b> |
|-----------------------|---|---|------------------------------|
|                       | effects of economies of scale on the facility size and timing   |   |                              |
| A2                    | Description – Anticipated operating cycle and annual capacity factor  | Section 3.1.2   | No                           |
| A3                    | Description – Type of fuel, reason for selection, projection of availability over life of the facility, and alternative fuels                                     | Section 3.1.3   | No                           |
| A4                    | Description – Anticipated heat rate of the facility   | Section 3.1.4   | No                           |
| A5                    | Description – Anticipated areas where the facility will be located  | Section 3.1.5   | No                           |
| B1                    | Discussion of Alternatives – Purchased power  | Section 3.2.2(a)  | Yes                          |
| B2                    | Discussion of Alternatives – Increased efficiency of existing facilities including transmission lines   | Section 3.2.2(b)  | Yes                          |
| B3                    | Discussion of Alternatives – New transmission lines   | Section 3.2.2(c)  | Yes                          |
| B4                    | Discussion of Alternatives – New generating facilities of a different size and energy source  | Sections 3.2.2(d), 3.2.2(e), 3.2.2(f), 3.2.2(g), & 3.2.2(h) | Yes (partial)                |
| B5                    | Discussion of Alternatives – Reasonable combinations of alternatives  | Section 3.2.2(i)  | Yes (partial)                |
| C                     | Proposed Facility and Alternatives  | Sections 3.3, 3.2.3, & 3.2.4                                | Yes (partial)                |
| C1                    | Capacity cost in current dollars/kilowatt   | Section 3.3.1   | Yes (partial)                |
| C2                    | Service life  | Section 3.3.2   | Yes (partial)                |
| C3                    | Estimated average annual availability   | Section 3.3.3   | Yes (partial)                |
| C4                    | Fuel costs in current dollars/kilowatt hour   | Section 3.3.4   | Yes (partial)                |
| C5                    | Viable operating and maintenance costs in current dollars/kilowatt hour   | Section 3.3.5   | Yes (partial)                |
| C6                    | Total cost in current dollar/kilowatt hour  | Section 3.3.6   | Yes (partial)                |
| C7                    | Effect on rates system wide and in MN   | Section 3.3.7   | Yes (partial)                |
| C8                    | Efficiency – Expressed for a generating facility as the estimated heat rate   | Section 3.3.8   | Yes (partial)                |
| C9                    | Major Assumptions for providing information relating to Items 1-8 rates for fuel costs, and operating and maintenance costs as well as projected capacity factors | Section 3.3.9   | Yes (partial)                |
| D                     | Map Showing Applicant’s System  | Section 3.4   | Yes (partial)                |
| E                     | Other Information – Relevant information about the proposed facility and alternatives necessary to determine need   | Sections 2 & 3  | --                           |

| <b>Minnesota Rule</b> | <b>Required Information</b>  | <b>Applicability/Location in the Document</b> | <b>Exemption Granted</b> |
|-----------------------|--|---|--------------------------|
| <b>7849.0270</b>      | Peak Demand and Electrical Consumption Forecast  | Section 6                                     | Yes (partial)            |
| <b>7849.0280</b>      | System Capacity  | Section 7                                     | Yes (partial)            |
| <b>7849.0290</b>      | Conservation Programs  | Section 8                                     | Yes                      |
| <b>7849.0300</b>      | Consequences of Delay – Discuss anticipated consequences if proposed facility is delayed   | Section 9                                     | Yes (partial)            |
| <b>7849.0310</b>      | Environmental Information – Provide environmental data in response to part 7849.0250, Item C or 7849.0260, Item C and information as requested in parts 7849.0320 to 7849.0340 | Section 4                                     | No                       |
| <b>7849.0320</b>      | Generating Facilities  | Section 4.2                                   | No                       |
| A                     | The estimated range of land requirements, including water storage, cooling systems, and solid waste storage  | Section 4.2.1                                 | No                       |
| B                     | Estimated vehicular, rail, and barge traffic generated by construction and operation of the LEGF   | Section 4.2.2                                 | No                       |
| C                     | Fossil-Fueled Facilities – Fuel  | Section 4.2.3(a)                              | No                       |
| D                     | Fossil-Fueled Facilities – Emissions   | Section 4.2.3(b)                              | No                       |
| E                     | Water Use for Alternate Cooling Systems  | Section 4.2.4                                 | No                       |
| F                     | Potential sources and types of discharges to water   | Section 4.2.5                                 | No                       |
| G                     | Radioactive Releases   | Section 4.2.6                                 | No                       |
| H                     | Potential types and quantities of solid wastes in tons/year  | Section 4.2.7                                 | No                       |
| I                     | Potential sources and types of audible noise generated   | Section 4.2.8                                 | No                       |
| J                     | Estimated work force required for construction and operation   | Section 4.2.9                                 | No                       |
| K                     | Minimum number and size of transmission facilities required to provide a reliable outlet   | Section 4.2.10                                | No                       |
| <b>7849.0330</b>      | Transmission Facilities  | Section 4.3                                   | Yes                      |
| <b>7849.0340</b>      | Alternative of No Facility   | Section 3.2.2(d)                              | Yes (partial)            |

## **1. INTRODUCTION AND EXECUTIVE SUMMARY**

Ellerth Wind LLC (“Ellerth Wind”) submits this application for a Certificate of Need (“CON”) from the Minnesota Public Utilities Commission (“PUC” or the “Commission”) for a 98.9 MW wind energy project (the “Project”) pursuant to Minn. Stat. § 216B.243 and Chapter 7849 of the Minnesota Rules. Ellerth Wind respectfully requests that the Commission issue a CON for the Project.

### **1.1 Introduction**

Ellerth Wind intends to construct and operate a 98.9 MW Large Wind Energy Conversion System (“LWECS”) in northwestern Minnesota. The Project is a Large Energy Facility as defined in Minn. Stat. § 216B.2421, subd. 2(1) and therefore requires a CON and a LWECS site permit under Minnesota law. Ellerth Wind is a Delaware limited liability company and a wholly owned subsidiary of TCI Renewables Ltd., a company registered in England with North American offices in Montreal, Canada.

The Project will be located in northwestern Minnesota in Marshall County approximately 10 kilometers west of the village of Newfolden. The Project will be located within six townships including Marsh Grove, Foldahl, Wright, West Valley, Viking, and Comstock. The landscape is rural with limited development or housing, and the Project will be situated on agricultural land. Approximately 22,000 acres of land are currently under agreement, which encompass all land anticipated to be needed for turbines, access roads, and interconnection facilities. Ellerth Wind anticipates constructing between 39 and 65 wind turbines with a maximum total nameplate capacity of 98.9 MW.

The electricity generated by the Project will be offered for sale to wholesale customers, including Minnesota utilities that forecast a need for additional renewable energy to comply with the Minnesota Renewable Energy Standard (“RES”) or other renewable requirements. The intended point of interconnection is on a 115 kV line running through the project area that is owned by Otter Tail Power Company, a member of the Midwest Independent System Operator (“Midwest ISO”). Ellerth Wind has completed all necessary interconnection and transmission studies and signed a Generator Interconnection Agreement (“GIA”) with Otter Tail Power Company in fall of 2010. Ellerth Wind anticipates completing construction on the Project no later than the fourth quarter of 2012 based on construction deadlines in the GIA and the scheduled expiration of the federal Production Tax Credit (“PTC”) on December 31, 2012.

**Figure 1. Project Vicinity Map**

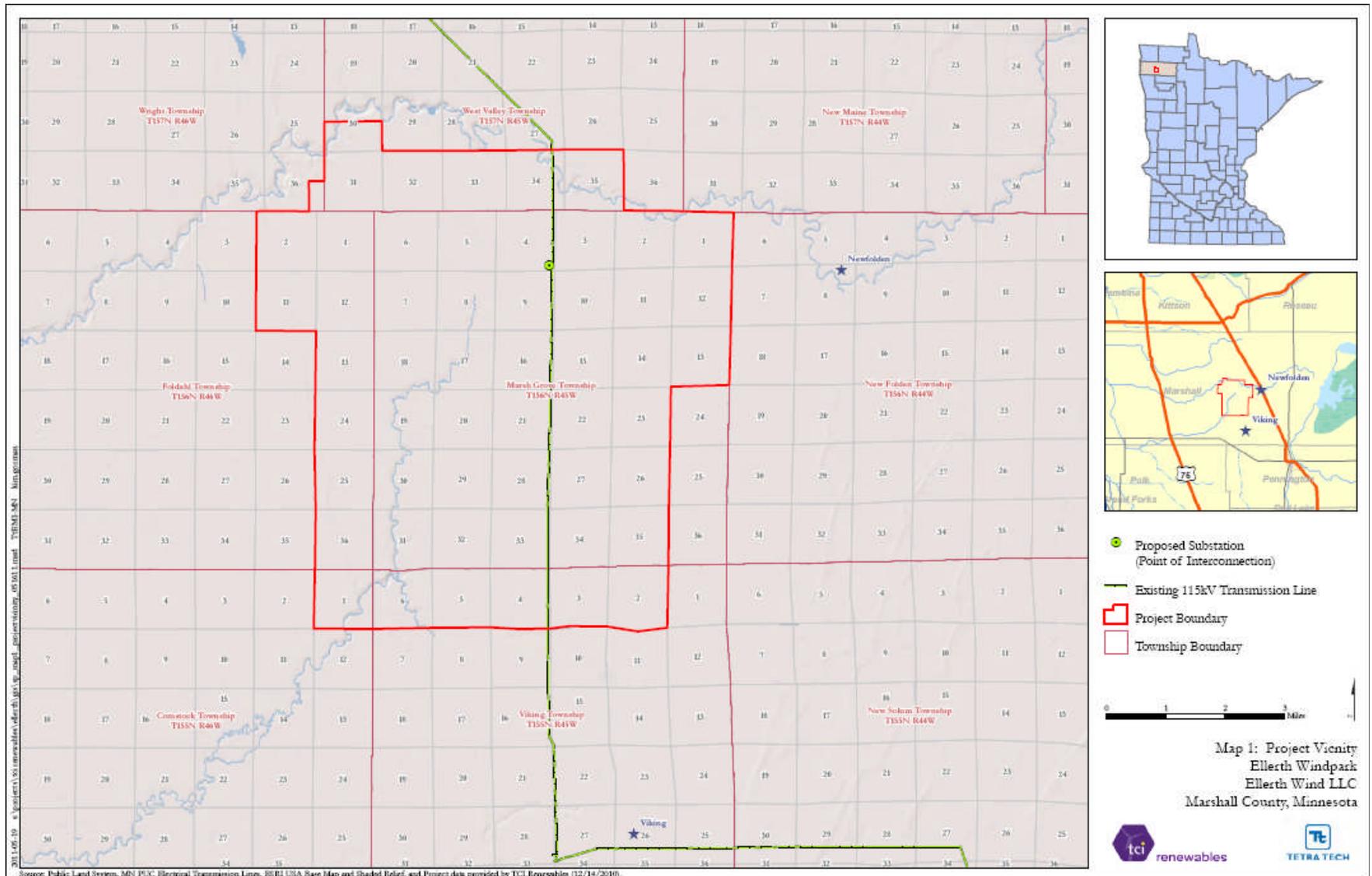
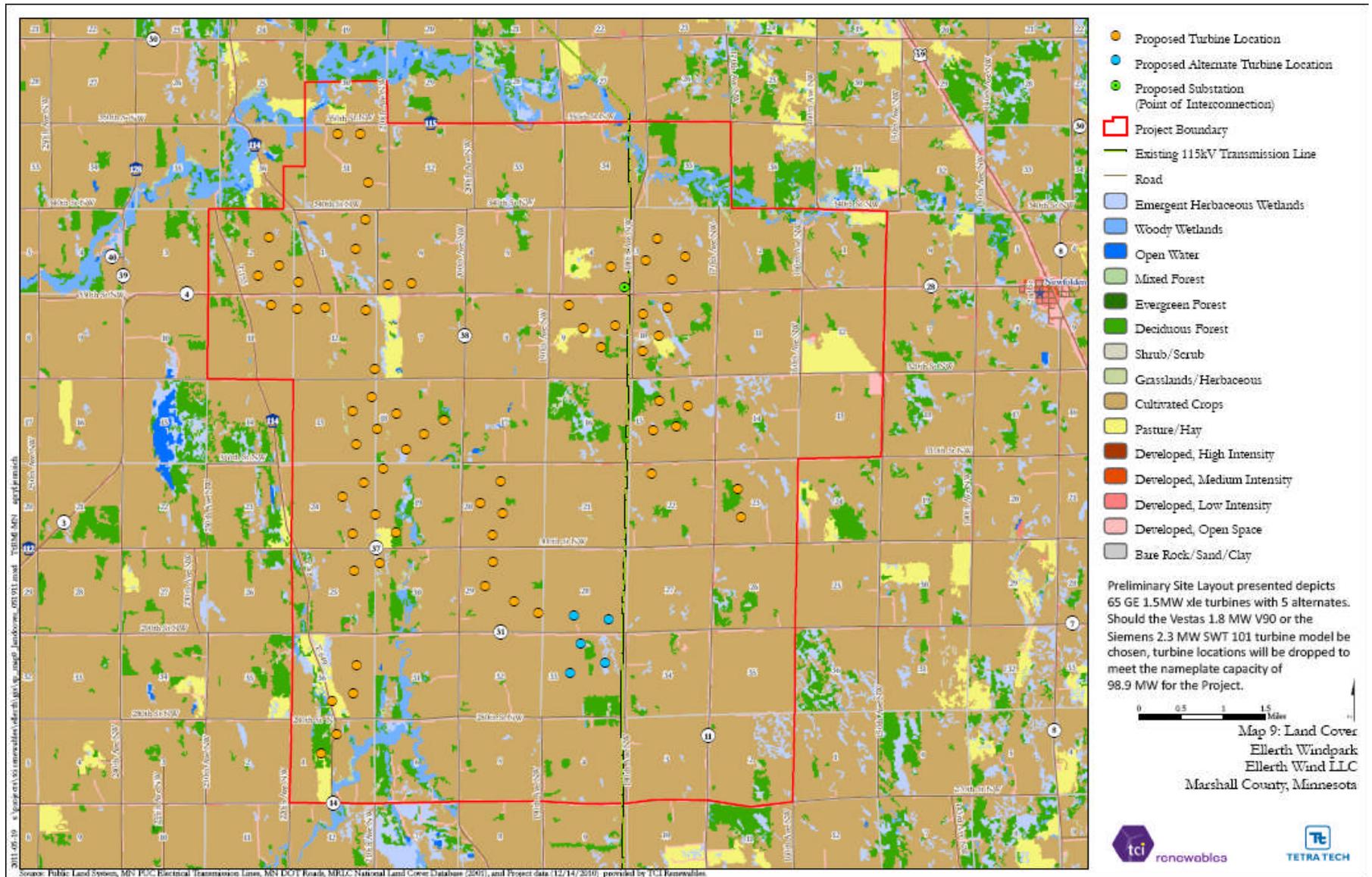


Figure 2. Preliminary Turbine Layout Map



**1.1.1 Project Contacts**

|  |   |  |
|--|---|--|
| Sarah Johnson Phillips<br>Stoel Rives LLP<br>33 S 6th St., Suite 4200<br>Minneapolis, MN 55402<br>(612) 373-8843<br>sjphillips@stoel.com | Brett O'Connor<br>Ellerth Wind LLC<br>381 Notre Dame West,<br>Suite 102<br>Montreal, QC H2Y 1V2<br>(514) 842-1923<br>brett.oconnor@tcir.net | Rory Cantwell<br>Ellerth Wind LLC<br>381 Notre Dame West,<br>Suite 102<br>Montreal, QC H2Y 1V2<br>(514) 842-1923<br>rory.cantwell@tcir.net |
|--|---|--|

**1.1.2 Filing Fees and Payment Schedule (Minn. R. 7849.0210)**

The total fee for the CON application is \$14,945 and will be paid according to the schedule provided in Minn. R. 7849.0210, subp. 2 and shown in Table 2. The total amount is calculated based on a project capacity of 98.9 MW and the formula provided in Minn. R. 7849.0210, subp. 1. A check in the amount of \$3,736.25 is being delivered separately via courier.

**Table 2: Fee Calculation**

| Fee Calculation                               | Amount             |
|---|--------------------|
| Fee Calculation Equation                      | \$10,000 + \$50/MW |
| Due with CON Application                      | \$ 3,736.25        |
| Due 45 days after Application submittal date  | \$ 3,736.25        |
| Due 90 days after Application submittal date  | \$ 3,736.25        |
| Due 135 days after Application submittal date | \$ 3,736.25        |
| Total Calculated Fees                         | \$ 14,945.00       |

**1.1.3 Exemption and Variance Requests**

CON applications must include information as described in Minnesota Rules Chapter 7849. An applicant may request to be exempted from providing certain data by making the exemption request in writing showing that the requirement is either unnecessary to determine the need for the proposed facility or may be satisfied by submitting another document. Minn. R. 7849.0200, subp. 6. On February 9, 2011, Ellerth Wind submitted a request for exemptions from certain requirements for data specific to the operation and regulation of utilities that are not applicable to an independent power producer. Many of these data requirements relate to a utility's "system," which is defined as the "service area where the utility's ultimate consumers are located and that combination of generating, transmission, and distribution facilities that makes up the operating physical plant of the utility, whether owned or nonowned, for the delivery of electrical energy to ultimate consumers." Minn. R. 7849.0010, subp. 29. An independent power producer like Ellerth Wind does not have a service area or a "system," which makes information requests about Ellerth Wind's system inapplicable.

The Project will provide renewable energy intended to be purchased by electric utilities to satisfy Minnesota's RES under Minn. Stat. § 216B.1691 and similar laws in surrounding states. Ellerth Wind intends to offer wind-generated electricity on the wholesale market that will help utilities meet renewable energy requirements. Because the Project is intended to help satisfy the RES, Ellerth Wind requested exemptions from information requirements related to alternatives that would not satisfy the RES.

The Commission granted all of Ellerth Wind's exemption requests as well as a variance allowing Ellerth Wind to forego waiting 45 days to file this CON application after the exemptions were granted.<sup>1</sup> Where appropriate, this CON application will reference the granted exemptions.

## **1.2 Wind Power Development in Minnesota and Surrounding Region**

As an independent power producer, Ellerth Wind will offer power for sale to wholesale customers (such as investor-owned utilities and electric cooperatives) that have a need for renewable energy.

Minnesota is home to strong wind energy resources and strong policies in support of renewable energy. Of the windy land areas<sup>2</sup> that are potentially available for development, the National Renewable Energy Laboratory estimates that Minnesota has a total wind energy potential of 489,271 MW.<sup>3</sup> As of January 1, 2011, Minnesota had a total of 2,192 MW of installed wind energy capacity.<sup>4</sup> Although roughly 10 states have greater total resource potential, and Minnesota has tapped into only a small fraction of its own, Minnesota ranks fourth among states in total installed capacity.<sup>5</sup>

The Minnesota Legislature began encouraging renewable energy development in the early 1990s when it directed Xcel Energy (then Northern States Power) to acquire 425 MW<sup>6</sup> of wind power and to put

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<sup>1</sup> In the matter of Ellerth Wind LLC's Request for a Variance and Exemption from Certain Certificate of Need Application Content Requirements ("Grant of Exemption"), Minnesota Pub. Utils. Comm'n Docket No. CN-11-112 (Apr. 4, 2011).

<sup>2</sup> Defined as those with a gross capacity factor (without losses) of 30% or greater at 80 meter hub height.

<sup>3</sup> Wind Powering America, 80-Meter Wind Maps and Wind Resource Potential, *available at* [http://www.windpoweringamerica.gov/wind\\_maps.asp#us](http://www.windpoweringamerica.gov/wind_maps.asp#us) (last visited May 23, 2011).

<sup>4</sup> American Wind Energy Association, U.S. Wind Industry Year-End 2010 Market Report, *available at* <http://www.awea.org/learnabout/publications/loader.cfm?csModule=security/getfile&PageID=5083> (last visited May 23, 2011).

<sup>5</sup> *Id.*

<sup>6</sup> Minn. Stat. § 216B.2423, *available at* <https://www.revisor.mn.gov/statutes/?id=216B.2423>. In 1999 another 400 MW was added to the Xcel requirement, creating a total of 825 MW of required wind capacity.

roughly \$8.5 million (now closer to \$20 million) per year toward renewable energy development.<sup>7</sup> The Minnesota Legislature first adopted a Renewable Energy Objective in 2001, directing electric utilities to make a good-faith effort to have 10% of retail electric sales come from renewable resources by 2015.<sup>8</sup> In 2007, the Legislature enacted the current standard, which sets a 25% by 2025 requirement for most Minnesota utilities and a 30% by 2020 requirement for Xcel Energy.<sup>9</sup> These initiatives propelled Minnesota to a national leadership position in terms of installed wind capacity.

Several other Midwestern states also have established renewable electricity targets, including Illinois, Iowa, Michigan, North Dakota, South Dakota, and Wisconsin. In order to facilitate compliance with state renewable standards, the Minnesota Legislature and surrounding states have authorized the use of renewable energy credits (“RECs”),<sup>10</sup> or more specifically the retirement of RECs, to demonstrate annual compliance with state policies.<sup>11</sup> While this gave utilities some flexibility in meeting the various standards, it also created a robust regional appetite for independent wind energy generation and the associated RECs into the foreseeable future.

## **2. NEED SUMMARY (MINN. R. 7849.0120 AND MINN. R. 7849.0240)**

### **2.1 Certificate of Need Criteria (Minn. R. 7849.0120)**

The Commission established the criteria used to assess the need for large electric generating facilities in Minnesota Administrative Rules 7849.0120. The Commission must grant a certificate of need to an applicant upon determining that:

A. the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant’s customers, or to the people of Minnesota and neighboring states . . . [;]

. . . .

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<sup>7</sup> Minn. Stat. § 116C.779, available at <https://www.revisor.mn.gov/statutes/?id=116c.779>.

<sup>8</sup> Minnesota Department of Commerce, The Next Generation: Renewable Energy Objective, available at [http://www.state.mn.us/mn/externalDocs/Commerce/The\\_Next\\_Generation\\_Renewable\\_Energy\\_Objective\\_2007\\_012207111157\\_REO%20Report2007.pdf](http://www.state.mn.us/mn/externalDocs/Commerce/The_Next_Generation_Renewable_Energy_Objective_2007_012207111157_REO%20Report2007.pdf) (last visited May 23, 2011).

<sup>9</sup> Minn. Stat. § 216B.1691, available at <https://www.revisor.mn.gov/statutes/?id=216B.1691>.

<sup>10</sup> Wisconsin refers to them as Renewable Resource Credits or RRCs.

<sup>11</sup> Minn. Stat. § 216B.1691, subd. 4(b).

B. a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence in the record . . . [;]

. . . .

C. by a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health . . . [; and]

. . . .

D. the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.<sup>12</sup>

## **2.2 The Ellerth Wind Project Satisfies the Four-Part Need Test (Minn. R. 7849.0120)**

The Ellerth Wind Project satisfies all four of the Commission's criteria for granting certification to the Project for the reasons described in this Section 2.2.

### ***2.2.1 The Probable Result of Denial of Ellerth Wind's Application Would Be an Adverse Effect on the Adequacy, Reliability, and Efficiency of the Regional Energy Supply***

The Project will provide up to 98.9 MW of nameplate capacity of wind-generated electricity to meet the renewable electricity needs of Minnesota and the surrounding region. The Project's output will be available for purchase on the wholesale market by utilities. Denying this application would result in the loss of a significant amount of renewable electricity needed to satisfy growing state and regional demand for electricity, as well as to satisfy state renewable energy requirements now and in the future. Further, it would forego an opportunity add low-carbon generation to Minnesota's energy mix in keeping with the state's long-term plans to reduce carbon dioxide emissions.<sup>13</sup> If the Commission grants a CON to the Project, Ellerth Wind will engage in the wholesale energy market for contracts with utilities, providing an incentive to keep the Project's costs low and select the appropriate size, type, and timing for the Project.

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<sup>12</sup> Minn. R. 7849.0120.

<sup>13</sup> See Minn. Stat. § 216H.02.

(a) Increasing Demand for Electricity.

Despite the recent national economic recession, state and federal agencies predict continuing steady growth in demand for electricity. At the national level, the Energy Information Administration's ("EIA") Annual Energy Outlook 2011 continues to predict steady long-term growth in electricity demand at an average annual rate of 1.0% for its reference case scenario.<sup>14</sup> At the state level, the Minnesota Office of Energy Security also concludes electricity demand will continue to grow well into the future.<sup>15</sup> Likewise at the individual utility level, Xcel Energy's 2010 Resource Plan projected an average annual growth rate of 0.9% in electric energy demand (or an additional 444 GWhs per year) over the 2011-2025 forecast period, even accounting for demand side management.<sup>16</sup>

State and regional reports indicate a need for significant capacity increases to meet growth in demand. The Quadrennial Report authors – who are by statute directed to identify major emerging trends and issues in energy supply, consumption, conservations, and costs – concluded that because there is “not enough excess generating capacity available to meet this increase in demand, new generation and transmission facilities will be needed in the near future to serve the electric needs and the reliability of the regional electricity transmission – both state and region.”<sup>17</sup> Notably the report concluded that even in light of the state's Energy Conservation Policy Goal, demand for electricity in Minnesota will outstrip the contribution of conservation toward balancing supply and demand in the state in a cost-effective manner.<sup>18</sup> At the Midwest regional level, the most recent Ten-Year Reliability Assessment by the Midwest Reliability Organization (“MRO”) was completed in 2006 and likewise concluded that planned capacity in the region was below the MRO targets for generation adequacy during the 2010-2015 period, particularly during peaking hours.<sup>19</sup> The authors of the Minnesota Resource Assessment Study further

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<sup>14</sup> Annual Energy Outlook 2011, U.S. Energy Information Administration, at 73 (2011), *available at* [http://www.eia.gov/forecasts/aeo/pdf/0383\(2011\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2011).pdf).

<sup>15</sup> Minnesota Office of Energy Security, Minnesota Resource Assessment Study (Oct. 2009), *available at* [http://www.state.mn.us/mn/externalDocs/Commerce/Minnesota\\_Resource\\_Assessment\\_Supplement\\_012910035648\\_MN\\_Resource\\_Assessment2.pdf](http://www.state.mn.us/mn/externalDocs/Commerce/Minnesota_Resource_Assessment_Supplement_012910035648_MN_Resource_Assessment2.pdf).

<sup>16</sup> Xcel Energy 2010 Resource Plan, at 3-2 (although it included scenarios ranging from a high 1.3% to a low 0.4% growth rate).

<sup>17</sup> Minnesota Office of Energy Security, Energy Policy and Conservation Report, at 7-8 (2008) (“2008 Quad Report”), *available at* [http://www.state.mn.us/mn/externalDocs/Commerce/Quadrennial\\_Report\\_2008\\_091509012935\\_2008-QuadReport.pdf](http://www.state.mn.us/mn/externalDocs/Commerce/Quadrennial_Report_2008_091509012935_2008-QuadReport.pdf).

<sup>18</sup> *Id.* at 9.

<sup>19</sup> MRO, 2006 Ten-Year Reliability Assessment (Oct. 2006), *available at* [http://www.midwestreliability.org/03\\_reliability/assessments/2006\\_Ten-Year\\_Reliability\\_Assessment.pdf](http://www.midwestreliability.org/03_reliability/assessments/2006_Ten-Year_Reliability_Assessment.pdf).

emphasized the need for long-term planning for growth in demand: “Economies tend to operate in cycles fluctuating between period[s] of strong economic growth and periods of recession,” but resource planning must continue to survey long-term periods because of the long-term planning horizons associated with planning, permitting, and constructing energy facilities.<sup>20</sup>

(b) Increasing Demand for Renewable Electricity in Minnesota.

In 2007, the Minnesota Legislature established a particular need for additional renewable energy resources when it enacted the renewable energy standard for Xcel Energy and another 15<sup>21</sup> of the state’s largest electric utilities.<sup>22</sup> The standard amended Minnesota’s earlier renewable energy objective and established a new requirement that Xcel Energy generate or procure the equivalent of 30% of its total electric retail sales from renewable energy by 2020<sup>23</sup> and that the other subject utilities reach 25% by 2025.<sup>24</sup> The Legislature also set interim milestones for both as detailed in Table 3.

**Table 3: Minnesota Renewable Energy Standard Milestone Schedule**

| <b>Year</b> | <b>Xcel Energy</b>      | <b>Other Utilities</b> |
|-------------|-------------------------|------------------------|
| 2010        | 15%                     | 7% (goal)              |
| 2012        | 18%                     | 12%                    |
| 2016        | 25%                     | 17%                    |
| 2020        | 30% (at least 24% wind) | 20%                    |
| 2025        | 30% (at least 24% wind) | 25%                    |

In its January 7, 2011 report to the Minnesota Legislature on RES compliance, the Office of Energy Security reported that all utilities demonstrated retirement of RECs amounting to 1% of Minnesota retail electric sales in compliance with the 2009 RES requirements.<sup>25</sup> Because utilities can

<sup>20</sup> Minnesota Resource Assessment Study, *supra* note 15, at 3.

<sup>21</sup> Basin Electric Power Cooperative, Central Minnesota Municipal Power Agency, Dairyland Power Cooperative, East River Electric Cooperative, Great River Energy, Heartland Consumer Power District, Interstate Power and Light, L&O Power Cooperative, Minnkota Power Cooperative, Minnesota Municipal Power Agency, Minnesota Power, Missouri River Energy Services, Northwestern Wisconsin Electric Company, Ottertail Power Company, and Southern Minnesota Municipal Power Agency.

<sup>22</sup> Minn. Stat. § 216B.1691, subd. 2a.

<sup>23</sup> Minn. Stat. § 216B.1691, subd. 2a(b).

<sup>24</sup> Minn. Stat. § 216B.1691, subd. 2a(a).

<sup>25</sup> Minnesota Office of Energy Security, Report to the Minnesota Legislature: Progress on Compliance by Electric Utilities with the Minnesota Renewable Energy Objective and the Renewable Energy Standard (Jan. 7, 2011) (“RES Compliance Report”), *available at*

(continued . . .)

retire RECs for RES compliance from up to four years prior, and because many utilities banked unretired RECs, the same report concluded that utilities are generally well positioned to meet the significantly increased requirements and goals<sup>26</sup> for 2010.<sup>27</sup> However, 2012 is the first year in which all utilities will have mandatory requirements, and Xcel Energy has to show compliance with the 30% requirement just eight years later.

In order to meet the 2025 requirements in Minnesota, the 2009 Minnesota Resource Assessment Study concluded roughly 4,000 MW of new renewable generation will need to be added to the system.<sup>28</sup> The 2009 Biennial Transmission Project Report estimated that a slightly lower total of 3,332 MW of net new renewable energy capacity will be needed to meet the 2025 goals.<sup>29</sup> Nearer term, the same report estimated that Minnesota reporting utilities will need another 533 MW by 2016 and 1,746 MW by 2020.<sup>30</sup> Utilities cited transmission constraints, long lead times for project development, the size of the Midwest ISO interconnection queue, and uncertainty over the PTC as potential obstacles to meeting these future requirements.<sup>31</sup>

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( . . . continued)

[http://www.state.mn.us/mn/externalDocs/Commerce/Compliance\\_with\\_Renewable\\_Energy\\_Objectives\\_2011\\_0110\\_11103820\\_MN\\_REO\\_Report.pdf](http://www.state.mn.us/mn/externalDocs/Commerce/Compliance_with_Renewable_Energy_Objectives_2011_0110_11103820_MN_REO_Report.pdf).

<sup>26</sup> 15% of retail sales for Xcel Energy and a goal of 7% of retail sales for all other subject utilities.

<sup>27</sup> RES Compliance Report, *supra* note 25 at 9 (although actual compliance by utilities will not be known until they report in May 2011).

<sup>28</sup> Minnesota Resource Assessment Study, at 4 (this projection included meeting the 1.5% state energy conservation goal).

<sup>29</sup> 2009 Minnesota Biennial Transmission Projects Report, Ch. 8, Table 2, (Nov. 1, 2009) at 318, *available at* <http://www.minnelectrans.com/report-2009.html>.

<sup>30</sup> *Id.*

<sup>31</sup> RES Compliance Report, *supra* note 25, at 10.

**Figure 3: Estimates of Renewable Energy Needed for Minnesota RES Compliance<sup>32</sup>**

| <b>Table 2. RES Capacity Acquired &amp; Net MN RES Capacity Need* (MW)</b>   |              |            |              |            |              |            |              |              |              |              |
|--|--------------|------------|--------------|------------|--------------|------------|--------------|--------------|--------------|--------------|
| Utility  | 2010         |            | 2012         |            | 2016         |            | 2020         |              | 2025         |              |
|  | RES Cap Acq. | MN RES Net   | RES Cap Acq. | MN RES Net   |
| Basin**  | 327.8        | 0          | 479.3        | 0          | 627.8        | 0          | 627.8        | 0            | 620.5        | 0            |
| CMPMPA   | 19.72        | 0          | 19.72        | 0          | 24.02        | 0          | 44.02        | 0            | 46.42        | 0            |
| Dairyland  | 87.7         | 0          | 153.3        | 0          | 262.1        | 0          | 322.1        | 0            | 382.1        | 0            |
| GRE  | 216          | 0          | 316          | 0          | 310          | 278        | 299          | 446          | 295          | 745          |
| Heartland  | 36           | 0          | 36           | 0          | 36           | 0          | 36           | 0            | 36           | 0            |
| IPL  | 23           | 0          | 23           | 0          | 22           | 0          | 20           | 0            | 18           | 0            |
| Minnkota   | 359          | 0          | 359          | 0          | 359          | 0          | 359          | 0            | 359          | 0            |
| MN Power   | 409          | 0          | 448          | 0          | 420          | 6          | 420          | 111          | 420          | 263          |
| MRES   | 82.4         | 0          | 82.4         | 0          | 82.4         | 0          | 82.4         | 9.7          | 82.4         | 45.1         |
| SMPMPA   | 124.3        | 0          | 125.9        | 0          | 125.9        | 54.6       | 125.9        | 103.1        | 125.9        | 182.1        |
| Otter Tail   | 190.2        | 0          | 190.2        | 0          | 190.2        | 0          | 190.2        | 0            | 190.2        | 0            |
| RPU  | 7.5          | 0          | 12.5         | 0          | 12.5         | 0          | 12.5         | 0            | 12.5         | 1.87         |
| Xcel   | 2,333        | 0          | 2,333        | 620        | 2,282        | 194        | 2,150        | 1,036        | 1,872        | 2,095        |
| <b>Total</b>   | <b>4,216</b> | <b>0</b>   | <b>4,578</b> | <b>620</b> | <b>4,754</b> | <b>533</b> | <b>4,689</b> | <b>1,746</b> | <b>4,460</b> | <b>3,332</b> |
| * Capacity factor assumptions established by each utility.   |              |            |              |            |              |            |              |              |              |              |
| ** Basin Electric numbers include East River Electric and L&O  |              |            |              |            |              |            |              |              |              |              |
| *** Some utilities with less than sufficient capacity to meet the MN RES need may use renewable energy credits to fulfill their requirement. |              |            |              |            |              |            |              |              |              |              |

(c) Increasing Demand for Renewable Electricity in Region.

Although Minnesota has one of the most ambitious renewable energy targets in the nation, many surrounding states have also set legislative targets for renewable energy. To the west, both North Dakota<sup>33</sup> and South Dakota<sup>34</sup> have a voluntary 10% Renewable and Recycled Energy Objective by 2015. To the east, Wisconsin<sup>35</sup> and Michigan<sup>36</sup> both have 10% by 2015 renewable energy standards. To the southeast, Illinois has a 25% renewable energy requirement by 2025.<sup>37</sup> Minnesota reporting utilities alone

<sup>32</sup> 2009 Minnesota Biennial Transmission Projects Report, *supra* note 29, at 318.

<sup>33</sup> N.D. Cent. Code § 49-02-28 (2007), available at <http://www.legis.nd.gov/cencode/t49c02.pdf>.

<sup>34</sup> S.D. Codified Laws § 49-34A-101 (2009), available at <http://legis.state.sd.us/statutes/DisplayStatute.aspx?Type=Statute&Statute=49-34A-101>.

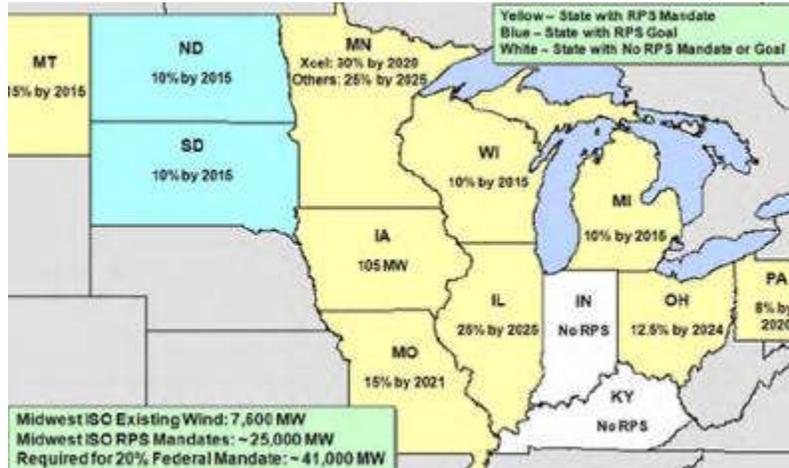
<sup>35</sup> Wis. Stat. § 196.378 (2009), available at <http://legis.wisconsin.gov/statutes/Stat0196.pdf>.

<sup>36</sup> Mich. Comp. Laws § 460.1021 (2008), available at [http://www.legislature.mi.gov/\(S\(jffajaf55katx3at1p2jdvcc\)\)/mileg.aspx?page=getObject&objectName=mcl-460-1021](http://www.legislature.mi.gov/(S(jffajaf55katx3at1p2jdvcc))/mileg.aspx?page=getObject&objectName=mcl-460-1021) (Consumers Energy and Detroit Edison both have additional specific MW requirements by statute).

<sup>37</sup> 20 Ill. Comp. Stat. 3855/1-75 (2007), available at <http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=2934&ChapterID=5>.

have described a need for roughly 1,500 MW of new capacity by 2025 to meet RES requirements in surrounding states.<sup>38</sup> More broadly in the region, the renewable energy standards in the 11 states in the Midwest ISO footprint (see Figure 4 below) represent an estimated 25,000 MW of renewable energy generation.<sup>39</sup>

**Figure 4: Renewable Energy Requirements in Midwest ISO Footprint<sup>40</sup>**



(d) Granting a CON for Ellerth Will Have a Beneficial Impact on the Future Adequacy, Reliability and Efficiency of the Energy Supply to the People of Minnesota and Neighboring States.

While demand for electricity is expected to continue at a steady growth rate over the coming years, Minnesota and surrounding states have set forth by statute specific demand for renewable energy. As a result, there is a robust market for independently produced renewable-energy-generated electricity in the Midwest, including the 98.9 MW from the proposed Project. Because current facilities are insufficient to satisfy the growth in electricity demand as well as renewable energy requirements in Minnesota and the region, there is demonstrated need for the Project in the state, as well as in the surrounding region.

<sup>38</sup> 2009 Minnesota Biennial Transmission Projects Report, *supra* note 29, at 314.

<sup>39</sup> Midwest ISO, 2010 Transmission Expansion Plan, at 43, available at [http://www.midwestmarket.org/publish/Document/5648df\\_12c97e3f74e\\_-7f300a48324a/MTEP%2010%20Final%20Report.pdf?action=download&\\_property=Attachment](http://www.midwestmarket.org/publish/Document/5648df_12c97e3f74e_-7f300a48324a/MTEP%2010%20Final%20Report.pdf?action=download&_property=Attachment) (last visited May 23, 2011).

<sup>40</sup> *Id.*

Ellerth Wind understands that there are other wind projects proposed in the region, as demonstrated by other CON applications for wind projects in Minnesota, planned smaller projects that do not require a CON, and other wind projects in the Midwest ISO interconnection queue. Although smaller facilities that do not require a CON will contribute renewable electricity over time, many larger facilities including the Project that take advantage of economies of scale will ultimately be needed to reliably and affordably satisfy the ambitious renewable targets in Minnesota and the region. Additionally, among those larger facilities filing for a CON, there is not a precise match between wind projects seeking CONs in Minnesota and RES needs. Some wind projects will sell power or RECs into neighboring states, and some projects from neighboring states will sell into Minnesota. More importantly, however, not all projects with CONs will be completed.

Further, the amount of wind energy represented by the total number of projects in the Midwest ISO queue for Minnesota or more broadly in the region is not an accurate projection of what is likely to be built. Some of the projects in the queue at any given time will be stalled or terminated in the queue process when they fail to meet the requisite milestones. By contrast, the Project has already successfully completed the full queue process and all of the required viability milestones. The Project came out of the process with few required transmission upgrades in contrast to many other projects that emerge from the interconnection study process with requirements for large and expensive system upgrades.

Not only does the Project have relatively low transmission upgrade expenses associated with it, but the Project would be on schedule to take advantage of the available federal incentives and economic efficiencies in the marketplace. In past resource planning, utilities explained their interest in acquiring or building wind energy projects ahead of schedule so as to take advantage of federal incentives with an uncertain long-term future and thereby keep down costs to their ratepayers.<sup>41</sup> The Project is well positioned to bring affordable wind power to a new region in Minnesota that could not easily be replaced by another project. In addition, any impacts on reliability of the electric grid were fully addressed in the Midwest ISO interconnection study process.

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<sup>41</sup> See, e.g., Great River Energy, Resource Plan, at 78 (July 1, 2008), available at [http://www.greatriverenergy.com/makeelectricity/resourceplan/2008\\_rp\\_public.pdf](http://www.greatriverenergy.com/makeelectricity/resourceplan/2008_rp_public.pdf) (“Since there is no assurance that the federal Production Tax Credit will be extended indefinitely, there is an incentive to acquire wind resources ahead of our needs.”).

**2.2.2 *No More Reasonable and Prudent Alternative to the Ellerth Wind Project Has Been Demonstrated***

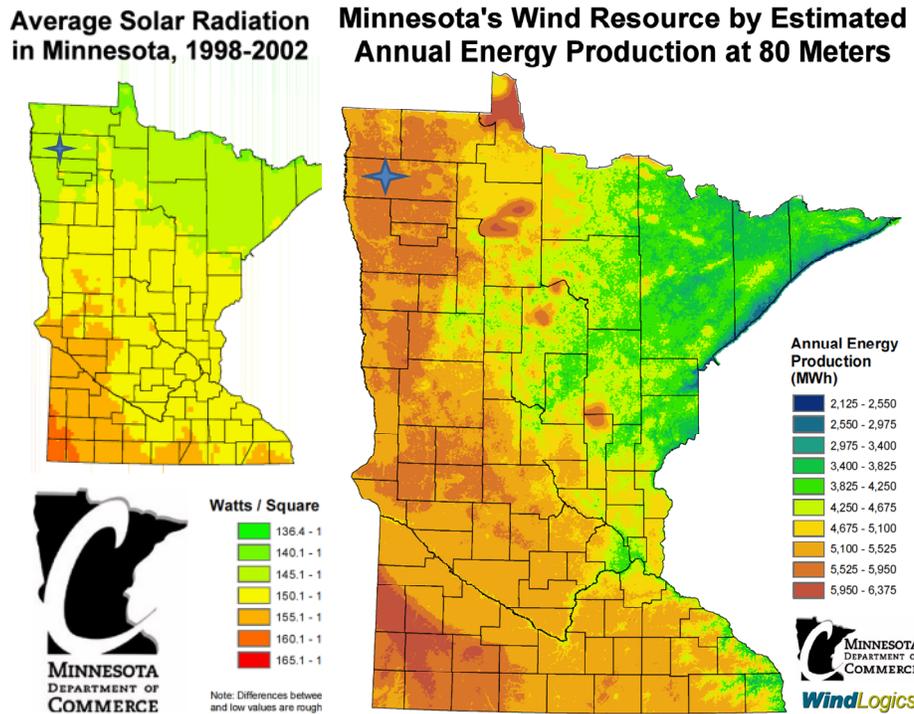
The Project is the best alternative for meeting renewable energy targets. Minn. R. 7849.0120(B) directs applicants for CONs to assess project alternatives so that the Commission may determine whether a more reasonable and prudent alternative exists. Because the Project is intended to help satisfy state and regional renewable energy needs, non-renewable generation sources are not reasonable alternatives to the Project and are not examined here. The Commission granted Ellerth Wind an exemption from discussing alternatives other than other new generating facilities that would satisfy the Minnesota RES.

(a) Timing. As described in Section 2.2.1, the demand for electricity is projected to continue growing at a steady rate and utilities in the state and region are still searching for low-cost renewable energy projects in the near term to satisfy longer-term statutory requirements. The Project already has a signed GIA with Otter Tail Power Company and is well positioned to be operational by November 2012. This will allow the Project to take advantage of the PTC and provide economical renewable energy that will help utilities affordably meet their statutory requirements and keep electrical prices down for consumers.

(b) Size. Composed of between 39 and 65 wind turbines, the Project will have a total maximum nameplate capacity of 98.9 MW. As an LWECS, the Project is sized to take advantage of economies of scale, while also making efficient use of existing transmission capacity in the area.

(c) Technology and Location. The Project's location is well situated for a wind project of this size. First, the Project is located in the northwestern corner of the state where there is excellent wind resource but little wind development to date. Second, given the size and location of the Project, few transmission upgrades will be required. Third, any other renewable energy generation option would be less appropriate because it would be more costly and less suited to the resources available in northwestern Minnesota. Wind energy is the lowest cost new renewable energy resource generally and is particularly so in places like Marshall County where the wind resources are good but other renewable resources are not as strong (*see, e.g.*, Figure 5 Comparison of Wind and Solar Resources in Northwest Minnesota). Fourth, because there has been little wind energy developed or proposed for Marshall County, the need met by the Project could not easily be met by another wind project. The Project also enjoys strong local support, as demonstrated by the letter of support from Marshall County attached as Exhibit 1.

Figure 5: Comparison of Wind and Solar Resources in Northwest Minnesota



(d) Reliability. Wind energy is sometimes criticized for being intermittent, which may be confused with reliability. While the wind resource itself may be intermittent or variable, wind turbine technology has become quite advanced and very reliable. The Project will be available to generate electricity approximately 95% of the time, consistent with other utility-scale wind projects. Furthermore, the Project will be designed such that each wind turbine can run independently, meaning that if one turbine encounters a problem the other turbines will still be operational. This is in contrast to other forms of generation where a problem with one unit could significantly impact the facility's entire production.

The Project also will serve to improve integration of wind resources into the transmission system in Minnesota and the region expressly because it is not co-located with the majority of other wind generation in Minnesota. According to the Wind Integration Study conducted in Minnesota, "[t]he consequence for system operations is that spatially and geographically dispersed wind generation will be less variable in the aggregate than the same amount of wind generation concentrated at a single site or within a single region."<sup>42</sup> In other words, when the wind has slowed or stopped blowing in the southwest

<sup>42</sup> Minnesota Public Utilities Commission, Final Report – 2006 Minnesota Wind Integration Study, Vol. I, at 13 (Nov. 30, 2006), available at [http://www.uwig.org/windrpt\\_vol%201.pdf](http://www.uwig.org/windrpt_vol%201.pdf).

corner of the state, it may be much stronger in other parts of the state such as the northwest corner where the Project would be located.

(e) Cost. The Project is the best renewable energy alternative in terms of price for four primary reasons. First, wind energy is generally the most affordable source of renewable electricity. Second, the Project is carefully sited to take advantage of an excellent wind resource, making it even more efficient. Third, the Project timing takes advantage of federal incentives and low prices in the power purchase agreement market, together reducing the ultimate cost to the utility and its customers. And fourth, the Project is carefully sited to avoid costly transmission upgrades.

(f) Effects on the Natural and Socioeconomic Environment. Wind-generated electricity avoids many of the problems associated with other forms of generation. The Project will not release any air pollutants that can affect the local (*e.g.*, particulate matter), regional (*e.g.*, mercury), or global (*e.g.*, carbon dioxide) environment. It will not require the use of valuable water resources, nor will it discharge into any water body. Although many acres of land are leased for a project of this size, less than 5% will actually be occupied by turbines or related facilities. Most current uses for the land will be able to continue. Because of its renewable nature, there is no extraction, processing, or combustion of fossil fuels. Ellerth Wind also is working with environmental consultants to design the turbine layout, access roads, substation, interconnection facilities, and laydown areas to minimize the impact on birds, bats, and wildlife habitat.

In addition, the Project includes approximately 22,000 acres of land under contract. Landowners in the Project area will receive annual rent payments in exchange for leasing their land for the Project. As such, landowners in the area will acquire a valuable new revenue stream without having to take much acreage out of production. More details on the economic and tax benefits to the surrounding community are described in Section 2.2.3.

### ***2.2.3 The Ellerth Wind Project Will Benefit Society in a Manner Compatible with the Natural and Socioeconomic Environments (Minn. R. 7849.0120(C))***

Minn. R. 7849.0120(C) requires CON applicants to address whether a project will benefit society in a manner compatible with the natural and socioeconomic environments, including human health. The electricity produced by the Project will produce significant, numerous, and varied societal benefits.

(a) Overall State Energy Needs. As discussed in Section 2.2.1, the Project will provide electricity both to meet general future energy needs as well as to meet RES requirements in Minnesota.

(b) Impact on Natural and Socioeconomic Environments Compared to No-Build Alternative. As described in Section 2.2.2, wind energy has limited impact on the natural environment. The Project will produce little or no emissions of greenhouse gases (*e.g.*, carbon dioxide), criteria pollutants (sulfur dioxide, nitrogen oxides, carbon monoxide, mercury, lead, ozone, or particulate matter), hazardous air pollutants, or volatile organic compounds. No water is required in the power generation process, nor will there be any discharge of wastewater containing heat or chemicals. Since the fuel is wind, no extraction, processing, transportation, or combustion of fossil fuels will be required for power generation. Only approximately 75 acres in the Project's 22,000 acre footprint (less than 1%) will be permanently taken out of agricultural production. Both the Project and the individual turbines are being sited so as to minimize impact on local and migratory wildlife and wildlife habitat.

Ellerth Wind anticipates only minor negative impacts and significant positive impacts on the socioeconomic environment of Marshall County from the Project. As discussed above, approximately 75 acres will be taken out of agricultural production. Other land in the Project footprint will remain available for farming or other uses. Project construction will not negatively impact leading industries within the Project area.

The Project will benefit the local economy in northwestern Minnesota by creating up to approximately 200 temporary construction jobs, some of which will be filled by local contractors using locally sourced materials and services whenever possible and economical. Wages and fees paid to local workers, contractors, and service providers will boost local income that will circulate in the local economy. The eight to 10 permanent jobs anticipated to be created for long-term operations and maintenance of the Project will continue these benefits over the life of the Project. Local landowners contributing land to the Project will receive lease payments in exchange for the use of their land. These payments are long-term commitments and will be made for the life of the Project. The Project also will expand the local tax base through payments of wind energy production taxes. At a rate of \$0.0012 per KWh of wind-generated electricity produced, Ellerth Wind will pay approximately [TRADE SECRET INFORMATION REMOVED] per year in production taxes that the state will redistribute to local units of government. Ellerth Wind has been consulting local officials about the Project since 2008, resulting in Marshall County officials offering their full support, as described in the letter attached as Exhibit 1.

Not building the Project would result in no physical impact on local environment in Marshall County. However, the no-build alternative also would result in Marshall County forgoing significant economic benefits in the form of new jobs, new income streams for landowners, and production tax

payments. Not building the Project also would forgo a source of clean, renewable electricity that would have minimal environmental impacts and contribute to Minnesota's renewable development goals.

(c) Effects of the Proposed Facility on Inducing Future Development. The Project is not expected to directly affect development in Marshall County, but it will provide significant benefits to participating landowners, the local economy, and the local tax base.

(d) Socially Beneficial Uses of the Output. The Project will efficiently provide renewable energy that will help meet the Minnesota RES and general energy demand. The Project's 98.9 MW of nameplate capacity is sufficient to serve the energy needs of up to 32,000 average American households.

#### ***2.2.4 The Ellerth Wind Project Is Consistent with Federal, State, and Local Rules and Policies***

(a) The Project Is Consistent with Minnesota Energy Policy.

The Project will produce a significant amount of renewable energy, which is consistent with Minnesota policy and surrounding state policies to promote increased renewable energy. Minnesota favors renewable energy in a variety of ways, including through the RES discussed above and through the CON statute itself. The Commission may not issue CONs to applicants for nonrenewable energy production without demonstrating that it is less expensive (including environmental costs) than a renewable energy alternative.<sup>43</sup> In addition, Minnesota law prohibits the Commission from approving nonrenewable energy facilities in utility integrated resource plans or for rate recovery unless a utility demonstrates that a renewable energy facility is not in the public interest.<sup>44</sup> Minnesota also supports wind energy with a variety of incentives, including, for example, exemption from sales tax for materials used to manufacture, construct, install, and maintain wind projects.<sup>45</sup> The Project is consistent with Minnesota's policy preferences and support for renewable energy.

(b) The Project Is Consistent with Federal Energy Policy.

The Project also is consistent with federal energy policy, which provides significant support for wind energy development. For example, the federal government has supported wind energy for nearly 20 years with the PTC, which is available during the first 10 years of a wind project's operations. In the

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<sup>43</sup> See Minn. Stat. § 216B.243, subd. 3a.

<sup>44</sup> See Minn. Stat. § 216B.2422, subd. 4.

<sup>45</sup> See Minn. Stat. § 272.02, subd. 22.

American Recovery and Reinvestment Act of 2009, Congress created an alternative tax incentive in the form of the Business Energy Investment Tax Credit, which, like the PTC, will be available for wind energy projects placed in service by December 31, 2012. In addition, the Modified Accelerated Cost Recovery System allows wind energy investments to be recovered through depreciation.

(c) The Project Complies with Federal, State, and Local Environmental Regulations.

The Project will meet or exceed the requirements of all federal, state, and local environmental laws and regulations, including the governmental approvals listed on Table 7.

## **2.3 Project Relationship to Socioeconomic Considerations (Minn. R. 7849.0240)**

### ***2.3.1 Socially Beneficial Uses of Energy Output (Minn. R. 7849.0240, subp. 2(A))***

The energy produced by the Project will provide numerous social benefits. The Project will provide a large amount of renewable energy with minimal environmental impact and serve to diversify the region's energy resources. Farmers and rural landowners leasing land to Ellerth Wind for the Project will have a new source of income that will provide a boost to the local economy in northwestern Minnesota. And since only a portion of the 22,000 acres leased for the Project will be used for turbines, roads, and other associated facilities, most of the Project footprint will remain available for farming or other local land uses.

### ***2.3.2 Promotional Activities Giving Rise to Demand (Minn. R. 7849.0240, subp. 2(B))***

The Commission granted Ellerth Wind an exemption from this data requirement.<sup>46</sup> Ellerth Wind has not engaged in promotional activities that could have given rise to the need for the electricity to be generated by the Project.

### ***2.3.3 Effects of Facility in Inducing Future Development***

Ellerth Wind does not anticipate a large direct impact on future development in Marshall County. The main direct impact of the Project will be in creating approximately 200 full-time jobs during construction and eight to 10 or more permanent jobs for operations. Indirect impacts on future development include wind energy production taxes that will be paid to local governments and landowner rent payments. Ellerth Wind intends to use local contractors and materials whenever it is possible and economical to do so.

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<sup>46</sup> Grant of Exemption, *supra* note 1, at 2.

### **3. DESCRIPTION OF PROJECT AND ALTERNATIVES (MINN. R. 7849.0250)**

#### **3.1 Proposed Project (Minn. R. 7849.0250(A))**

The Project will be located in northwestern Minnesota in Marshall County approximately 10 kilometers west of the village of Newfolden. The Project will be located within six townships including Marsh Grove, Foldahl, Wright, West Valley, Viking, and Comstock. The landscape is rural with limited development or housing, and the Project will be situated on agricultural land. Approximately 22,000 acres of land are currently under agreement, which encompass all land anticipated to be needed for turbines, access roads, and interconnection facilities. A Project vicinity map is included as Figure 1, and a preliminary turbine layout map is included as Figure 2 (assuming use of 65 turbines, as well as five alternate turbine locations available for changes pending additional technical and environmental review).

Ellerth Wind anticipates constructing between 39 and 65 wind turbines with a total nameplate capacity of 98.9 MW. Final turbine selection will be made based on optimization of wind resources, availability, and cost efficiency.

The wind turbines will be interconnected by communication and electric power collection cables within the Project footprint. Electrical collector lines, junction boxes, and feeder lines will be required to deliver electricity to the interconnection point. The intended point of interconnection is on a 115 kV line running through the Project area. The Project will require construction of up to approximately 17.8 miles of gravel roads for access to the wind turbines and other Project facilities. Drainage systems, other access roads, storage areas, and operations and maintenance facilities will be installed as needed to accommodate construction and operations.

The electricity generated by the Project will be offered for sale to wholesale customers, including Minnesota utilities that project a need for additional renewable energy to comply with the Minnesota RES or other future renewable requirements. Ellerth Wind anticipates construction and commissioning of the Project in 2012.

##### ***3.1.1 Nominal Generating Capability and Effect of Economies of Scale***

The Project will have a nameplate capacity of 98.9 MW. Larger wind installations such as the Project take advantage of economies of scale by spreading fixed transaction, construction, operation, and maintenance costs over the entire project. The result is a lower cost of production for electricity.

### **3.1.2 *Anticipated Operating Cycle and Annual Capacity Factor***

Ellerth Wind anticipates a net capacity factor of approximately [TRADE SECRET INFORMATION REMOVED] for the Project, with projected annual output between approximately [TRADE SECRET INFORMATION REMOVED] MWh.

### **3.1.3 *Fuel***

The Project's wind turbines will be fueled by wind.

### **3.1.4 *Anticipated Heat Rate***

Heat rates are not applicable to a wind energy project.

### **3.1.5 *Facility Location***

The Project will be located in northwestern Minnesota in Marshall County. The Project's approximately 22,000-acre footprint will be about 10 kilometers west of the village of Newfolden within six townships, including Marsh Grove, Foldahl, Wright, West Valley, Viking, and Comstock. The direct use of land for wind turbine and other Project facilities will be approximately 75 acres. The Project will be located on agricultural land in a rural landscape with limited development or housing. The site was selected due to its excellent wind resources and proximity to available transmission infrastructure and capacity.

## **3.2 *Availability of Alternatives (Minn. R. 7849.0250(B))***

### **3.2.1 *Objectives Used to Evaluate Alternatives***

The Commission granted Ellerth Wind a partial exemption from the requirement to discuss alternatives to the proposed Project. The Commission approved Ellerth Wind's proposal to limit its discussion of alternatives to other projects that would contribute to satisfying renewable energy requirements. The following discussion of such potential alternatives includes analysis of commercial availability, cost, scale, suitability for the Project site or for Minnesota, environmental considerations, and eligibility to meet RES requirements. Only those alternatives that are eligible technologies under the Minnesota RES are addressed in detail.

### **3.2.2 *Description and Environmental Information for Alternatives Considered***

(a) Purchased Power Alternative. The Commission granted Ellerth Wind an exemption from discussing purchased power alternatives.

(b) Alternative of Performing Upgrades to Existing Resources. The Commission granted Ellerth Wind an exemption from discussing efficiency alternatives.

(c) New Transmission Alternative. The Commission granted Ellerth Wind an exemption from discussing new transmission alternatives.

(d) No Facility Alternative. The Commission granted Ellerth Wind an exemption from Minn. R. 7849.0340, which requires an applicant to submit data for the alternative of “no facility.” Instead, the Commission approved Ellerth Wind’s proposal to discuss the consequences to the region of not building the facility.

Given that the proposed Project is designed to increase the amount of energy available for purchase and to satisfy statutory renewable energy requirements in Minnesota and surrounding states, not building the facility is not a viable alternative. Not building the facility would result in no new renewable energy and no opportunity for utilities to purchase the Project’s output to satisfy the RES. As a result, the no-facility alternative is contrary to Ellerth Wind’s objectives for the Project and would not satisfy state and regional demand for energy or statutory requirements for renewable energy.

(e) Solar Power. Although Minnesota has decent solar resources and solar technologies have been commercially available for decades, solar power technologies have not yet seen widescale adoption within the state. More important, the wind resource is generally superior to the solar resource in the location planned for the Project (see Figure 5). The cost and reliability of wind power are much more favorable than that for solar power. Wind has long been more cost-effective than solar-powered electricity and remains the lowest-cost new source of renewable energy even with the recent declines in solar prices. Prices for wind power in the EIA’s Annual Energy Outlook 2011 were \$97/MWh compared with \$211/MWh for solar PV or \$312/MWh for solar thermal.<sup>47</sup>

Furthermore, solar projects in Minnesota to date have typically been several orders of magnitude smaller in size than the proposed Project. For example, the total installed solar electric capacity in the state of Minnesota is roughly 4 MW.<sup>48</sup> The Project, by comparison, will be roughly 25 times the size (on a nameplate basis) of the entire solar fleet in Minnesota. Likewise, District Energy St. Paul Inc. recently

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<sup>47</sup> Levelized Cost of New Generation Resources in the Annual Energy Outlook 2011, (Dec. 2010), *available at* [http://www.eia.doe.gov/oiarf/aeo/pdf/2016levelized\\_costs\\_aeo2011.pdf](http://www.eia.doe.gov/oiarf/aeo/pdf/2016levelized_costs_aeo2011.pdf).

<sup>48</sup> David Shaffer, *State powering up with solar in a big way*, StarTribune (Apr. 2, 2011), *available at* <http://www.startribune.com/business/119100254.html>.

completed the largest solar thermal facility in the Midwest, and it is substantially smaller in scale than the Project with a peak capacity of 1 MW. For reasons primarily of location, scale, and cost, solar power is not a viable alternative to the Project.

(f) Hydropower. Generation from small hydroelectric facilities, with a capacity of 100 MW and under, can be used to comply with the Minnesota RES.<sup>49</sup> Existing hydro-generation facilities, and possibly new hydro generation, may also be relatively competitive with wind on a cost basis.<sup>50</sup>

However, hydroelectric generation requires a dependable supply of moving water in a location suitable for building a generation facility, something that is not available in the near vicinity of the Project site. More generally, there are few, if any, sites in Minnesota suitable for a new hydropower project at an equivalent scale. Minnesota currently has just under 200 MW of total hydroelectric generation located within the state, and the U.S. Department of Energy previously estimated a potential for 137 MW of hydroelectric development (split among 40 different sites).<sup>51</sup> While there may be the potential for small affordable hydroelectric applications that could also be used to comply with Minnesota's RES, they are small in number and generally limited in size. In order to provide as much renewable energy electricity as the Project with hydroelectric generation, several or many hydropower projects would likely have to be developed at multiple sites.

The environmental impact of a hydroelectric facility is highly dependent on the location, the topography, impacted aquatic and terrestrial species, the scale, and the generation method. While the Minnesota RES and current industry trends are toward smaller scale and often run-of-the-river technologies, historically large hydroelectric facilities have had massive scale impacts on the surrounding ecology. The relatively flat topography in northern Minnesota would suggest that even for a project with relatively low hydraulic head, there could be large tracts of land impacted. That said, the environmental impacts of a hydroelectric facility are site and technology specific and therefore difficult to compare.

(g) Biomass. Renewable energy can be produced by using many different biomass feedstocks in many different technological applications, many of which are eligible under the Minnesota RES. While new biomass technologies continue to become commercially available, the most basic

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<sup>49</sup> Minn. Stat. § 216B.1691, subd. 1(a)(3).

<sup>50</sup> Levelized Cost of New Generation Resources in the Annual Energy Outlook 2011, (Dec. 2010) (listing average prices for hydro at just over \$86/MWh and those for wind at \$97/MWh).

<sup>51</sup> 2008 Quad Report, *supra* note 17., at 29

technology is perhaps the oldest form of energy generation (combusting wood). In general, Minnesota has rich biomass feedstock resources and the state legislature has long made the development of biomass energy technologies a priority.<sup>52</sup> Although according to the EIA some biomass applications may be on a relatively comparable cost basis with wind generated electricity (\$113/MWh for biomass; \$97/MWh for wind),<sup>53</sup> pricing is highly dependent on technology and a suitable, reliable, and affordable source of feedstock supply. Experience in Minnesota also suggests that biomass power facilities are generally smaller in scale than wind facilities.<sup>54</sup>

The gases created by the anaerobic digestion of animal manures or mixed waste, or when landfill solid waste decays, can also be captured and used to turn a turbine to produce power. Such electric power is also eligible under Minnesota's RES. While this can be a useful way to create energy and reduce waste at relatively low cost, the facilities are typically much smaller in scale. At the time the 2008 Quad Report was assembled, there was a total of 26 MW of landfill gas projects and an estimated total capacity of 45 MW.<sup>55</sup> The Project is larger than the sum total of these landfill gas projects.

Biomass power facilities, in general, are not a suitable alternative to a wind power facility due to the great differences in environmental impacts. Biomass electric generation facilities, unlike wind facilities, have water use and disposal issues and pollutant air emissions to take into consideration. Depending on the feedstock, there may be ongoing associated environmental considerations at the landscape level, benefits or detriments to farmers and landowners involved in feedstock production or collection, and potential environmental or safety concerns associated with transport of the feedstock to the plant. The Project will be able to provide renewable energy more cost-effectively at scale, with fewer environmental impacts to the Project site and the region.

(h) Emerging Technologies Alternatives. Because the Project aims to help meet Minnesota's statutory renewable energy requirements and those of surrounding states, the analysis under this section is largely focused on other technologies that would be eligible to do the same. Although there is ongoing research and development on technologies in many of the categories discussed previously, the better analogues to the current proposed Project are those technologies that are in more wide-scale use and have

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<sup>52</sup> See, e.g., Minn. Stat. § 216B.1691, subd. 1(a)(5) (includes biomass in the RES); Minn. Stat. § 216B.2424 (biomass power mandate).

<sup>53</sup> Levelized Cost of New Generation Resources in the Annual Energy Outlook 2011, (Dec. 2010).

<sup>54</sup> See 2008 Quad Report, *supra* note 17, at 25-27.

<sup>55</sup> See *id.* at 27.

better cost parity with wind. As such, this section will not address emerging technologies in resource areas previously discussed (*i.e.*, solar, hydro, and biomass).

Electricity produced from hydrogen is eligible to help meet Minnesota's RES.<sup>56</sup> After January 1, 2010 the hydrogen must be generated from any of the renewable resources listed above in order to be eligible. Hydrogen is an energy carrier or a way of storing, for later or different use, the electricity generated by solar, wind, biomass, or hydropower resources.<sup>57</sup> Fuel cells, by contrast, do produce electricity by taking advantage of the energy released when hydrogen and oxygen molecules bond. Electricity produced from fuel cells that use renewably produced hydrogen could eventually provide high-quality, dispatchable power with almost zero associated pollution. While there has been much research into hydrogen and fuel cell technology specifically because of this promise, fuel cells are still not widely available or cost-competitive. More recently, research on fuel cell technology has slowed with shifting federal government priorities, though the significantly reduced budget is focused on stationary power applications.<sup>58</sup>

There is also promising research and development on, as well as some commercial-scale deployments of, new emerging energy storage technologies. While fly-wheels, pumped storage, compressed air, and advanced battery technologies might all be promising technologies to store or make more dispatchable any of the renewable energy resources listed in the previous sections, they would be more properly assessed as complements than alternatives to an electrical generation facility. Likewise only renewable electricity generation is eligible to meet the state RES requirements.

(i) Combinations (Minn. R. 7849.0250(B)(5)). No combinations of the alternatives discussed above would be appropriate because they would not facilitate Minnesota utilities meeting RES requirements more cost-effectively, or at all, and would have greater impacts on the region and the environment.

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<sup>56</sup> Minn. Stat. § 216B.1691, subd. 1(a)(4) (“hydrogen, provided that after January 1, 2010, the hydrogen must be generated from the resources listed in this paragraph”).

<sup>57</sup> In these instances the electrical current from the renewable generation would be used to split water molecules into their hydrogen and oxygen component parts.

<sup>58</sup> See, e.g., David Biello, *R.I.P. hydrogen economy? Obama cuts hydrogen car funding*, Scientific American News Blog (May 8, 2009), <http://www.scientificamerican.com/blog/post.cfm?id=rip-hydrogen-economy-obama-cuts-hyd-2009-05-08>; see also Jeff Plungis & Angela Greiling Keane, *Obama Seeks to Cut Clean-Diesel, Fuel-Cell Funding*, Bloomberg (Feb. 14, 2011), <http://www.bloomberg.com/news/2011-02-14/obama-budget-ends-funding-for-clean-diesel-cuts-fuel-cell-plan.html>.

### 3.2.3 Economic Comparison

The EIA estimates that wind is the lowest or nearly the lowest cost alternative among the renewable energy options described in Section 3.2.2. The following EIA tables (Figures 6 and 7) provide cost information for the construction, operations and maintenance, and other factors for new renewable and other new electricity generation resources.

**Figure 6. Levelized Cost of New Generation Resources**

| Plant Type                      | Capacity Factor (%) | U.S. Average Levelized Costs (2009 \$/megawatthour) for Plants Entering Service in 2016 |           |                               |                         |                             |
|---------------------------------|---------------------|---|-----------|-------------------------------|-------------------------|-----------------------------|
|                                 |                     | Levelized Capital Cost  | Fixed O&M | Variable O&M (including fuel) | Transmission Investment | Total System Levelized Cost |
| Conventional Coal               | 85                  | 65.3  | 3.9       | 24.3                          | 1.2                     | 94.8                        |
| Advanced Coal                   | 85                  | 74.6  | 7.9       | 25.7                          | 1.2                     | 109.4                       |
| Advanced Coal with CCS          | 85                  | 92.7  | 9.2       | 33.1                          | 1.2                     | 136.2                       |
| Natural Gas-fired               |                     |   |           |                               |                         |                             |
| Conventional Combined Cycle     | 87                  | 17.5  | 1.9       | 45.6                          | 1.2                     | 66.1                        |
| Advanced Combined Cycle         | 87                  | 17.9  | 1.9       | 42.1                          | 1.2                     | 63.1                        |
| Advanced CC with CCS            | 87                  | 34.6  | 3.9       | 49.6                          | 1.2                     | 89.3                        |
| Conventional Combustion Turbine | 30                  | 45.8  | 3.7       | 71.5                          | 3.5                     | 124.5                       |
| Advanced Combustion Turbine     | 30                  | 31.6  | 5.5       | 62.9                          | 3.5                     | 103.5                       |
| Advanced Nuclear                | 90                  | 90.1  | 11.1      | 11.7                          | 1.0                     | 113.9                       |
| Wind                            | 34                  | 83.9  | 9.6       | 0.0                           | 3.5                     | 97.0                        |
| Wind – Offshore                 | 34                  | 209.3   | 28.1      | 0.0                           | 5.9                     | 243.2                       |
| Solar PV <sup>1</sup>           | 25                  | 194.6   | 12.1      | 0.0                           | 4.0                     | 210.7                       |
| Solar Thermal                   | 18                  | 259.4   | 46.6      | 0.0                           | 5.8                     | 311.8                       |
| Geothermal                      | 92                  | 79.3  | 11.9      | 9.5                           | 1.0                     | 101.7                       |
| Biomass                         | 83                  | 55.3  | 13.7      | 42.3                          | 1.3                     | 112.5                       |
| Hydro                           | 52                  | 74.5  | 3.8       | 6.3                           | 1.9                     | 86.4                        |
|                                 |                     |   |           |                               |                         |                             |

<sup>1</sup> Costs are expressed in terms of net AC power available to the grid for the installed capacity.

Source: Energy Information Administration, Annual Energy Outlook 2011, December 2010, DOE/EIA-0383(2010)

Figure 7. Cost and Performance Characteristics of New Central Station Electricity Generating Technologies. Source: EIA, Annual Energy Outlook 2010: Electricity Market Module, Table 8.2 (Apr. 2010)

| Technology  | Online Year <sup>1</sup> | Size (mW) | Leadtime (Years) | Base Overnight Cost in 2009 (\$2008/kW) | Contingency Factors                     |  | Total Overnight Cost in 2009 <sup>4</sup> (2008 \$/kW) | Variable O&M <sup>5</sup> (\$2008 mills/kWh) | Fixed O&M <sup>5</sup> (\$2008/kW) | Heatrate <sup>6</sup> in 2009 (Btu/kWhr) | Heatrate nth-of-a-kind (Btu/kWhr) |
|---|--------------------------|-----------|------------------|---|---|--|--|--|------------------------------------|--|-----------------------------------|
|   |                          |           |                  |   | Project Contingency Factor <sup>2</sup> | Technological Optimism Factor <sup>3</sup> |  |  |                                    |  |                                   |
| Scrubbed Coal New <sup>7</sup>                                  | 2013                     | 600       | 4                | 2,078                                   | 1.07                                    | 1.00                                       | 2,223  | 4.69   | 28.15                              | 9,200                                    | 8,740                             |
| Integrated Coal-Gasification Combined Cycle (IGCC) <sup>7</sup> | 2013                     | 550       | 4                | 2,401                                   | 1.07                                    | 1.00                                       | 2,569  | 2.99   | 39.53                              | 8,765                                    | 7,450                             |
| IGCC with Carbon Sequestration                                  | 2016                     | 380       | 4                | 3,427                                   | 1.07                                    | 1.03                                       | 3,776  | 4.54   | 47.15                              | 10,781                                   | 8,307                             |
| Conv Gas/Oil Comb Cycle   | 2012                     | 250       | 3                | 937                                     | 1.05                                    | 1.00                                       | 984  | 2.11   | 12.76                              | 7,196                                    | 6,800                             |
| Adv Gas/Oil Comb Cycle (CC)                                     | 2012                     | 400       | 3                | 897                                     | 1.08                                    | 1.00                                       | 968  | 2.04   | 11.96                              | 6,752                                    | 6,333                             |
| ADVCC with Carbon Sequestration                                 | 2016                     | 400       | 3                | 1,720                                   | 1.08                                    | 1.04                                       | 1,932  | 3.01   | 20.35                              | 8,613                                    | 7,493                             |
| Conv Combustion Turbine <sup>8</sup>                            | 2011                     | 160       | 2                | 653                                     | 1.05                                    | 1.00                                       | 685  | 3.65   | 12.38                              | 10,788                                   | 10,450                            |
| Adv Combustion Turbine  | 2011                     | 230       | 2                | 617                                     | 1.05                                    | 1.00                                       | 648  | 3.24   | 10.77                              | 9,289                                    | 8,550                             |
| Fuel Cells  | 2012                     | 10        | 3                | 4,744                                   | 1.05                                    | 1.10                                       | 5,478  | 49.00  | 5.78                               | 7,930                                    | 6,960                             |
| Advanced Nuclear  | 2016                     | 1350      | 6                | 3,308                                   | 1.10                                    | 1.05                                       | 3,820  | 0.51   | 92.04                              | 10,488                                   | 10,488                            |
| Distributed Generation -Base                                    | 2012                     | 2         | 3                | 1,334                                   | 1.05                                    | 1.00                                       | 1,400  | 7.28   | 16.39                              | 9,050                                    | 8,900                             |
| Distributed Generation -Peak                                    | 2011                     | 1         | 2                | 1,601                                   | 1.05                                    | 1.00                                       | 1,681  | 7.28   | 16.39                              | 10,069                                   | 9,880                             |
| Biomass   | 2013                     | 80        | 4                | 3,414                                   | 1.07                                    | 1.05                                       | 3,849  | 6.86   | 65.89                              | 9,451                                    | 7,765                             |
| Geothermal <sup>7,9</sup>                                       | 2010                     | 50        | 4                | 1,666                                   | 1.05                                    | 1.00                                       | 1,749  | 0.00   | 168.33                             | 32,969                                   | 30,326                            |
| MSW - Landfill Gas  | 2010                     | 30        | 3                | 2,430                                   | 1.07                                    | 1.00                                       | 2,599  | 0.01   | 116.80                             | 13,648                                   | 13,648                            |
| Conventional Hydropower <sup>5</sup>                            | 2013                     | 500       | 4                | 2,084                                   | 1.10                                    | 1.00                                       | 2,291  | 2.49   | 13.93                              | 9,884                                    | 9,884                             |
| Wind  | 2009                     | 50        | 3                | 1,837                                   | 1.07                                    | 1.00                                       | 1,966  | 0.00   | 30.98                              | 9,884                                    | 9,884                             |
| Wind Offshore   | 2013                     | 100       | 4                | 3,492                                   | 1.10                                    | 1.02                                       | 3,937  | 0.00   | 86.92                              | 9,884                                    | 9,884                             |
| Solar Thermal <sup>7</sup>                                      | 2012                     | 100       | 3                | 4,798                                   | 1.07                                    | 1.00                                       | 5,132  | 0.00   | 58.05                              | 9,884                                    | 9,884                             |
| Photovoltaic <sup>7</sup>                                       | 2011                     | 5         | 2                | 5,879                                   | 1.05                                    | 1.00                                       | 6,171  | 0.00   | 11.94                              | 9,884                                    | 9,884                             |

<sup>1</sup>Online year represents the first year that a new unit could be completed, given an order date of 2009. For wind, geothermal and landfill gas, the online year was moved earlier to acknowledge the significant market activity already occurring in anticipation of the expiration of the Production Tax Credit.

<sup>2</sup>A contingency allowance is defined by the American Association of Cost Engineers as the "specific provision for unforeseeable elements if costs within a defined project scope; particularly important where previous experience has shown that unforeseeable events which will increase costs are likely to occur."

<sup>3</sup>The technological optimism factor is applied to the first four units of a new, unproven design. It reflects the demonstrated tendency to underestimate actual costs for a first-of-a-kind unit.

<sup>4</sup>Overnight capital cost including contingency factors, excluding regional multipliers and learning effects. Interest charges are also excluded. These represent costs of new projects initiated in 2009.

<sup>5</sup>O&M = Operations and maintenance.

<sup>6</sup>For hydro, wind, and solar technologies, the heatrate shown represents the average heatrate for conventional thermal generation as of 2008. This is used for purposes of calculating primary energy consumption displaced for these resources, and does not imply an estimate of their actual energy conversion efficiency.

<sup>7</sup>Capital costs are shown before investment tax credits are applied.

<sup>8</sup>Combustion turbine units can be built by the model prior to 2011 if necessary to meet a given region's reserve margin.

<sup>9</sup>Because geothermal and hydro cost and performance characteristics are specific for each site, the table entries represent the cost of the least expensive plant that could be built in the Northwest Power Pool region, where most of the proposed sites are located.

Sources: The values shown in this table are developed by the Energy Information Administration, Office of Integrated Analysis and Forecasting, from analysis of reports and discussions with various sources from industry, government, and the Department of Energy Fuel Offices and National Laboratories. They are not based on any specific technology model, but rather, are meant to represent the cost and performance of typical plants under normal operating conditions for each plant type. Key sources reviewed are listed in the 'Notes and Sources' section at the end of the chapter.

### 3.2.4 Alternative Summary

In summary, none of the alternatives discussed above is a viable alternative to the Project on its own or in combination because it does not meet the objectives of the Project, does not meet the Project's site criteria, is less cost-effective than the Project, or would have a greater environmental impact than the Project, or because of some combination of the preceding factors. With the exception of environmental impacts that were discussed in detail in each section above, Table 4 below summarizes these comparisons.

**Table 4. Comparison of Alternatives to the Ellerth Wind Project**

| Alternatives Considered        | Eligible for the MN RES?        | Compatible with Project site? | Available at similar scale?    | EIA Average Levelized Cost <sup>59</sup> | Analysis waived? |
|--------------------------------|---------------------------------|-------------------------------|--------------------------------|--|------------------|
| Wind                           | Yes                             | Yes                           | Yes                            | \$97/MWh <sup>60</sup>                   | No               |
| Purchased Power                | NA                              | NA                            | NA                             | NA                                       | Yes              |
| Upgrades to Existing Resources | NA                              | NA                            | NA                             | NA                                       | Yes              |
| New Transmission               | NA                              | NA                            | NA                             | NA                                       | Yes              |
| No Facility                    | No                              | NA                            | NA                             | NA                                       | Yes              |
| Solar Power (photovoltaic)     | Yes                             | No                            | No                             | \$210.7/MWh                              | No               |
| Hydropower                     | Yes                             | No                            | Possibly                       | \$86.4/MWh                               | No               |
| Biomass                        | Yes                             | No                            | Possibly for some technologies | \$113/MWh                                | No               |
| Emerging Technologies          |                                 |                               |                                |  |                  |
| Hydrogen and Fuel Cells        | Yes (Renewable H <sub>2</sub> ) | Possibly                      | No                             | NA                                       | No               |
| Energy Storage Options         | No                              | Uncertain (generally no)      | No                             | NA                                       | No               |
| Combinations                   | No                              | NA                            | Possibly                       | NA                                       | No               |

### 3.3 Discussion of Proposed Facility and Alternatives (Minn. R. 7849.0250(C))

As discussed in Section 3.2 above, none of the alternatives considered meets the objectives of the Project. Other renewable energy technologies that could satisfy RES requirements (including solar, small hydroelectric, biomass, and certain emerging technologies) have higher costs, greater environmental impacts, and/or are less suited to the Project's site in northwestern Minnesota.

<sup>59</sup> Figures are in 2009 dollars per megawatt-hour for plants entering service in 2016. See the full EIA tables in Figures 6 and 7 for more detailed cost information.

<sup>60</sup> EIA's levelized cost estimates for wind exceed the anticipated costs of the Project.

### ***3.3.1 Capacity Cost Is Dollars per Kilowatt***

Wind energy projects do not have costs attributable to capacity, and therefore costs for wind energy facilities are typically not expressed in terms of capacity costs. The Project will deliver energy to utilities on an as-generated basis and will receive payment for energy generated. Ellerth Wind estimates that the capital cost for the Project will be approximately [TRADE SECRET INFORMATION REMOVED]. The largest component of that cost will be the wind turbines.

### ***3.3.2 Service Life***

Ellerth Wind estimates that the Project's service life will be 30 years with proper maintenance and service. Ellerth Wind is confident that its planned maintenance program will sustain the Project for at least its estimated service life.

### ***3.3.3 Estimated Average Annual Availability***

Ellerth Wind estimates that the Project will be available at least approximately 95% of the year, which is consistent with industry standards for wind projects.

### ***3.3.4 Fuel Costs***

The Project will have no fuel costs because wind is free. Ellerth Wind will pay annual rent payments for the wind rights easements on the land on which the Project will be located. Nominal purchases of electricity also will be required to operate the Project, with Ellerth Wind ultimately selling the Project's net output.

### ***3.3.5 Variable Operating and Maintenance Costs***

Ellerth Wind estimates that variable maintenance costs over the life of the Project will average approximately [TRADE SECRET INFORMATION REMOVED] annually. Wind facilities typically do not have to go entirely offline for maintenance. Rather, individual turbines can be shut down as necessary for service, while the rest of the facility continues to generate power.

### ***3.3.6 Total Cost***

Ellerth Wind estimates that the Project's total capital costs will be approximately [TRADE SECRET INFORMATION REMOVED], depending on final turbine selection and other factors. The actual price for which the Project will sell energy has not been determined.

### **3.3.7 *Estimate of Facility's or Alternative's Effect on Rates***

Minn. R. 7849.0250(C)(7) requires CON applicants to estimate a proposed project's "effect on rates systemwide and in Minnesota, assuming a test year beginning with the proposed in-service date." The Commission granted Ellerth Wind an exemption from this data requirement and accepted Ellerth Wind's alternative proposal to address the Project's impact on state or regional wholesale electricity prices. The Project's energy production will be modest relative to the energy consumption of Minnesota and the region. Therefore, the price of the Project's output will have minimal impact on electricity rates. However, since the Project has no fuel costs, it could serve to help stabilize or lower electricity prices in the state and the region, as compared to energy resources with more volatile pricing.

### **3.3.8 *Efficiency***

Because no fuel is burned in the production of energy at the Project, this data requirement is not applicable to a wind energy project.

### **3.3.9 *Assumptions (Minn. R. 7849.0250(C)(9))***

The cost information provided in this CON application assumes a net capacity factor of between [TRADE SECRET INFORMATION REMOVED], and assumes that operations and maintenance costs will escalate at rates consistent with the rest of the economy. Ellerth Wind anticipates that construction will take approximately six to eight months and that the Project will begin commercial operations in November 2012.

## **3.4 *Map of System (Minn. R. 7849.0250(D))***

The Commission granted Ellerth Wind an exemption from the requirement to provide a map showing the applicant's system. As an alternative, Ellerth Wind proposed to provide a map of the Project and its location relative to power grid infrastructure. Such maps are included as Figures 1 and 2.

## **4. ENVIRONMENTAL INFORMATION (MINN. R. 7849.0310 AND MINN R. 7849.0320)**

### **4.1 *Environmental Information for the Proposed Project and Alternatives (Minn. R. 7849.0310)***

The following is a summary of available environmental impact information for the proposed Project. Environmental information for potential alternatives to the Project is discussed in Section 3.2, but none of those alternatives was determined to be viable alternatives to the Project. More detailed environmental information for the Project also will be provided in the Project's LWECs site permit application.

#### **4.1.1 Impacts to Visual Resources**

The topography in the vicinity of the Project is generally flat and the vegetation cover is uniformly low. Vegetation is predominantly agricultural crops and pasture within the Project area. Currently, the only prominent vertical components of the visual landscape in the Project area are trees and manmade structures. A mix of deciduous and coniferous trees planted for windbreaks surround most farmsteads within the Project area. Generally, these forested areas are isolated groves or wind rows established by the landowner/farmers to prevent wind erosion and shelter dwellings. Structures within the Project area primarily include residences and farm outbuildings. No other wind farms are present within the viewshed of the Project. The public lands that exist within the viewshed of the Project are typical of public lands in agricultural settings and are not classified as designated wilderness areas. Visual impacts will be noticeable for users of Old Mill State Park, which is located within one mile of the Project area.

Ellerth Wind will work to avoid or minimize visual impacts into the final design and siting of the Project and will work with landowners to identify concerns related to Project aesthetics and to address visual impacts. Ellerth Wind proposes the following mitigative measures:

- Turbines will be uniform in color;
- Turbines will not be located in biologically sensitive areas such as parks, Wildlife Management Areas, or wetlands;
- Turbines will be illuminated to meet the minimum requirements of FAA regulations;
- Existing roads will be used for construction and maintenance where possible to minimize the number of new roads constructed;
- Access roads created for the wind farm facility will be located on gentle grades to minimize erosion, visible cuts, and fills; and
- Temporarily disturbed areas will be converted back to cropland or otherwise reseeded with native seed mixes appropriate for the region.

Ellerth Wind has made considerable effort to site turbines carefully and responsibly to minimize the impact of shadow flicker to the area. The potential for shadow flicker will continue to be considered during development, construction, and operation of the Project. A 1,640-foot (500-meter) minimum

setback from residences will be used. Additional mitigation options for the Project may be considered including visual screening such as trees, awnings, curtains, or blinds.

#### **4.1.2 Impacts to Land Use**

Specific impacts to agricultural lands will be determined once turbine and road placement and substation/O&M facility locations have been finalized. The loss of agricultural land to the construction of the wind farm will reduce the amount of land that can be cultivated. However, only a very small portion of the Project area will be converted to nonagricultural land use, and this will not significantly alter crop production in the Project area or Marshall County. To the extent practicable, temporary staging areas will be placed in previously disturbed locations to minimize the impact to agricultural production. Turbine and facility siting will include discussions with property owners to identify features on their property, including drain tile, that should be avoided. Ellerth Wind does not anticipate any impact on woodlots or mining.

Only land for the turbines, certain electrical equipment, and access roads will be taken out of crop production. Once the wind turbines are constructed, all land surrounding the turbines and access roads may still be farmed. In the event that there is damage to the drain tile as a result of construction activities or operation of the LWECS, the applicant will work with affected property owners to repair the damaged drain tile in accordance with the agreement between the Project owner and the owner of any damaged tile. If Conservation Reserve Program (“CRP”) land is impacted, Ellerth Wind will work with the landowner to remove the impacted portion of the parcel from the CRP program.

#### **4.1.3 Impacts to Wildlife**

The overall impact of the proposed Project on wildlife is expected to be minimal because turbines and access roads will be placed on agricultural lands. Grasslands, forested areas, shrublands, streams/drainages, and wetlands will be avoided whenever possible. Operation of the wind farm will not change adjacent land uses, and a relatively small portion of the Project area will be affected by construction activities. There is some potential for avian and bat collisions with facility turbines; however, impacts are not expected to be different from results of other previous studies conducted in similar agricultural settings in Minnesota. Ellerth Wind will implement the following measures, to the extent practicable, to help avoid potential impacts to wildlife in the Project area during selection of the turbine locations and subsequent Project development and operation:

- Conduct a pre-construction inventory of existing biological resources, native prairie, and wetlands in the Project area;

- Exclude established Wildlife Management Areas and recreation areas from consideration for wind turbine, access road, or feeder/collector line placement;
- Avoid or minimize disturbance of individual wetlands or drainage systems during construction of the Project;
- Avoid or minimize placement of turbines in high-quality native prairie tracts;
- Continue to coordinate with the Minnesota Department of Natural Resources to discuss potential impacts to greater prairie chickens;
- Protect existing trees and shrubs that are important to the wildlife present in the area;
- Maintain sound water and soil conservation practices during construction and operation of the Project to protect topsoil and adjacent resources and to minimize soil erosion. To minimize erosion during and after construction, Best Management Practices for erosion and sediment control will be utilized. These practices include temporary seeding, permanent seeding, mulching, filter strips, erosion blankets, grassed waterways, and sod stabilization;
- Construct wind turbines using tubular monopole towers;
- Minimally light turbines according to FAA requirements;
- Revegetate non-cropland and pasture areas disturbed during construction or operation with an appropriate native seeding mix, in cooperation/coordination with landowners;
- Inspect and control noxious weeds in areas disturbed by the construction and operation of the Project; and
- Prepare an Avian and Bat Protection Plan prior to Project construction to outline Best Management Practices to minimize and reduce risks for birds and bats and their habitat.

## **4.2 Facility Information for Proposed Project and Alternatives Involving Construction of a LEGF (Minn. R. 7849.0320)**

The following is a discussion of land requirements, traffic, water, waste, noise, and other facility information for the proposed Project. Certain facility information is discussed for potential alternatives in Section 3.2, but none of these alternatives was determined to be a viable alternative to the Project.

### **4.2.1 Land Requirements**

The Project footprint is approximately 22,000 acres. Of this land, approximately 75 acres will be used for wind turbines and associated facilities. The land is zoned for agricultural use and has little existing development or housing. No relocation of people or businesses will be required for the Project. Anticipated impacts to local lands from the Project are described in Section 4.1.2.

(a) Land Requirements for Water Storage. The Project will not require any land for water storage.

(b) Land Requirements for Cooling System. The Project will not require any land for a cooling system.

(c) Land Requirements for Solid Waste Storage. The Project will require minimal space in the operations and maintenance facility for the storage of used oils, spare parts, and tools. More information about solid waste is provided in Section 4.2.7.

### **4.2.2 Traffic**

In general, the existing roadway infrastructure in and around the Project area is characterized by county and township roads that generally follow section lines. Various County State Aid Highways, county roads, and township roads provide access to the proposed site. Access to the Project area also includes two-lane paved and gravel roads. Many landowners use private single-lane farm roads and driveways on their properties.

Constructing the Project will require approximately 17.8 miles of gravel access roads, depending on the size of turbine selected and final design. In addition, during operation of the Project, the access roads will be used by operation and maintenance crews while inspecting and servicing the wind turbines. The access roads will be between towers, and one road will be required for each string. Proposed access roads will be approximately 16 feet (4.88 meters) wide and low profile to allow cross-travel by farm equipment. Ellerth Wind will work closely with the landowners to locate these access roads to minimize

land-use disruptions. Construction traffic will use the existing county and state roadway system to access the Project area and deliver construction materials and personnel. During the peak of construction, it is anticipated that there will be an additional 90 to 230 vehicle trips per day on a temporary basis. Since the current traffic levels on the roadways in the Project area are well below roadway capacities, construction traffic will be perceptible but similar to seasonal variations in traffic, such as autumn harvest. Traffic control measures and coordination with local authorities will be implemented to ensure public health and safety is protected with respect to the Project. Construction is not anticipated to result in adverse traffic impacts. Operation and maintenance activities will not noticeably increase traffic in the Project area.

#### ***4.2.3 Information Pertaining to Fossil-Fueled Facilities***

- (a) Fuel. The Project is not a fossil-fueled facility.
- (b) Emissions. The Project will not release any emissions from the power generation process.

#### ***4.2.4 Water Usage for Alternate Cooling Systems***

The turbines will utilize self-contained, internal cooling systems that will not require water storage. The Project's water requirements during operation will be limited to potable water for the operations and maintenance facility, which may be obtained from a well or municipal source. All applicable regulations will be followed.

#### ***4.2.5 Water Discharges***

The Project will not discharge water during operation beyond sanitary systems for the operations and maintenance structure. Some limited water discharge may be necessary during construction. Ellerth Wind will apply for and comply with the terms of any National Pollution Discharge Elimination System or other permits required by law. A full list of federal, state, and local permits anticipated to be required for the Project is included in Table 7.

#### ***4.2.6 Radioactive Releases***

The Project will not produce any radioactive releases.

#### ***4.2.7 Solid Waste***

The Project is not expected to generate significant quantities of solid waste during its operations. The Project will require use of certain petroleum products as gear box oil, hydraulic fluid, and gear grease

(likely less than three tons per year). When disposal is necessary, these materials will be recycled or otherwise stored and disposed of according to state and federal regulations. In addition, a small amount of office and maintenance materials waste will be produced at the operations and maintenance facility (likely less than two tons per year). These materials will also be stored, recycled, and disposed of according to applicable local, state, and federal regulations.

Ordinary solid waste produced at the operations and maintenance facility or at individual turbines during maintenance operations will be disposed of according to local, state, and federal regulations.

#### 4.2.8 Noise

The Minnesota Pollution Control Agency (“MCPA”) has a statewide noise standard (Minn. R. 7030.0040) that specifies daytime and nighttime noise levels that cannot be exceeded by any source. These standards are consistent with speech, sleep, annoyance, and hearing conservation requirements for receivers within areas grouped according to land activities by the noise area classification (“NAC”). The NAC for household units (including farm houses) is identified as NAC 1. The daytime standards state that a sound level of 60 dB(A) may not be exceeded for more than 50% of the time for a one-hour survey, and a sound level of 65 dB(A) may not be exceeded for more than 10% of the time for a one-hour survey. The nighttime standards state that 50 dB(A) may not be exceeded for more than 50% of a one-hour survey, and 55 dB(A) may not be exceeded for more than 10% of a one-hour survey. Table 5 presents the regulated noise levels from the state of Minnesota statutes. The L50 is the noise level exceeded for 50% of the time during any measurement duration and represents the median sound level. The L10 is the sound level exceeded for 10% of the time during any measurement duration.

**Table 5: State of Minnesota Noise Standards [db(A)]\***

| Noise Area Classification<br>(as Identified in Minn. R.<br>7030.0040) | Daytime         | Daytime         | Nighttime       | Nighttime       |
|---|-----------------|-----------------|-----------------|-----------------|
|   | L <sub>50</sub> | L <sub>10</sub> | L <sub>50</sub> | L <sub>10</sub> |
| 1   | 60              | 65              | 50              | 55              |
| 2   | 65              | 70              | 65              | 70              |
| 3   | 75              | 80              | 75              | 80              |

\* *A-weighted decibels*  
*Source: Minn. R. 7030.0040*

The operation of wind turbines will contribute to sound levels in the area. The sound associated with the wind farm will vary based on wind speed, distance from the turbines, number of turbines in operation, weather, and topography of the area. On relatively windy days, turbines generally produce more sound; however, the ambient natural wind sound levels also increase. Wind turbine manufacturers

provide turbine noise emission data in terms of sound power levels or sound pressure levels, as shown in Table 6 below.

**Table 6: Noise Emission Data Provided by Turbine Manufacturers**

| <b>Turbine Make and Model</b> | <b>Sound Level dB(A)</b> |
|-------------------------------|--------------------------|
| GE 1.5xle                     | 104.0                    |
| Vestas V90 1.8 MW             | 103.7                    |
| Siemens 101 SWT 2.3 MW        | 108.0                    |

Operation of the Project may result in periodically audible sound nearby under certain operational and meteorological conditions. Specifically, the Project will be audible at the closest residential areas in relation to the Project footprint when the residences are downwind, background levels are low, and wind speeds are high enough for turbine operation. Residents outside their houses and with a direct line of sight to an operating wind turbine may hear a gentle “swooshing” sound characteristic of wind turbines. Audible sound from the Project will likely not be deemed excessive. Furthermore, sound generated within the Project area will be consistent with sound generated at similar wind energy projects that have been successfully sited throughout the United States where similar noise criteria limits exist.

The nighttime L50 limit of 50 dB(A) is the MPCA’s most stringent noise standard and therefore will determine the minimum allowable distance between turbines and residences for the Project. Ellerth Wind has calculated these minimum distances for the GE, Vestas, and Siemens turbines to be, respectively, 181 meters (594 feet), 174 meters (571 feet), and 271 meters (889 feet). Ellerth Wind has made considerable effort to site turbines carefully and responsibly, and intends to maintain a minimum setback distance of 500 meters (1,640 feet) from occupied dwellings.

The main source of audible noise from a substation is due to the operation of the transformers. Transformers produce noise whenever they are energized, and the level of the noise depends on transformer size, voltage level, and weather conditions. Substation noise is generally minimal and nearly constant with slight variation because of operating conditions (cooling fans on or off, etc.). The Ellerth Wind substation and its transformers will be designed, constructed, and operated to comply with state noise standards. The substation parcel is surrounded by rural land uses and roadways and should not have significant noise impacts on nearby receptors.

#### **4.2.9 Work Force for Construction and Operation**

Ellerth Wind will hire a balance of plant contractor to construct the Project. Throughout the construction period, Ellerth Wind estimates that the Project will create up to approximately 200 jobs. The peak on-site employee count during this time will be approximately 100 workers. The Project will employ local contractors and use locally sourced materials and services when possible and economical.

After construction is complete, Ellerth Wind estimates that eight to 10 full-time employees will be required to operate and maintain the Project.

#### **4.2.10 Number and Size of Transmission Facilities**

The electricity generated by each turbine will be stepped up by a transformer (either at the base of each turbine or housed in the nacelle) to the power collection line voltage of 34.5 kV. The electric energy collected at the turbines will be transmitted via underground lines and then passed to overhead lines along rights of way to the substation location. At the substation, the power will be transformed from 34.5 kV to 115 kV, via a new transformer installed as part of the Project, for delivery to the transmission grid. The power will be transmitted from the substation via an existing 115 kV overhead transmission line owned by Otter Tail Power Company.

### **4.3 Facility Information for Alternatives Involving Construction of a LHVTL (Minn. R. 7849.0330)**

The Commission granted Ellerth Wind an exemption from this requirement to provide information regarding large high-voltage transmission line alternatives (“LHVTL”).

## **5. OTHER FILINGS AND PERMITS**

### **5.1 Exemption Request**

On March 31, 2011, the Commission granted Ellerth Wind an exemption from several of the informational requirements included in Chapter 7849 of the Minnesota Rules. These exemptions are referenced where appropriate in this CON application. At the same time, the Commission granted Ellerth Wind a variance from Minn. R. 7849.0200, subp. 6, which normally requires CON applicants to wait 45 days between filing an exemption request and filing a CON application.

## **5.2 Environmental Report**

The Commission rules require the Minnesota Office of Energy Security to provide an Environmental Report for any large energy facility for which a CON must be obtained. Minn. R. 7849.1200.

## **5.3 Site Permit**

The Project will require an LWECs site permit, pursuant to Minn. Stat. § 216F.04. Ellerth Wind has been engaged in pre-application consultation with the Minnesota Office of Energy Security since December 2010. The LWECs site permit application is currently being prepared and scheduled to be submitted to the Office of Energy Security by early June 2011. Ellerth Wind requests that the CON application and site permit application processes be combined and coordinated to the extent possible.

5.4 Other Project Permits

**Table 7: Project Permits and Approvals**

| Regulatory Authority                  | Statute  | Permit/ Approval                                     | Description   | Trigger   | Fee                          | Application Timeline  | Website   |
|---------------------------------------|--|--|---|---|------------------------------|---|---|
| <b>Federal Approvals</b>              |  |  |   |   |                              |   |   |
| FAA                                   | 49 U.S.C. § 44718  | Notice of Proposed Construction Hazard Determination | Notifies FAA of proposed structures that might affect navigable airspace. Form requires proposed markings and lighting. FAA must review possible impacts to air safety and navigation, as well as the potential for adverse effects on radar systems. | All turbines/ structures over 200 feet tall; and/or turbines/ structures less than 200 feet tall near an airport. | No fee.                      | Submit notice at least 30 days prior to anticipated start of construction or before the application for construction permit is filed. | <a href="http://www.faa.gov/">http://www.faa.gov/</a>   |
| USACE                                 | Clean Water Act  | Section 404 Permit                                   | Required for the discharge of dredged or fill material into waters of the U.S. Minimal levels of fill may be covered under existing General Permits/Letters of Permission.  | Presence in waters of the U.S.  | No fee.                      | Dependent on level of fill and type of permit required (individual vs. Letter of Permission)  | <a href="http://www.usace.army.mil/">http://www.usace.army.mil/</a>                                     |
| <b>State Approvals</b>                |  |  |   |   |                              |   |   |
| Minnesota Public Utilities Commission | Pursuant to Minn. Stat. § 216F.08                            | LWECS Site Permit                                    | Application required for facilities with nameplate capacity greater than 5 MW.  | Generation of greater than 5 MW of power.   | To be determined by the PUC. | 180 days prior to construction (minimum).   | <a href="https://www.revisor.mn.gov/statutes/?id=216F">https://www.revisor.mn.gov/statutes/?id=216F</a> |
| Minnesota Public Utilities Commission | Minn. Stat. §§ 16B.2421, 216B.243 subd. 2; Minn. R. Ch. 7849 | Certificate of Need                                  | Needed for a large energy project in Minnesota.   | Project nameplate is greater than 50 MW.  | To be determined by the PUC. | Within 12 months of submission of the application.  | <a href="https://www.revisor.mn.gov/statutes/?id=7849">https://www.revisor.mn.gov/statutes/?id=7849</a> |
| Minnesota Pollution Control Agency    | Clean Water Act  | Section 401 Certification                            | Verify that project construction would comply with state water quality standards.   | Wetland impacts proposed that do not qualify for Section 404 GP/LOP.  | No fee.                      | Prior to construction activities.   | <a href="http://www.pca.state.mn.us/water/401.html">http://www.pca.state.mn.us/water/401.html</a>       |

| Regulatory Authority                        | Statute   | Permit/ Approval   | Description  | Trigger  | Fee  | Application Timeline                                   | Website   |
|---|---|--|--|--|--|--|---|
| Minnesota Pollution Control Agency          | National Pollutant Discharge Elimination System Act | General Permit (Construction)                            | For stormwater discharges from construction activities.  | Grading of more than one acre.   | \$400  | Permit to be filed prior to construction with a SWPPP. | <a href="http://www.pca.state.mn.us/publications/wq-strm2-05.pdf">http://www.pca.state.mn.us/publications/wq-strm2-05.pdf</a>   |
| Minnesota Pollution Control Agency          | Minnesota Hazardous Waste Rules Ch. 7045            | Very Small Quantity Generator of Hazardous Waste License | For discharge of hazardous waste.  | Generate 220 pounds or less per month of hazardous waste.                              | \$477 (2009 base fee)                                | Apply annually.  | <a href="http://www.pca.state.mn.us/publications/w-hw7-09.pdf">http://www.pca.state.mn.us/publications/w-hw7-09.pdf</a>   |
| Minnesota Department of Health              | Minn. Stat. Ch. 1031                                | Well Construction Notification Fee                       | For construction of new water-supply wells.  | Construction of well for O&M building.   | \$215  | Prior to construction.                                 | <a href="http://www.health.state.mn.us/divs/eh/wells/ruleshandbook/permits.pdf">http://www.health.state.mn.us/divs/eh/wells/ruleshandbook/permits.pdf</a>                     |
| Minnesota Department of Natural Resources   | Minn. Stat. Ch. 84.415                              | License to Cross Public Land and Water                   | For siting facilities on, or crossing over, any state-administered public lands or waters.                                   | Siting facilities on, or crossing over, any state-administered public lands or waters. | \$2,000 for public waters; \$5,000 for public lands. | Prior to impact. Process takes 60 to 90 days.          | <a href="http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/applications.html">http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/applications.html</a> |
| Minnesota Department of Natural Resources   | Minn. Stat. Ch. 84.415                              | Permit to Work in Public Waters                          | For work affecting the course, current, or cross-section of a lake, wetland, river, or stream                                | Course, current, or cross-section of a lake, wetland, river, or stream affected.       | \$150 minimum fee, \$1000 maximum fee.               | Prior to impact.                                       | <a href="http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/applications.html">http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/applications.html</a> |
| Minnesota Board of Water and Soil Resources | Wetland Conservation Act ("WCA")                    | WCA Approval   | For wetland impacts. Ranges from an exemption for small or temporary impacts to a permit and mitigation for greater impacts. | Impacts to any wetland in the state.   | To be determined by LGU.                             | Permit application process takes up to 60 days.        | <a href="http://www.bwsr.state.mn.us/wetlands/forms/form03_B.pdf">http://www.bwsr.state.mn.us/wetlands/forms/form03_B.pdf</a>   |

| Regulatory Authority                   | Statute  | Permit/ Approval   | Description  | Trigger   | Fee                        | Application Timeline   | Website   |
|--|--|--|--|---|----------------------------|--|---|
| Minnesota Department of Transportation | Minn. Stat. Ch. 505; Minn. R. 8810.0050            | Access Driveway Permit                                       | Required to provide driveway access to state-owned right of way.   | Project requires change in access to or from state right of way or change in use of property.   | To be determined by MNDOT. | Prior to construction; process takes 30 days.  | <a href="http://www.dot.state.mn.us/utility/">http://www.dot.state.mn.us/utility/</a>   |
| Minnesota Department of Transportation | Minn. Stat. § 161.45; Minn. R. 8810.3100-8810.3600 | Utility Permit on Trunk Highway Right of Way                 | Required to install utilities within state-owned right of way.   | Project requires use of state right of way for utility route or crossing.   | To be determined by MNDOT. | Prior to construction. Process takes four to six weeks   | <a href="http://www.dot.state.mn.us/utility/">http://www.dot.state.mn.us/utility/</a>   |
| Minnesota Department of Transportation | Minn. Stat. § 169.862                              | Wind Energy Transportation Oversize and/or Overweight Permit | Required to transport oversize loads on state-maintained roads.  | Project construction requires oversize/overweight truck loads.  | \$36 for 60 days           | Permit required prior to construction.   | <a href="http://www.dot.state.mn.us/cvo/oversize/oversize.html">http://www.dot.state.mn.us/cvo/oversize/oversize.html</a>   |
| Minnesota Department of Transportation | Minn. Stat. § 360.83                               | Tall Structure Permit  | Required for wind turbines and other tall structures   | Structure more than 200 feet above ground level within three miles of an airport and increasing by 100 feet for each additional mile out to six miles and 500 feet. | No fee.                    | Review takes approximately two weeks; submittal must include FAA Aeronautical Study Determination. | <a href="http://www.dot.state.mn.us/aero/avoffice/talltowers.html">http://www.dot.state.mn.us/aero/avoffice/talltowers.html</a>   |
| <b>Local Approvals</b>                 |  |  |  |   |                            |  |   |
| Marshall County                        | County Regulations                                 | Land Alteration Permit                                       | Permits in floodplain and shoreland areas are required for specific grading, filling and other land alteration activities. | Project construction requires permitted activities in floodplain and shoreland areas.   | \$50                       | Prior to construction.   | <a href="http://www.co.marshall.mn.us/marshallcounty/departments/waterandland.htm#permitreq">http://www.co.marshall.mn.us/marshallcounty/departments/waterandland.htm#permitreq</a> |

| <b>Regulatory Authority</b> | <b>Statute</b>       | <b>Permit/ Approval</b> | <b>Description</b>   | <b>Trigger</b>  | <b>Fee</b> | <b>Application Timeline</b> | <b>Website</b>  |
|-----------------------------|----------------------|-------------------------|--|---|------------|-----------------------------|---|
| Marshall County             | County Regulations   | Building Permit         | Required for placement of roads, driveways, and parking areas and specific grading, filling, and other land alteration activities. | Project construction requires permitted activities in floodplain and shoreland areas. | \$50       | Prior to construction.      | <a href="http://www.co.marshall.mn.us/departments/waterandland.htm#permiteq">http://www.co.marshall.mn.us/departments/waterandland.htm#permiteq</a> |
| Marshall County             | County Regulations   | Conditional Use Permit  | Required for development that would not be appropriate generally but may be allowed with appropriate restrictions.                 | Project requires land use outside of normal zoning ordinance specifications.          | \$250      | Prior to construction.      | <a href="http://www.co.marshall.mn.us/departments/waterandland.htm#permiteq">http://www.co.marshall.mn.us/departments/waterandland.htm#permiteq</a> |
| Marsh Grove Township        | Township Regulations |                         | N/A  | N/A   | N/A        | N/A                         | N/A   |
| Foldahl Township            | Township Regulations |                         | N/A  | N/A   | N/A        | N/A                         | N/A   |
| West Valley Township        | Township Regulations |                         | N/A  | N/A   | N/A        | N/A                         | N/A   |
| Wright Township             | Township Regulations |                         | N/A  | N/A   | N/A        | N/A                         | N/A   |
| Viking Township             | Township Regulations |                         | N/A  | N/A   | N/A        | N/A                         | N/A   |
| Comstock Township           | Township Regulations |                         | N/A  | N/A   | N/A        | N/A                         | N/A   |

**6. PEAK DEMAND AND ANNUAL CONSUMPTION FORECAST (MINN. R. 7849.0270)**

The Commission granted Ellerth Wind an exemption from this data requirement, which requires an applicant to provide information regarding its system peak demand and annual energy consumption. As an alternative, Ellerth Wind proposed to submit regional demand, consumption, and capacity data to demonstrate the need for the Project. Such information is provided in Section 2.2.1.

**7. SYSTEM CAPACITY (MINN. R. 7849.0280)**

The Commission granted Ellerth Wind a partial exemption from this data requirement, which requires applicants to “describe the ability of its existing system to meet the demand for electrical energy forecast” in response to Minn. R. 7849.0270, and “the extent to which the proposed facility will increase this capacity.” Minn. R. 7849.0280. As an alternative, Ellerth Wind proposed to submit regional demand, consumption, and capacity data to demonstrate the need for the Project. Such information is provided in Section 2.2.1.

**8. CONSERVATION PROGRAMS (MINN. R. 7849.0290)**

The Commission granted Ellerth Wind an exemption from this data requirement, which requires an applicant to describe its energy and conservation plans.

**9. CONSEQUENCES OF DELAY (MINN. R. 7849.0300)**

The Commission granted Ellerth Wind a partial exemption from this data requirement, which requires the CON applicant to discuss the “anticipated consequences to its system, neighboring systems, and the power pool should the proposed facility be delayed one, two, and three years, or postponed indefinitely.” Minn. R. 7849.0300. Instead, Ellerth Wind proposed to submit data on the consequences of delay to its potential customers and to the region.

In order to qualify for the PTC or the Investment Tax Credit, the Project must be operational by December 31, 2012. If the Project were delayed even one year, construction could not be completed before that deadline. Therefore the consequences of delay would be that the Project would not be eligible for important federal incentives, which would significantly raise the cost of power production to Ellerth Wind and its customers. Since Ellerth Wind’s intended customers are utilities meeting RES requirements, the cost impact of delay would ultimately be passed to utility customers. In addition, delay could impact the ability of utilities to meet their RES requirements in the future. A delay of even one year would also have significant impact on the Project’s ability to meet the commercial operation date required by Ellerth Wind’s GIA. Like missing the PTC/ITC deadline, missing the GIA deadline could

have a significant impact on the Project's cost and viability. This, in turn, would have a significant impact on the ability of utilities to meet their RES requirements in a cost-efficient and timely manner.

**Exhibit 1. Letter of Support from Marshall County**

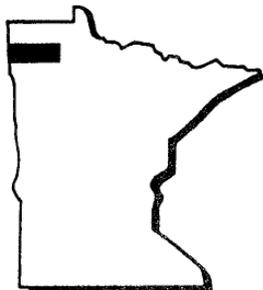
DISTRICT 1  
COMMISSIONER  
LEROY VONASEK  
WARREN, MINN.

DISTRICT 2  
COMMISSIONER  
CURTIS H. CARLSON  
ARGYLE, MINN.

DISTRICT 3  
COMMISSIONER  
KENNETH BOROWICZ  
STEPHEN, MINN.

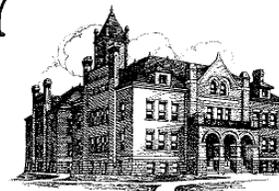
DISTRICT 4  
COMMISSIONER  
SHARON BRING  
STRANDQUIST, MINN.

DISTRICT 5  
COMMISSIONER  
GARY KIESOW  
GOODRIDGE, MINN.



# MARSHALL COUNTY

OFFICE OF  
SCOTT PETERS  
AUDITOR/TREASURER  
208 E. Colvin Avenue, Suite 11  
Warren, Minnesota 56762  
Phone 218-745-4851



DATE December 27, 2010

RE: Ellerth Wind Farm Development – Air Energy TCI Inc.

To whom it may concern,

Air Energy TCI Inc (TCI) has been active in engaging Marshall County Officials regarding their Ellerth wind farm development. Originally, TCI met with Marshall County in 2008 to introduce the company, present their project and commence the dialogue between the two parties. TCI again presented to Marshall County in May 2010 to update the County Officials of the project's progress and the project's forecasted development programme. All the while TCI had been consulting with various Marshall County Departments gaining their feedback concerning the Ellerth wind farm project.

Marshall County understands the importance of renewable energy, specifically in consideration of Minnesota's renewable portfolio standard requiring Minnesota utilities to have 25% of their electricity to come from renewable sources by the year 2025. Projects such as the Ellerth wind farm are vital to accomplishing the renewable energy legislation passed by the State.

The Ellerth wind farm development has the full support of the Marshall County Officials and we are eager to host the project in our County, thus working toward State renewable energy policies and greater energy independence.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

Scott Peters  
Marshall County Auditor

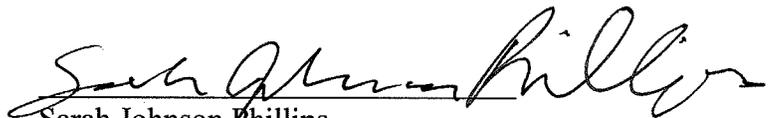
**MPUC Docket No. CN-11-112**

**STATE OF MINNESOTA  
PUBLIC UTILITIES COMMISSION**

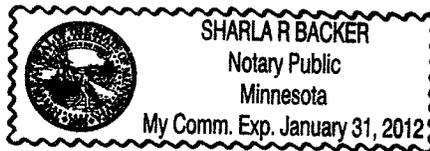
**AFFIDAVIT OF SERVICE**

STATE OF MINNESOTA    )  
  ) ss.  
COUNTY OF HENNEPIN    )

Sarah Johnson Phillips, of the City of Minneapolis, County of Hennepin, State of Minnesota, being first duly sworn, deposes and says that on the 27th day of May, 2011, she served the attached Certificate of Need Application on all said persons on the attached service list, true and correct copies, by electronic filing.

  
\_\_\_\_\_  
Sarah Johnson Phillips

Subscribed and sworn to before me  
this 27th day of May, 2011.



  
\_\_\_\_\_

| First Name | Last Name  | Email                          | Company Name                       | Address   | Delivery Method    | View Trade Secret | Service List Name       |
|------------|------------|--------------------------------|------------------------------------|---|--------------------|-------------------|-------------------------|
| Julia      | Anderson   | Julia.Anderson@state.mn.us     | Office of the Attorney General-DOC | 1400 BRM Tower<br>445 Minnesota St<br>Saint Paul, MN<br>551012131         | Electronic Service | No                | OFF_SL_11-112_CN-11-112 |
| Douglas    | Benson     | douglas.benson@state.mn.us     | Department of Health               | PO Box 64975<br>Saint Paul, MN<br>55155                                   | Electronic Service | No                | OFF_SL_11-112_CN-11-112 |
| Rory       | Cantwell   | rory.cantwell@tcfr.net         | Ellerth Wind LLC                   | 381 Notre Dame West,<br>Suite 102<br>Montreal,<br>QC<br>H2Y 1V2<br>CANADA | Paper Service      | No                | OFF_SL_11-112_CN-11-112 |
| Randall    | Doneen     | randall.doneen@dnr.state.mn.us | Department of Natural Resources    | 500 Lafayette Road<br>Saint Paul, MN<br>55155                             | Electronic Service | No                | OFF_SL_11-112_CN-11-112 |
| Sharon     | Ferguson   | sharon.ferguson@state.mn.us    | Department of Commerce             | 85 7th Place E Ste 500<br>Saint Paul, MN<br>551012198                     | Electronic Service | No                | OFF_SL_11-112_CN-11-112 |
| Jeff       | Freeman    | Jeff.Freeman@state.mn.us       | DEED                               | 1st National Bank Bldg<br>332 Minnesota St<br>Saint Paul, MN<br>55101     | Electronic Service | No                | OFF_SL_11-112_CN-11-112 |
| Travis     | Germundson | travis.germundson@state.mn.us  |                                    | 520 Lafayette Rd<br>Saint Paul, MN<br>55155                               | Electronic Service | No                | OFF_SL_11-112_CN-11-112 |
| Burl W.    | Haar       | burl.haar@state.mn.us          | Public Utilities Commission        | Suite 350<br>21 7th Place East<br>Saint Paul, MN<br>551012147             | Electronic Service | Yes               | OFF_SL_11-112_CN-11-112 |
| Kevin D.   | Johnson    | kdjohnson@stoel.com            | Stoel Rives LLP                    | Suite 4200<br>33 South Sixth Street<br>Minneapolis, MN<br>55402           | Paper Service      | No                | OFF_SL_11-112_CN-11-112 |
| Karen      | Kromar     | karen.kromar@state.mn.us       | MN Pollution Control Agency        | 520 Lafayette Rd<br>Saint Paul, MN<br>55155                               | Electronic Service | No                | OFF_SL_11-112_CN-11-112 |

| First Name | Last Name | Email                   | Company Name                          | Address  | Delivery Method    | View Trade Secret | Service List Name           |
|------------|-----------|-------------------------|---------------------------------------|--|--------------------|-------------------|-----------------------------|
| John       | Lindell   | agorud.ecf@state.mn.us  | Office of the Attorney<br>General-RUD | 900 BRM Tower<br>445 Minnesota St<br>St. Paul,<br>MN<br>55102130   | Electronic Service | No                | OFF_SL_11-112_CN-11-<br>112 |
| Brett      | O'Connor  | brett.loconnor@tcir.net | Ellerth Wind, LLC                     | 381 Notre Dame W Ste 102<br>Montreal,<br>QC<br>H2Y 1V2<br>CANADA   | Paper Service      | No                | OFF_SL_11-112_CN-11-<br>112 |
| Bob        | Patton    | bob.patton@state.mn.us  | MN Department of<br>Agriculture       | 625 Robert St N<br>Saint Paul,<br>MN<br>55155-2538                 | Electronic Service | No                | OFF_SL_11-112_CN-11-<br>112 |
| Sarah      | Phillips  | sphilips@stoel.com      | Stoel Rives LLP                       | 33 South Sixth Street<br>Suite 4200<br>Minneapolis,<br>MN<br>55402 | Electronic Service | No                | OFF_SL_11-112_CN-11-<br>112 |
| Jennie     | Ross      | jennie.ross@state.mn.us |                                       | 395 John Ireland Blvd MS<br>620<br>Saint Paul,<br>MN<br>55155      | Electronic Service | No                | OFF_SL_11-112_CN-11-<br>112 |