

**STATE OF MINNESOTA**

**DISTRICT COURT**

**COUNTY OF RAMSEY**

**SECOND JUDICIAL DISTRICT**

CASE TYPE: Civil Other/Misc

Judge: The Honorable Sara R. Grewing  
Court File Number: 62-CV-20-3674

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State of Minnesota, ex. rel., Association  
of Freeborn County Landowners,

Plaintiff,

vs.

Minnesota Public Utilities Commission,

Defendant.

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**ASSOCIATION OF FREEBORN  
COUNTY LANDOWNERS’  
MEMORANDUM  
IN SUPPORT OF MOTION FOR  
TEMPORARY INJUNCTION**

Plaintiff Association of Freeborn County Landowners (hereinafter “AFCL”) has filed this action seeking a declaratory judgment and equitable relief. As equitable relief, AFCL is requesting a Temporary Injunction, halting permitting and construction of the Freeborn Wind, Plum Creek Wind, Buffalo Ridge Wind, and Three Waters Wind projects during the pendency of these proceedings and extending through remand and administrative proceedings as directed by this court.

The specific projects and their Public Utilities Commission dockets are:

- Freeborn Wind Project, PUC Docket IP6946/WS-17-410<sup>1</sup>
- Plum Creek Wind Project – PUC Dockets IP6997/WS-18-700

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<sup>1</sup> As the Complaint, and as Defendant Commission notes, “The Commission dockets are public record and may be accessed here: <https://www.edockets.state.mn.us/>.” From that link, go to “eDockets” at right of screen, then at “Docket Number” enter the year and the docket number and search. The eDocket filing numbers are in numerical order in the far left column, the date on the far right, with other descriptive identifiers found in the columns in between. Basic project descriptions are taken from these public records, without delving deeply into technical matters.

- Buffalo Ridge Wind Project – PUC Siting Docket IP-7006/WS-19-394
- Three Waters Wind Project – PUC Siting Docket IP7002/WS-19-576

As stated in the Complaint, these four projects are all in various stages of permitting and/or beginning construction before the Public Utilities Commission (hereinafter “Commission”), all are wind siting permit proceedings in which environmental law and the potential for substantial impacts is disregarded, in which projects are proceeding towards siting without siting rules and standards, and despite a legislative mandate to develop “requirements” for environmental review and petitions for wind rulemaking and wind specific noise rulemaking, no large wind siting rules and standards have been developed. These four wind projects are ones that are improperly utilizing a ground factor of 0.5 or 0.7, which results in modeling misrepresenting the noise that the project will produce. The Commission has actual and constructive notice of wind project noise violations; actual and constructive notice that the Administrative Law Judge handling the Freeborn Wind contested case found that the wind project developer had not demonstrated compliance with industrial noise standards; has failed to acknowledge the impact of use of improper noise modeling ground assumptions; has repeatedly denied petitions for large wind specific criteria and rules despite a decades old mandate to develop such criteria and rules; has failed to develop “requirements” for wind environmental review; and continues to issue site permits for projects that can reasonably be expected to inflict significant environmental effects on humans and the environment in the project area. See AFCL Complaint.

Each of the Defendants claim that MERA “is the wrong statutory framework” without acknowledging or addressing the specific provision of MERA, allowing suit of state agencies, a remand to the agency to correct the issues, and an injunction. Minn. Stat. §116B.10.

## CIVIL ACTION AGAINST STATE.

### *Subdivision 1. Civil actions.*

As hereinafter provided in this section, any natural person residing within the state; ... or any ... association, organization, or other legal entity having ... members... residing within the state may maintain a civil action in the district court for declaratory or equitable relief against the state or any agency or instrumentality thereof **where the nature of the action is a challenge to an environmental ... standard ... rule ... promulgated or issued by the state or any agency or instrumentality thereof for which the applicable statutory appeal period has elapsed.**

### *Subd. 2. Burden of proof.*

In any action maintained under this section the plaintiff shall have the burden of proving that the environmental quality standard, limitation, rule, order, license, stipulation agreement, or permit is inadequate to protect the air, water, land, or other natural resources located within the state from pollution, impairment, or destruction. The plaintiff shall have the **burden of proving the existence of material evidence showing said inadequacy of said environmental quality standard, limitation, rule, order, license, stipulation agreement, or permit.**

### *Subd. 3. Remittitur; judicial review.*

In any action maintained under this section the district court, **upon a prima facie showing by the plaintiff of those matters specified in subdivision 2, shall remit the parties to the state agency or instrumentality that promulgated the environmental quality standard, limitation, rule, order, license, stipulation agreement, or permit which is the subject of the action, requiring said agency or instrumentality to institute the appropriate administrative proceedings to consider and make findings and an order on those matters specified in subdivision 2.** In so remitting the parties, the court may grant temporary equitable relief where appropriate to prevent irreparable injury to the air, water, land, or other natural resources located within the state. In so remitting the parties, the court shall retain jurisdiction for purposes of judicial review to determine whether the order of the agency is supported by the preponderance of the evidence. If plaintiff fails to establish said prima facie showing, the court shall dismiss the action and award such costs and disbursements as the court deems appropriate.

Minn. Stat. §116B.10 (emphasis added); see also the “White Bear Lake” series: *White Bear Lake Restoration Ass’n ex rel. Minnesota v. Minn. Dep’t of Nat. Res.*, A18-0750, -- N.W.2d --, 2020 WL 3980718 (Minn. Jul. 15, 2020); *White Bear Lake Restoration Ass’n ex rel. State v. Minn. Dep’t of Nat. Res.*, 928 N.W.2d 351, 358 (Minn. App. 2019), et seq. (reinforcing cause of action under Minn. Stat. 116B.10 and the Legislature’s intention that the MERA remedies “shall be in

addition to any administrative [and] regulatory . . . rights and remedies.” Minn. Stat. § 116B.12.).

AFCL adopts and incorporates the Complaint as if fully related herein, and requests an injunction.

## **I. AFCL SEEKS A TEMPORARY INJUNCTION**

AFCL is asking the court for a temporary injunction prohibiting construction of the four projects named above during the pendency of this proceeding and through court ordered administrative proceedings necessary to consider and promulgate rules, as contemplated in MERA. Minn. Stat. §216B.10, Subd. 2 and Subd. 3. AFCL’s primary issue of concern is, as above, the Commission’s failure, and the failure of the Environmental Quality Board before it, to promulgate large wind specific criteria as required by statute, and in repeatedly rejecting rulemaking petitions for wind specific rules,<sup>2</sup> and the Commission’s continuation of its improper procedure of siting wind projects without large wind specific criteria and standards. AFCL has repeatedly raised the issue of the absence of large wind specific criteria and rules, and of the systemic issues present in permitting where there are no large wind rules and standards, such as setbacks from homes and businesses sufficient to meet noise exposure standards, setbacks sufficient to meet shadow flicker exposure and to establish shadow flicker limits; setbacks sufficient from residences and roads to protect from ice throw<sup>3</sup>, and to have decommissioning plans and financial assurance sufficient to assure decommissioning.

The threshold for a Temporary Injunction is high, and rightly so – much is at stake.

AFCL, the party seeking an injunction, must make a showing that there is an inadequate legal

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<sup>2</sup> Defendant NSP argues in its Motion to Dismiss that AFCL should wait for wind rulemaking anticipated after ongoing rulemaking for Minn. R. 7849 and 7850 is complete. As that rulemaking is based on legislation passed in 2005, rulemaking begun in 2012 and over eight (8) years so far, and has yet to come before the Commission, that is not realistic. This writer may not live to see those new rules completed! Affidavit of Overland; see PUC Docket R-12-1246.

<sup>3</sup> See AFCL Exhibit F, Letter re: Ice throw and resolution with truck owner, April 2, 2018.

remedy “and that the injunction is necessary to prevent great and irreparable injury.” *Cherne Indus., Inc. v. Grounds & Assocs., Inc.*, 278 N.W.2d 81, 92 (Minn. 1979).

In determining whether to grant a temporary injunction, there are five factors for the court to consider:

- (1) the nature and background of the relationship of the parties;
- (2) the balance of harms between the parties;
- (3) the likelihood of success on the merits;
- (4) public policy; and
- (5) administrative burdens in the supervision and enforcement of the injunction.

*Bell v. Olson*, 424 N.W.2d 829, 832 (Minn. App. 1988) (citing *Dahlberg Bros., Inc. v. Ford Motor Co.*, 272 Minn. 264, 274-75, 137 N.W.2d 314, 321-22 (1965)).

**A. Nature and Background of the Relationship of the Parties**

The nature and background of the relationship of the parties is certainly adversarial! The nature and background of the relationship of the parties is likely not a determinative factor in this matter, other than offering a demonstration of Plaintiff’s persistence in working to bring these issues to a forum where these concerns will be considered. Plaintiff Association of Freeborn County Landowners (AFCL) has been repeatedly raising these issues to the Commission, and the Commission has repeatedly deflected and dismissed AFCL’s concerns.

In the narrow view regarding the Freeborn Wind Commission dockets, AFCL has been an active participant. Freeborn Wind was initially “Invenergy” and now is “NSP” and has been represented by the same counsel since the first project application was filed in 2017. All the parties have a three-plus year history in the Freeborn Wind docket.

AFCL has intervened as a full party in the Freeborn Wind project and participated in the Freeborn Wind transmission docket (AFCL was not aware of the project’s acquisition docket, PUC Docket 16-777). AFCL collected over 380 signatures of residents who live and/or own land within the project footprint and who do not consent to the project encroaching on their

community. AFCL also petitioned for an advisory task force and that petition was denied. AFCL has raised the lack of environmental review repeatedly in the Commission's Freeborn Wind docket. For a listing of some of this participation and filings<sup>4</sup>, see NSP Motion to Dismiss, p. 7-8. AFCL has also recently brought forward a Complaint in the Freeborn docket regarding Commissioners Tuma and Sieben's statements and conduct at a July 16, 2020 Commission meeting, including their failure to follow the Commission's Notice and Service requirements for both Motions and Agenda items, and Commissioner Tuma's encouragement of permittee to use roads despite township ordinance where there is no police force (!), admission of initiating contact with County Board member regarding circumvention of township ordinance contrary to tenet of local control, etc., to which Defendant Commission has responded and which is now going before Office of Administrative Hearings<sup>5</sup>. The Commission has filed a reply<sup>6</sup>. It's a reasonable guess that the relationship is more adversarial than before. Despite this, the

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<sup>4</sup> Supra n. 1, the Commission dockets are public record and may be accessed here: <https://www.edockets.state.mn.us/>." From that link, go to "eDockets" at right of screen, then at "Docket Number" enter the year and the docket number and search. The eDocket filing numbers are in numerical order in the far left column, the date on the far right, with other descriptive identifiers found in the columns in between.

<sup>5</sup>

<a href="#">20208-165567-01</a>	17-410	ASSOCIATION OF FREEBORN COUNTY LANDOWNERS	INITIAL FILING--AFCL - COMPLAINT - COMMISSIONER TUMA AND CHAIR SIEBEN - COVER	08/04/2020
<a href="#">20208-165567-02</a>	17-410	ASSOCIATION OF FREEBORN COUNTY LANDOWNERS	INITIAL FILING--AFCL - COMPLAINT - COMMISSIONER TUMA AND CHAIR SIEBEN - COMPLAINT AND TRANSCRIPT	08/04/2020
<a href="#">20208-165567-03</a>	17-410	ASSOCIATION OF FREEBORN COUNTY LANDOWNERS	INITIAL FILING--AFCL - COMPLAINT - COMMISSIONER TUMA AND CHAIR SIEBEN - AFFIDAVIT AND EXHIBITS PACKET	08/04/2020
<a href="#">20208-165566-01</a>	17-410	ASSOCIATION OF FREEBORN COUNTY LANDOWNERS	OTHER--AFCL - COMPLAINT - COMMISSIONER TUMA AND CHAIR SIEBEN - COVER	08/03/2020
<a href="#">20208-165566-02</a>	17-410	ASSOCIATION OF FREEBORN COUNTY LANDOWNERS	OTHER--AFCL - COMPLAINT - COMMISSIONER TUMA AND CHAIR SIEBEN - COMPLAINT AND TRANSCRIPT	08/03/2020
<a href="#">20208-165566-03</a>	17-410	ASSOCIATION OF FREEBORN COUNTY LANDOWNERS	OTHER--AFCL - COMPLAINT - COMMISSIONER TUMA AND CHAIR SIEBEN - AFFIDAVIT AND EXHIBITS PACKET	08/03/2020

<sup>6</sup>

<a href="#">20208-165723-01</a>	17-410	PUC	OTHER--ANSWER TO COMPLAINT OF VIOLATION	08/10/2020
<a href="#">20208-165723-02</a>	17-410	PUC	OTHER--CERTIFICATE OF SERVICE AND SERVICE LIST	08/10/2020

relationship between the parties wouldn't be a significant factor in a decision regarding an injunction.

In regards to the broader systemic issues, AFCL and other groups have been active as well, working to bring these matters before the Commission for action (Many of these filings and activities are intertwined in the Defendants Memoranda for Motions to dismiss). AFCL has not intervened in the Plum Creek, Three Waters, or Buffalo Ridge wind projects because AFCL has limited resources and must focus on Freeborn Wind, however counsel for AFCL has filed notification to these three projects, and the eight others, all in their respective dockets, of a material issue regarding improper use of modeling assumptions that results in gross understatement of potential noise through misrepresentations in noise modeling results due to the improper ground factor assumptions. Complaint, p. 5<sup>7</sup>; see also PUC Motion to Dismiss Memorandum, p. 8 and fn 15. Counsel for AFCL, when representing Goodhue Wind Truth and independently, has brought three rulemaking Petitions before the Commission and Minnesota Pollution Control Agency,<sup>8</sup> all regarding large wind specific siting criteria and rules, each of which were denied. See PUC Memorandum Motion to Dismiss, p. 9-11, fn. 16-20<sup>9</sup>. Plaintiff

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<sup>7</sup> See Letter, December 18, 2019, re: Improper Ground Factors Skew Modeling and Misrepresent Probability of Compliance in ALL 13 Projects Identified by EERA as "LWECS In Permitting Process" or "LWECS Permitted." See e.g., PUC eDockets [201912-158454-14](#), filed in Nobles 2 (WS-17-597); Freeborn (WS-17-410); Blazing Star (WS-16-686); Lake Benton II (WS-18-179); Community Wind North (WS-08-1494); Jeffers Wind (WS-05-1220); Fenton Wind (WS-05-1707); Buffalo Ridge (WS-19-394); Three Waters (WS-19-576); Plum Creek (WS-18-700); Mower County (WS-06-91); Dodge County (WS-17-307); Bitter Root/Flying Cow (WS-17-749).

<sup>8</sup> See e.g., PUC Docket R-18-518, and MPCA/Stine Letter to Overland, September 12, 2016 (PUC eDocket ID [20169-124844-01](#))(Exhibit entered in Freeborn Wind contested case).

<sup>9</sup> PUC argues there that "The MPUC determined that it was not the correct time to consider possible amendments to its wind siting rules in Chapter 7854. The MPUC noted it had a current open and ongoing rulemaking proceeding concerning power plant siting, and that the outcome of that rulemaking would inform any future rulemaking proceedings on the Commission's other siting rules. Moreover, the MPUC noted that case-by-case adjudication in individual cases provided a better forum for identifying and addressing project-specific issues." PUC Memorandum, p. 10. The Commission's Order did make that statement, but the PUC fails to address the fact that the Minn. R. ch 7849 and 7850 rulemaking dockets have been a work in "progress" since 2012, with AFCL's counsel, and two client participants, Marie McNamara of Goodhue Wind Truth and Suzanne Roling of North Route

(Footnote continued on next page.)

AFCL, individual members of AFCL, and many others also participated in person and through written comments in the Office of Legislative Auditor's investigation of the Commission's public participation process. Complaint, para. 65 and fn. 16, p. 18<sup>10</sup>. AFCL and counsel for AFCL, together with other of AFCL counsel's clients, have been raising these issues of public participation and lack of large wind siting criteria and rules for years at the Power Plant Siting Act Annual Hearings, extending for over two decades. Affidavit of Overland. Counsel for AFCL has represented many parties, both individuals and groups, regarding LWECS wind projects before the Commission and small projects before local units of government, and participated in and is on the service list for the Commission's SMALL wind standards docket cited by Defendant NSP<sup>11</sup>. Affidavit of Overland, Exhibit A, *Order Establishing General Wind Permitting Standards*, PUC Docket E,G-999/M-07-1102 (January 11, 2008)(Order for SMALL wind projects 25MW or less, and small wind projects under County permitting jurisdiction).

AFCL has filed appeals regarding the Freeborn Wind project, two are pending, both narrowly focused on the Freeborn Wind docket, and they have been consolidated.<sup>12</sup> The Commission is correct in that failure to conduct environmental review is an issue in these appeals, however, this above-captioned case is focused on the Commission's across-the-board policy of exempting large wind projects from environmental review despite actual and constructive notice of potential and actual harms and noise violations, and its failure to promulgate large wind siting standards and criteria as directed by the legislature. *Id.* While the

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(Footnote continued from previous page.)

Group (CapX 2020), participating, as well as NSP's counsel. After 8 years of meetings and drafts, we're still waiting.

<sup>10</sup> Office of Legislative Auditor report, "Public Utilities Commission's Public Participation Processes" issued July 27, 2020. <https://www.auditor.leg.state.mn.us/ped/pedrep/puc2020.pdf>

<sup>11</sup> PUC Docket E,G-999/M-07-1102.

<sup>12</sup> Court of Appeals Case Nos: A19-1195 and A20-0947.



issues overlap, the subject does not, as this Complaint incorporates the much-broader Commission policy, failure to establish large wind specific rules and standards, failure to promulgate rules for “requirements” of environmental review for wind projects, and not the specific project. MERA does give jurisdiction over such issues. Minn. Stat. §116B.10.

AFCL, as well as AFCL counsel’s client Goodhue Wind Truth, and AFCL’s counsel individually are well-known to Defendants for raising the environmental issues associated with wind projects. The relationships between the parties should not be a factor in a decision regarding a temporary injunction.

**B. Balance of Harms Between the Parties**

An injunction is necessary to preserve the status quo and to allow for Commission action to promulgate rules. The relative harms of the parties, between the parties, is difficult to assess. By far, defendant PUC will suffer the least potential harm, as an injunction coupled with a remand for rulemaking would only require what the legislative mandate instructed be done. Minn. Stat. §216F.05. The Commission is set up to promulgate rules as a part of its mission.

The balance of harms between AFCL and the project owners and developers is the difficult part. AFCL and the hundreds of residents and landowners within footprints of the four projects will suffer substantial harms if the projects are built without environmental review. These four wind projects total hundreds of megawatts of generation capacity, however, two of them have significantly reduced the size of the project planned for Minnesota, and thus any potential harm is lessened by a factor represented by the turbines removed. As of July 14, 2020,

the Three Waters<sup>13</sup> 201 megawatt, 48,087 acre<sup>14</sup>, wind project announced it had moved 19 of its proposed 54 turbines from the Minnesota project across the border to Iowa, and its schedule was suspended and is currently on hold until at least year end when the developer has stated it will decide whether to go forward. The Freeborn Wind project, covering 21,313 acres, has now publicly announced that it has moved 17 of its 41 permitted turbines, up to 84 megawatts permitted, from Minnesota to Iowa, leaving only 24 turbines in Minnesota, a substantially different project than applied for and ultimately permitted and amended. Plum Creek Wind is planned for up to 414 megawatts of energy, covering roughly 73,000 acres, to be built at a capital cost estimated at \$640 million<sup>15</sup>. Buffalo Ridge Wind, a 108.7 megawatt project, now covering 17,610 acres with 40 wind turbines<sup>16</sup>. These projects have project areas that combined cover over 160,000 acres of land. The costs of these projects are, combined, over \$1 billion.

Denial of an injunction would allow the projects to go forward, with irreparable harm to the residents and landowners in the project footprint. Once a wind turbine is constructed, it cannot be moved, and is set in place until it is decommissioned, twenty or thirty years later, or even more if it is repowered with a new generator. A wind turbine's foundation, using Freeborn Wind as an example, is 55 feet across, 8 feet deep, with a center pedestal 13 feet across and 3 feet higher than the foundation base. See Affidavit of Overland; Exhibit B, Foundations, pps. 12, 105, Freeborn Application (selected). Once a turbine is built, it cannot reasonably be moved, leaving only mitigation measures such as blinds or turning off turbines to limit hours of impact,

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<sup>13</sup> Three Waters Wind is on hold, after the Commission's Order requiring a stand-alone application for permit amendment following removal of 19 of the 54 turbines planned for the project. A Prehearing Conference scheduled for August 13, 2020 to determine whether the application should be withdrawn. eDockets Filing [20208-165667-01](#)

<sup>14</sup> See Notice of Public Hearing, July 10, 2020, eDockets Filings [20207-164815-01](#); [20207-164828-01](#)

<sup>15</sup> PUC – Public Information Meeting Power Point Presentation, 6/15/2020, eDocket Filing: [20206-163958-03](#).

<sup>16</sup> Dept of Commerce-EERA Draft Site Permit August 3, 2020, eDocket Filing [20208-165565-01](#).

or additional landowner buyouts as with Bent Tree. Affidavit of Overland, Exhibit C, Bent Tree landowner buyout settlement agreements (PUC Docket WS-08-573).

The irreparable harm is the nuisance moving to the communities, with people living among the turbines, and no opportunity to move them, only to mitigate the potential and expected impacts. There is irreparable harm where noise violations causes annoyance and makes sleep difficult. There is irreparable harm where expected shadow flicker and its “mitigation” involves installation of blinds and use of blinds in daylight hours. These are the two most prominent examples of reasonably expected harms, significant harms by any definition.

With the owner/developer’s removal of 17 and 19 turbines from the Freeborn and Three Waters projects, respectively, the potential for economic harm to both the project and to Minnesota generally of delay through an injunction has been significantly lessened for Freeborn Wind. For Three Waters, with the permit docket now suspended, the project is already delayed, such that the delay of an injunction will not harm the project. Plum Creek and Buffalo Ridge wind projects are within the permitting process and construction is not yet authorized, and delay of construction would not have an immediate impact, though the project should not be permitted until the Commission has large wind rules and standards.

In this case, the capital cost of the projects is large and delay of operation could influence project eligibility for and the amount of Production Tax Credit. As above, two of the projects are already significantly smaller than proposed, and Three Waters may well lose their window of opportunity for the Production Tax Credit. The exact numbers of the value of Production Tax Credit are not available to AFCL, as Production Tax Credit estimates are vague and estimates, as production varies. Further, itemized project cost has not been a factor in these proceedings, and is only estimated, and where numbers of turbines and turbine makes and

models are not firm, estimates are a guess.

**C. The likelihood of Success on the Merits**

Is there a likelihood of success on the merits? AFCL must establish that an injunction is necessary “to prevent great and irreparable injury.” *Metro. Sports Facilities Comm’n v. Minn.*

*Twins P’ship*, 638 N.W.2d 214, 222 (Minn. App. 2002), *review denied* (Minn. Feb. 4, 2002).

“But if a plaintiff makes even a doubtful showing as to the likelihood of prevailing on the merits, a district court may consider issuing a temporary injunction to preserve the status quo until trial on the merits.” *Id.*

Based on the language of MERA, AFCL must make a showing:

... that the environmental quality standard...rule... order... agreement...permit is inadequate to protect the air, water, land, or other natural resources located within the state from pollution, impairment, or destruction. The plaintiff shall have the burden of proving the existence of material evidence showing said inadequacy of said environmental quality standard, limitation, rule, order, license, stipulation agreement, or permit.

Minn. Stat. §116B.10, Subd. 2.

The two Bent Tree noise monitoring reports performed by Commerce-EERA and the subsequent two family buy-out agreements approved by the Commission provide proof to the court, and actual and constructive notice to the Commission, that the Commission’s reliance on the MPCA’s industrial noise standards are insufficient to protect those living in and near wind projects from pollution, impairment, or destruction. AFCL Exhibit C.

The small wind siting standards found in Appendix A in the Commission’s January 11, 2008 Order, specifically and expressly limited to those projects under 25MW and to small projects permitted under county jurisdiction are legally and logically inapplicable to large wind projects and thus are insufficient to protect those living in and near wind projects from pollution, impairment, or destruction.

The “rules” promulgated and now found in Minn. R. ch. 7854 do not contain any large wind specific siting criteria or standards and no requirement of environmental review and instead dismiss environmental considerations out of hand and declare that application content is sufficient environmental review – as “rules” these are insufficient to protect those living in and near wind projects from pollution, impairment, or destruction. AFCL Exhibit D, Statement of Need and Reasonableness, In the Matter of the Proposed Adoption of Rules Governing the Siting of Large Wind Energy Conversion Systems, Minnesota Rules chapter 4401 (September 20, 2001); Exhibit E, Current Minn. R. ch. 7854.

AFCL is seeking the relief offered by MERA, in an action against the state, and asks that the court remand this matter to the Commission to promulgate rules as mandated by the legislature:

In any action maintained under this section the district court, **upon a prima facie showing by the plaintiff of those matters specified in subdivision 2, shall remit the parties to the state agency or instrumentality that promulgated the environmental quality standard, limitation, rule, order, license, stipulation agreement, or permit which is the subject of the action, requiring said agency or instrumentality to institute the appropriate administrative proceedings to consider and make findings and an order on those matters specified in subdivision 2.** In so remitting the parties, the court may grant temporary equitable relief where appropriate to prevent irreparable injury to the air, water, land, or other natural resources located within the state. In so remitting the parties, the court shall retain jurisdiction for purposes of judicial review to determine whether the order of the agency is supported by the preponderance of the evidence. If plaintiff fails to establish said prima facie showing, the court shall dismiss the action and award such costs and disbursements as the court deems appropriate.

Minn. Stat. §116B.10, Subd. 3 (emphasis added).

NSP argues:

As a result, when MEPA is satisfied, a MERA claim necessarily fails as a matter of law. *MCEA v. MPUC*, 2010 WL 5071389, at \*10 (“[B]ecause we have determined that MPUC’s environmental review is adequate under MEPA, there is no genuine issue of material fact, and the MERA claim fails as a matter of law.”).

NSP Memorandum, Motion to Dismiss, p. 23. “It is sufficient that the environmental impacts and

mitigative measures be discussed in the application itself.” NSP Memorandum, p. 24. However, NSP and the PUC have no authority to cite supporting their presumption that MEPA is “satisfied,” and have no authority to cite supporting their presumption that the application contents provided by the applicant for a wind siting permit is “adequate environmental review under MEPA.” Minn. R. 7854.0500, Subp. 7. The exemption of Minn. R. 7854.0500, Subp. 7 was never declared “alternative review” by the EQB. The exemption of Minn. R. 7854.0500, Subp. 7 is part of the “application contents” rule. Minn. R. 7845.0500. An application is not environmental review.

On the other hand, **SMALL** wind standards for SMALL wind projects under 25MW and for those projects under 25 MW permitted by counties under their limited jurisdiction. NSP refers to in its Motion to Dismiss Memorandum, failing to include the word “SMALL” in its narrative, and misleadingly implying that these are applicable to LWECS:

On January 11, 2008, the Commission issued its *Order Establishing General Wind Permitting Standards*, adopting its “General Wind Turbine Permit Setbacks and Standards for LWECS Facilities Permitted by Counties Pursuant to Minnesota Statute 216F.08.” Huyser Decl., Ex. 3. The Order establishes general minimum requirements for spacing, setbacks, noise standards, along with other specific requirements. Establishing the minimums by Order allows the Commission to retain the discretion to adjust permit conditions on a case-by-case basis, which it does. *See infra* at IV (discussing rationale for not promulgating the standards as rules).

NSP Motion to Dismiss Memorandum, p. 5. This is disingenuous. See Definitions:

***Subd. 2. Large wind energy conversion system or LWECS.***

"Large wind energy conversion system" or "LWECS" means any combination of WECS with a combined nameplate capacity of 5,000 kilowatts or more.

***Subd. 3. Small wind energy conversion system or SWECS.***

"Small wind energy conversion system" or "SWECS" means any combination of WECS with a combined nameplate capacity of less than 5,000 kilowatts.

Minn. Stat. §216F.01, Definitions. Small wind is not large wind, and large wind is not small wind.

The Commission's order expressly states the applicability of these standards to **SMALL** wind and not wind projects over 25 MW, over which the Commission has jurisdiction:

1. The Commission herein adopts the Large Wind Energy Conversion System General Wind Turbine Permit Setbacks and Standards proposed by the Department of Commerce Energy Facility Permitting staff, attached as Exhibit A. The general permit standards shall apply to large wind energy conversion system site permits issued by counties pursuant to Minn. Stat. 216F.08 and to permits issued by the Commission for LWECS with a combined nameplate capacity of less than 25,000 watts.

Affidavit of Overland, Exhibit A, Order. Counties may elect jurisdiction over wind projects less than 25 MW. Minn. Stat §216F.08. This small-wind standards Order was AFCL's Exhibit 8 in the Freeborn Wind contested case, used to demonstrate the inapplicability of these expressly **SMALL** wind standards to **LARGE** wind projects such as Freeborn Wind, and the repeated improper use of these standards by the Commission in siting **LARGE** wind projects.

The rule's declaration that an application constitutes environmental review has not been reviewed by any court. There has never in Commission history been an Environmental Impact Statement or Environmental Assessment for a wind siting permit.

Conversely, a recent decision did require environmental review determination for an affiliated interest agreement, a project for which the Commission had denied a Petition for EAW, and which was remanded to the Commission:

MEPA also specifically requires governmental agencies to consider environmental consequences when deciding whether to approve a proposed "project." *Citizens Advocating Responsible Dev. v. Kandiyohi Cty. Bd. of Comm'rs*, 713 N.W.2d 817, 823 (Minn. 2006). MEPA contemplates preparation of two principal categories of project-specific review reports—an EAW and an EIS. An EAW is a brief preliminary report that sets out the basic facts necessary to determine whether the proposed project requires the more rigorous review of an EIS.[fn. Omitted] Minn. Stat. § 116D.04, subd. 1a(c).

...

In synthesizing these definitions, we have determined that a MEPA “project” is a “definite, site-specific, action that contemplates on-the-ground environmental changes.” *Metallic Leases*, 838 N.W.2d at 217 (quoting *MRR*, 651 N.W.2d at 540).

*In the Matter of Minnesota Power’s Petition for Approval of the EnergyForward Resource Package*, 2019 WL 7042812, 938 N.W.2d 843 (12/23/2019).

Once again, there are no large wind specific siting standards and criteria. The Defendants take umbrage with AFCL’s claim that “there are no large wind specific siting standards and criteria” but are unable to cite to any “large wind specific siting standards and criteria,” and are unable to cite to any “requirements of environmental review,” only an exemption, proving AFCL’s point. For this reason, the Commission’s siting rules, wind rules, are “inadequate to protect the air, water, land, or other natural resources located within the state from pollution, impairment, or destruction.”

#### **D. Public policy**

The Minnesota Environmental Rights Act and the Minnesota Environmental Policy Act are the keystones of Minnesota’s environmental law. MERA undeniably provides the right to sue state agencies for relief. Minn. Stat. §116B.10; *White Bear Lake Restoration Ass’n ex rel. Minnesota v. Minn. Dep’t of Nat. Res.*, A18-0750, -- N.W.2d --, 2020 WL 3980718 (Minn. Jul. 15, 2020); *White Bear Lake Restoration Ass’n ex rel. State v. Minn. Dep’t of Nat. Res.*, 928 N.W.2d 351, 358 (Minn. App. 2019), et seq.(reinforcing cause of action under Minn. Stat. 116B.10 and the Legislature’s intention that the MERA remedies “shall be in addition to any administrative [and] regulatory . . . rights and remedies.” Minn. Stat. § 116B.12.). The legislature has been clear in establishing public policy favoring “renewable energy,” going back to 1994, when the legislature initially directed that wind generation be built as a part of the first



“Prairie Island” bill. [Minn. Session Laws 1994 Ch. 641](#). Public policy also favors equity, and the court must evaluate the positions of the parties, and consider the facts and the equity of each party’s position in weighing injunctive relief. *First State Ins. Co. v. Minn. Mining & Mfg. Co.*, 535 N.W.2d 684, 687(Minn. App. 1995), review denied (Minn. Oct. 18, 1995).

The legislature also was clear that rules be promulgated for siting criteria and protection of humans and the environment:

#### **216F.05 RULES.**

The commission shall adopt rules governing the consideration of an application for a site permit for an LWECS that address the following:

**(1) criteria that the commission shall use to designate LWECS sites, which must include the impact of LWECS on humans and the environment;**

(2) procedures that the commission will follow in acting on an application for an LWECS;

(3) procedures for notification to the public of the application and for the conduct of a public information meeting and a public hearing on the proposed LWECS;

**(4) requirements for environmental review of the LWECS;**

(5) conditions in the site permit for turbine type and designs; site layout and construction; and operation and maintenance of the LWECS, including the requirement to restore, to the extent possible, the area affected by construction of the LWECS to the natural conditions that existed immediately before construction of the LWECS;

(6) revocation or suspension of a site permit when violations of the permit or other requirements occur; and

(7) payment of fees for the necessary and reasonable costs of the commission in acting on a permit application and carrying out the requirements of this chapter.

*History:* [1995 c 203 s 5](#); [2005 c 97 art 3 s 19](#)

Minn. Stat. 216F.05 (emphasis added).

The Commission, and the Environmental Quality Board before it, have failed for over 20 years to promulgate rules of “**criteria that the commission shall use to designate LWECS**

**sites, which must include the impact of LWECS on humans and the environment,” and “requirements for environmental review of the LWECS.” Id.**

The Commission argues in its Motion to Dismiss Memorandum that:

Even if the request for rulemaking was not otherwise barred and properly before this Court, it would be an extraordinary remedy indeed for this Court to order the MPUC to initiate a rulemaking outside the procedures established in MAPA. This is especially true where, as here:

- (1) the agency recently declined to initiate a rulemaking on the same issue; and
- (2) AFCL has not actually petitioned the MPUC for a rulemaking.

Only in the rarest and most compelling of circumstances should a court overturn an agency judgment not to institute a rulemaking. *Defenders of Wildlife v. Gutierrez*, 532 F.3d 913, 921 (D.C. Cir. 2008); *see also, WildEarth Guardians v. EPA*, 751 F.3d 649, 651 (D.C. Cir 2014).

PUC Memorandum, p. 29. This is indeed one of those rarest of cases and most compelling of circumstances. Counsel for AFCL has indeed filed two petitions for rulemaking with the Public Utilities Commission and one with the MPCA, all of which have been denied, and the Commission continues to site projects without wind specific criteria and without environmental review despite ample evidence of potential for significant environmental impact<sup>17</sup>.

The Commission’s rules, procedures, permits and orders are contrary to public policy, most importantly, the Minnesota Environmental Policy Act. Minn. Stat. §116D.04, Subd. 2a. The Minnesota Environmental Rights Act confers jurisdiction for civil actions against the state in cases such as this, with remand to the Commission for appropriate administrative proceedings. Minn. Stat. §116B.10.

Wind projects have been permitted and sited for over twenty years without the necessary

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<sup>17</sup> See PUC Docket 18-518. See also PUC Docket 12-1246, rulemaking for Minn. R. ch. 7849 and 7850, in “progress” since 2012, and yet to come before the Commission.

and mandated criteria and standards, and without environmental review, that would protect communities and the environment from the impacts of these projects of tens of thousands of acres encroaching on their communities. This is not consistent with Minnesota's strong environmental policy of protection of humans and the environment.

**E. Administrative Burdens in the Supervision and Enforcement of the Injunction**

Will an injunction create administrative burdens in the supervision and enforcement of the Injunction? That's doubtful, as one job of the Commission is to promulgate rules. The Commission is equipped to handle promulgation of rules and it should not require much, if anything, for enforcement. It is not likely that an injunction would place administrative burdens in the supervision and enforcement of the injunction.

**II. AFCL HAS MET THE STANDARD FOR A TEMPORARY INJUNCTION**

Association of Freeborn County Landowners has met the standard for a temporary injunction. AFCL requests that the court grant AFCL's Motion for a Temporary Injunction for the pendency of this proceeding and for the time required for the Commission's administrative actions necessary to promulgate rules, and such other relief as the Court deems just, equitable, and proper.

August 12, 2020



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### **ACKNOWLEDGEMENT**

The Plaintiff, Association of Freeborn County Landowners, by its undersigned attorney, hereby acknowledges that, pursuant to Minn. Stat. §549.211, Subd. 1. that costs, disbursements, and reasonable attorney and witness fees may be awarded to the opposing party or parties in this litigation if the Court should find that the undersigned acted in bad faith, asserted a frivolous claim or defense, asserted an unfounded position solely to delay or harass, or committed a fraud upon the court.

August 12, 2020



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STATE OF MINNESOTA

DISTRICT COURT

COUNTY OF RAMSEY

SECOND JUDICIAL DISTRICT

CASE TYPE: Civil Other/Misc

Judge: The Honorable Sara R. Grewing  
Court File Number: 62-CV-20-3674

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State of Minnesota, ex. rel., Association  
of Freeborn County Landowners,

Plaintiff,

vs.

Minnesota Public Utilities Commission,

Defendant.

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**ASSOCIATION OF FREEBORN  
COUNTY LANDOWNERS'  
AFFIDAVIT OF OVERLAND  
IN SUPPORT OF MOTION FOR  
TEMPORARY INJUNCTION**

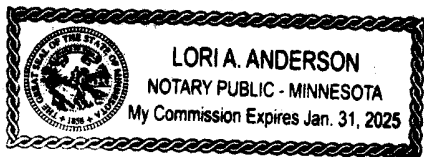
I, Carol A. Overland, after duly affirming, state and depose as follows:

1. I am an attorney licensed in good standing in the state of Minnesota, License No. 254617.
2. I represent the Complainant Association of Freeborn County Landowners.
3. Attached as Exhibit A is a true and correct copy of the *Order Establishing General Wind Permitting Standards*, PUC Docket E,G-999/M-07-1102 (January 11, 2008). This Order is expressly applicable to **SMALL** wind projects 25MW or less, and small wind projects under County permitting jurisdiction. This is not an order for Large Wind Energy Conversion Systems.
4. Attached as Exhibit B is a true and correct copy of the Freeborn application narrative (selected), pages 12 and 105, describing the wind turbine foundations, 55 feet in diameter, 8 feet deep, with a center pedestal 13 feet across and 3 feet higher than the foundation base. Once these foundations are in place, they are not moving, even for decommissioning. Only the center pedestal will be removed.
5. Attached as Exhibit C is a true and correct copy of the Bent Tree Noise Monitoring Report and two Bent Tree landowner buyout settlement agreements (PUC Docket WS-08-573).

6. Attached as Exhibit D is a true and correct copy of the Statement of Need and Reasonableness, In the Matter of the Proposed Adoption of Rules Governing The Siting of Large Wind Energy Conversion Systems, Minnesota Rules chapter 4401 (September 20, 2001).
7. Attached as Exhibit E is a true and correct copy of the current Minn. R. ch. 7854.
8. There is a Public Utilities Commission rulemaking docket regarding Minn. R. chs. 7849 and 7850 that has been ongoing since 2012. See PUC Docket R-12-1246. The rulemaking was triggered by the many legislative changes to Minn. Stat. Ch. 216B and 216E in the 2005 session. There is recognition that large wind rulemaking is necessary – while attending work group meetings for this rulemaking, participants were regularly told that “wind is next.” That rulemaking, over many meetings and drafts, hours and hours of time and travel, has not come before the Commission. When I last had an email exchange with Kate Kahlert, the Commission attorney assigned to the rulemaking, also in a recent phone call with NSP’s counsel, Lisa Agrimonti, I noted that I wanted to see this rulemaking process through before I die, and then wind rulemaking to follow. I am not confident that this rulemaking will ever come before the Commission. Waiting for completion of the Minn. R. 7840 and 7850 before starting on wind rulemaking is absurd. It’s been eight years.

Further your affiant sayeth naught.

Dated: August 12, 2020



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Signed and sworn to before me this  
12<sup>th</sup> day of August, 2020.

Lori A. Anderson  
Notary Public



BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

LeRoy Koppendrayner  
David C. Boyd  
Thomas Pugh  
Phyllis A. Reha

Chair  
Commissioner  
Commissioner  
Commissioner

In the Matter of Establishment of General  
Permit Standards for the Siting of Wind  
Generation Projects Less than 25 Megawatts

ISSUE DATE: January 11, 2008

DOCKET NO. E,G-999/M-07-1102

ORDER ESTABLISHING GENERAL WIND  
PERMIT STANDARDS

**LEGISLATIVE HISTORY**

In 1995, the Minnesota Legislature enacted the Minnesota Wind Siting Act<sup>1</sup> which established jurisdictional thresholds and procedures to implement the state's authority to issue site permits for large wind energy conversion systems (LWECS). Permanent rules to implement the Wind Siting Act were adopted by the Minnesota Environmental Quality Board (EQB) in February 2002.<sup>2</sup>

In 2005, the Legislature transferred the site permitting authority for LWECS (with a combined nameplate capacity of 5 megawatts or more), to the Minnesota Public Utilities Commission. Site permits for wind facilities with a combined nameplate capacity of less than 5 megawatts (small wind energy conversion systems, or SWECS) are permitted by local units of government.

Amendments to the Wind Siting Act were enacted during the 2007 legislative session. The amendments:

- establish definitions and procedures requiring the commissioner of the Department of Commerce to make LWECS project size determinations for permit applications submitted by counties, and set forth that an application to a county for a LWECS permit is not complete without a project size determination from the commissioner;
- provide the option for counties to assume the responsibility for processing applications for permits required by the Wind Siting Act for LWECS facilities less than 25 MW in total nameplate capacity commencing January 15, 2008;

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<sup>1</sup> Minnesota Statutes Chapter 216F.

<sup>2</sup> Minnesota Rules Chapter 7836.



- provide that the Commission shall establish general permit standards by January 15, 2008; and
- allow the Commission and counties to grant variances to the general permit standards and allows counties to adopt ordinance standards more restrictive than the Commission's general permit standards.

### **PROCEDURAL HISTORY**

At its August 23, 2007 meeting, the Commission requested that the Department of Commerce's Energy Facility Permitting staff consult with stakeholders and prepare for the Commission's consideration general permit standards and setback recommendations to satisfy the legislative mandate.

On September 28, 2007, the Energy Facility Permitting staff issued a notice of comment period to all Minnesota county planning and zoning administrators, to the Power Plant Siting Act general mailing list and to persons on recent wind project mailing lists. The Energy Facility Permitting staff also made presentations about this proceeding to pertinent associations in St. Cloud, Winona, Fergus Falls, and Pope County.

The Commission received some 26 written comment letters during the comment period. Comments were submitted by:

- Wadena County
- Southwest Regional Development Commission
- Lyon County Board of Commissioners
- Dakota County
- Lyon County Public Works
- Minnesota Department of Natural Resources
- PPM Energy
- The Minnesota Project
- Community-based energy development (C-BED) project participants and supporters<sup>3</sup>

On December 20, 2007, the Commission met to consider the matter. Michael Reese and Steve Wagner, representing Pope and Stevens County C-BED projects, appeared and made comments.

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<sup>3</sup> Seventeen persons who identified themselves as participants and advocates for C-BED projects submitted an identical form letter regarding setback issues, the wind access buffer, elimination of wind right requirements for small acreages, and capping costs of required permit studies.

## **FINDINGS AND CONCLUSIONS**

### **I. The Comment Process**

Through written or oral comments, most stakeholders indicated general agreement that the state wind site permitting process, standards and setbacks provide public safety protections, protect the wind rights of landowners and require permittees to conduct due diligence to avoid unforeseen impacts, which has resulted in orderly wind development.

Several of the comments recommended that the general wind permitting standards and setbacks should require that wind projects permitted by Minnesota counties be subject to the same level of pre-construction studies, due diligence, and wind access buffer setbacks as LWECS projects. Other comments focused on specific areas of concern and requested that the Commission modify certain existing LWECS permit setbacks or conditions for the general permit standard.

Some persons making comments suggested changes to some of the Commission's established standards and setbacks, which will be discussed below.

### **II. Commission Action**

After careful consideration, the Commission herein adopts the attached "General Wind Turbine Permit Setbacks and Standards for LWECS Facilities Permitted by Counties Pursuant to Minnesota Statute 216F.08." Exhibit A. These standards and setbacks maintain most of the Commission's established LWECS permit standards and setbacks which have been in effect for the last twelve years, with the relatively minor changes set forth below.

#### **A. Wetland Setbacks**

The Minnesota Department of Natural Resources (DNR) initially recommended that the Commission establish a 1000 foot turbine setback from all wetlands, streams, rivers and lakes listed in the state Public Waters Inventory and those listed on the National Wetlands Inventory.<sup>4</sup> The DNR submitted a letter on December 7 which supported deferring action on the wetland setback issue to provide time to further explore the issue.

The DNR's proposal with respect to wetlands would encompass a large and significant change from the Commission's existing standards, which prohibit placement of wind turbines in wetlands, but require no setbacks from wetlands. Were the Commission to adopt this proposal, it would exclude significant amounts of land from future wind development. As the DNR has agreed to defer the issue pending further factual development, the Commission will retain its current practice of prohibiting placement of wind turbines in wetlands, but requiring no setback from them, as an interim standard.

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<sup>4</sup> The DNR's proposed wetland setback would not apply to Minnesota Wetlands Conservation Act "exempt" or "farmed" wetlands.

Having determined that the Commission cannot act on the DNR's recommendation unless and until there is further record development of this issue, the Commission will request the Energy Facility Permitting staff to investigate wetland setback issues with stakeholders and develop recommendations for future Commission consideration.

## **B. Wind Access Buffer Setback**

Seventeen C-BED participants and advocates filed comments on setback issues.<sup>5</sup> They asserted that the wind access buffer setback historically applied by the Commission<sup>6</sup> to protect the wind rights of landowners adjacent to, but not participating in, the permitted project is overly conservative and does not economically or efficiently utilize state wind resources. The C-BED advocates requested a reduction of the wind access buffer to a distance of two rotor diameters on the cross wind axis and four rotor diameters on the predominant axis.

The DNR requested that the Commission require the same three rotor diameter by five rotor diameter wind access buffer setback to publicly owned conservation lands, such as state wildlife management areas.

Another commentor, PPM Energy, supported the current wind access buffer setbacks, considering the prevailing wind directions in Minnesota and the wake effects, or turbulence, between wind turbines.

The Energy Facility Permitting staff informed the Commission that their own experience, as well as information from experts and practitioners in the field of wind turbine siting, has consistently affirmed that wind turbines be spaced at least four rotor diameters and up to twelve rotor diameters apart on the predominant wind axis to minimize the effects of wind turbine induced turbulence downwind.

Therefore, the Commission will maintain its current setbacks of three rotor diameters on the secondary wind axis and five rotor diameters on the predominant axis. This buffer setback has been shown to protect wind rights and future development options of adjacent rights owners. At the request of the DNR, the Commission will also apply this same setback to public lands.

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<sup>5</sup> The wind access buffer setback is an external setback from lands and wind rights outside of an applicant's site control, to protect the wind and property rights of persons outside the permitted project boundary and persons within the project boundary who are not participating in the project.

<sup>6</sup> The Commission has historically imposed a wind access buffer of three rotor diameters on the crosswind or secondary axis (typically east-west) and five rotor diameters on the predominant or downwind axis (typically north-south).

### **1. Setbacks from Small Parcels**

C-BED participants requested that the Commission eliminate the wind access buffer setback from non-participating property owners with land parcels less than fifteen acres in size.

The Commission declines to do so. Historically, the wind projects for which Commission review and permits have been granted have been composed of dozens of individual parcels of land and wind rights, totaling thousands of acres of land for each LWECS project. For these many years, permittees have been able to develop projects while applying the wind access setbacks from small, non-participating landowners. After consideration, the Commission finds no rationale in statute or rule to treat one person's wind rights differently from another's.

### **2. Internal Turbine Spacing**

C-BED advocates also requested that the Commission not regulate turbine spacing within an LWECS facility, nor require wake analyses prior to construction, claiming that these provide only a snapshot of expected performance at a facility.

The Commission declines to implement this request. The purpose of the internal turbine spacing setback and requirement that wake loss studies be submitted is to ensure that LWECS projects permitted by the Commission are designed and sited in a manner that ensures efficient use of the wind resources, long term energy production, and reliability.<sup>7</sup>

Maintaining the Commission's three rotor by five rotor dimension internal turbine spacing setback and requirement to submit wind wake loss studies is a reasonable means by which to accomplish these goals.

### **3. Setbacks from Roads and Recreational Trails**

The DNR and Dakota County suggested increasing setbacks from public road rights-of-way to total turbine height; the DNR proposed applying the same setback from state trails and other recreational trails.<sup>8</sup>

As amended, Minn. Stat. § 216F.081 allows counties to adopt more restrictive public road setback ordinances than the Commission's general permit standards. The amended statute also directs the Commission to take those more restrictive standards into consideration when permitting LWECS

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<sup>7</sup> See Minn. Stat. § 216F.03 and Minn. Rules Part 7836.0200.

<sup>8</sup> Dakota County also proposed establishing new, unspecified setbacks where high volume roads are present or to accommodate planned transportation expansion projects. The Commission's general permit standards ensure that LWECS are sited in a manner which will not interfere with future urban developments, including taking into consideration local comprehensive plans when reviewing LWECS site permits.

within such counties. Finally, the Commission or a county may require larger road setbacks on a case-by-case basis in situations where a greater setback is justified.

Here, maintaining the existing minimum 250 foot turbine setback from the edge of public road rights-of-ways continues to be reasonable. The purpose of the setback is to prevent ice from shedding off wind turbines onto public roads. No reports of ice shed from turbines being deposited onto public roads has come to the attention of state regulators, despite inquiries made to wind developers, maintenance technicians, and local government officials about the subject.

The Commission will therefore adopt a case-by-case approach to handling issues of this type where necessary and in the public interest. The Commission will adopt this same case-by-case approach to address setbacks from high volume roads that may be widened in future transportation expansion projects.

The Commission also concludes that setbacks should be developed and applied to state trails on a case-by-case basis. State trails, which are generally multi-use recreational trails, traverse a wide variety of terrains and landscapes across the state. Setbacks are primarily to enhance the aesthetic enjoyment of the trail user; however, the needs and desires of the owner of the property through which the trail runs must also be considered.

A case-by-case analysis is best suited in recognition of many types of permanent and temporary recreational trails situated across the state.

### **C. Miscellaneous Issues**

Finally, comments and recommendations were offered on a variety of matters as set forth below. After review, the Commission finds that no changes to the Wind Siting Rules or General Permit Standards are necessary to address these issues.

Comments and recommendations were made concerning decommissioning and facility retrofit, urging review of permits if a permittee seeks to retrofit or otherwise modify the permitted facility. The Wind Siting Rules and Commission-issued LWECS permits have always required decommissioning plans nearly identical to the language recommended by the commentor. The Commission or counties have the ability to reassess and/or amend requirements for decommissioning plans as needed throughout the life of the LWECS facility permitted. Also, a facility retrofit or expansion would require Commission siting process review and site permit action, in accordance with Minn. Rules, Chapter 7836. These comments support the need to retain such requirements in the general wind permit standards.

The Southwest Regional Development Council offered comments on transportation issues related to transporting wind project equipment to the site, bridge and weight restrictions, local road permits required and construction related road damages. Issues such as these will continue to be handled by the governmental bodies controlling each road right-of-way, as set forth in Commission wind permit conditions. These comments support the need to retain such requirements in the general wind permit standards.



The Southwest Regional Development Council requested clarification on determination of project size. Minn. Stat. § 216F.011 provides a process and standards for the Commission and the Department of Commerce to use in making LWECS size determinations. Training materials and sessions will also be provided by the Department of Commerce Energy Facility Permitting staff.

Finally, the C-BED participants requested that permit costs for the site permit and any additional studies be capped at \$1000.00. Costs associated with site permit processing by the Commission are governed by Minn. Rule, part 7836.1500, which establishes that permit applicants shall pay the actual costs in processing an application.

**ORDER**

1. The Commission herein adopts the Large Wind Energy Conversion System General Wind Turbine Permit Setbacks and Standards proposed by the Department of Commerce Energy Facility Permitting staff, attached as Exhibit A. The general permit standards shall apply to large wind energy conversion system site permits issued by counties pursuant to Minn. Stat. 216F.08 and to permits issued by the Commission for LWECS with a combined nameplate capacity of less than 25,000 watts.
2. The Commission requests that the Department of Commerce Energy Facility Permitting staff further investigate wetland setback issues with stakeholders and develop recommendations for Commission consideration.
3. This Order shall become effective immediately.

BY ORDER OF THE COMMISSION



Burl W. Haar  
Executive Secretary



(S E A L)

This document can be made available in alternative formats (i.e. large print or audio tape) by calling 651.201.2202 (voice). Persons with hearing or speech disabilities may call us through Minnesota Relay at 1.800.627.3529 or by dialing 711.

**Exhibit A****Minnesota Public Utilities Commission****General Wind Turbine Permit Setbacks and Standards for Large Wind Energy Conversion System (LWECS) Permitted Pursuant to Minnesota Statute 216F.08**

<b>Resource Category</b>	<b>General Permit Setback</b>	<b>Minimum Setback</b>
<b>Wind Access Buffer (setback from lands and/or wind rights not under permittee's control)</b>	Wind turbine towers shall not be placed less than 5 rotor diameters (RD) from all boundaries of developer's site control area (wind and land rights) on the predominant wind axis (typically north-south axis) and 3 rotor diameters (RD) on the secondary wind axis (typically east-west axis), without the approval of the permitting authority. This setback applies to all parcels for which the permittee does not control land and wind rights, including all public lands.	3 RD (760 – 985 ft) on east-west axis and 5 RD (1280 – 1640 ft) on north-south using turbines with 78 – 100 meter rotor diameters.
<b>Internal Turbine Spacing</b>	The turbine towers shall be spaced no closer than 3 rotor diameters (RD) for crosswind spacing (distance between towers) and 5 RD downwind spacing (distance between strings of towers). If required during final micro siting of the turbine towers to account for topographic conditions, up to 20 percent of the towers may be sited closer than the above spacing but the permittee shall minimize the need to site the turbine towers closer.	5 rotor diameters downwind spacing 3 rotor diameters apart for crosswind spacing
<b>Noise Standard</b>	Project must meet Minnesota Noise Standards, Minnesota Rules Chapter 7030, at all residential receivers (homes). Residential noise standard NAC 1, L50 50 dBA during overnight hours. Setback distance calculated based on site layout and turbine for each residential receiver.	Typically 750 – 1500 ft is required to meet noise standards depending on turbine model, layout, site specific conditions.
<b>Homes</b>	At least 500 ft <u>and</u> sufficient distance to meet state noise standard.	500 feet + distance required to meet state noise standard.
<b>Public Roads and Recreational Trails</b>	The turbine towers shall be placed no closer than 250 feet from the edge of public road rights-of-way. Setbacks from state trails and other recreational trails shall be considered on a case-by-case basis.	Minimum 250 ft
<b>Meteorological Towers</b>	Meteorological towers shall be placed no closer than 250 foot from the edge of road rights-of-way and from the boundaries of developer's site control (wind and land rights). Setbacks from state trails and other recreational trails shall be considered on a case-by-case basis.	Minimum 250 ft
<b>Wetlands</b>	No turbines, towers or associated facilities shall be located in public waters wetlands. However, electric collector and feeder lines may cross or be placed in public waters or public water wetlands subject to DNR, FWS and/or USACOE permits.	No setback required pending further PUC action.

<b>Native Prairie</b>	Turbines and associated facilities shall not be placed in native prairie unless approved in native prairie protection plan (see native prairie standard below). Native prairie protection plan shall be submitted if native prairie is present.	No setback required.
<b>Sand and Gravel Operations</b>	No turbines, towers or associated facilities in active sand and gravel operations, unless negotiated with the landowner.	
<b>Aviation (public and private airports)</b>	No turbines, towers or associated facilities shall be located so as to create an obstruction to navigable airspace of public and private airports in Minnesota or adjacent states and/or providences.	Setbacks or other limitations determined in accordance with MNDOT Department of Aviation and Federal Aviation Administration requirements.

### **Additional General Permit Standards**

#### **Pre-Application Project Size Determination.**

Pursuant to Minnesota Statute 216F.011, applications to a county for a LWECS permit are not complete without a project size determination provided by the Commissioner of the Minnesota Department of Commerce. Requests for size determination shall be submitted on forms provided by the Department of Commerce. Upon written request of a project developer and receipt of any supplemental information requested by the commissioner, the commissioner of commerce shall provide a written size determination within 30 days. In the case of a dispute, the chair of the Public Utilities Commission shall make the final size determination.

Pursuant to Minnesota Statute 216F.011, the total size of a combination of wind energy conversion systems for the purpose of determining what jurisdiction has siting authority must be determined according to the criteria below:

The nameplate capacity of one wind energy conversion system must be combined with the nameplate capacity of any other wind energy conversion system that:

- (1) is located within five miles of the wind energy conversion system;
- (2) is constructed within the same 12-month period as the wind energy conversion system; and
- (3) exhibits characteristics of being a single development, including, but not limited to, ownership structure, an umbrella sales arrangement, shared interconnection, revenue sharing arrangements, and common debt or equity financing.



**Wind Turbines Design Standards.** All turbines shall be commercially available, utility scale, not prototype turbines. Turbines shall be installed on tubular, monopole design towers, and have a uniform white/off white color. All turbine towers shall be marked with a visible identification number.

**Underground and Overhead Electric Collection and Feeder Lines.** The permittee shall place electrical lines, known as collectors, communication cables, and associated electrical equipment such as junction boxes underground when located on private property. Collectors and cables shall also be placed within or adjacent to the land necessary for turbine access roads unless otherwise negotiated with the affected landowner. This paragraph does not apply to feeder lines.

The permittee shall place overhead or underground 34.5 kV electric lines, known as feeders within public rights-of-way or on private land immediately adjacent to public rights-of-way if a public right-of-way exists, except as necessary to avoid or minimize human, agricultural, or environmental impacts. Feeder lines may be placed on public rights-of-way only if approval or the required permits have been obtained from the governmental unit responsible for the affected right-of-way. In all cases, the permittee shall avoid placement of feeder lines in locations that may interfere with agricultural operations. Notwithstanding any of the requirements to conduct surveys before any construction can commence, the permittee may begin immediately upon issuance of a LWECS site permit to construct the 34.5 kV feeder lines that will be required as part of the project.

Any guy wires on the structures for feeder lines shall be marked with safety shields.

**Topsoil and Compaction.** The permittee must protect and segregate topsoil from subsoil on all lands unless otherwise negotiated with affected landowner. Must minimize soil compaction of all lands during all phases and confine soil compaction to as small area as possible.

**Fences.** The permittee shall promptly repair or replace all fences and gates removed or damaged during project life and provide continuity of electric fence circuits.

**Drainage Tile.** The permittee shall take into account, avoid, promptly repair or replace all drainage tiles broken or damaged during all phases of project life unless otherwise negotiated with affected landowner.

**Equipment Storage.** The permittee shall negotiate with landowners to locate sites for temporary equipment staging areas.

**Public Roads.** The permittee shall identify all state, county or township roads that will be used for the LWECS Project and shall notify the permitting authority (PUC or county) and the state, county or township governing body having jurisdiction over the roads to determine if the governmental

body needs to inspect the roads or issue any road permits prior to use of these roads. Where practical, existing roadways shall be used for all activities associated with the LWECS. Where practical, all-weather roads shall be used to deliver cement, turbines, towers, assembled nacelles and all other heavy components to and from the turbine sites.

Prior to construction, the permittee shall make satisfactory arrangements (including obtaining permits) for road use, access road intersections, maintenance and repair of damages with governmental jurisdiction with authority over each road. The permittee shall notify the permitting authority (PUC or county) of such arrangements upon request.

**Turbine Access Roads.** The permittee shall construct the smallest number of turbine access roads it can. Access roads shall be low profile roads so that farming equipment can cross them and shall be covered with Class 5 gravel or similar material. When access roads are constructed across streams and drainage ways, the access roads shall be designed in a manner so runoff from the upper portions of the watershed can readily flow to the lower portion of the watershed.

**Private Roads.** The permittee shall promptly repair private roads, driveways or lanes damaged unless otherwise negotiated with landowner.

**Soil Erosion and Sediment Control.** Prior to commencing construction, the Permittee shall submit its National Pollution Discharge Elimination System (NPDES) construction permit issued by the Minnesota Pollution Control Agency (MPCA) to the permitting authority (PUC or county).

**Cleanup.** The permittee shall remove all waste and scrap that is the product of construction, operation, restoration and maintenance from the site and properly dispose of it upon completion of each task. Personal litter, bottles, and paper deposited by site personnel shall be removed on a daily basis.

**Tree Removal.** The permittee shall minimize the removal of trees and shall not remove groves of trees or shelter belts without the approval of the affected landowner.

**Site Restoration.** The permittee shall, as soon as practical following construction of each turbine, considering the weather and preferences of the landowner, restore the area affected by any LWECS activities to the condition that existed immediately before construction began, to the extent possible. The time period may be no longer than eight months after completion of construction of the turbine, unless otherwise negotiated with the landowner. Restoration shall be compatible with the safe operation, maintenance, and inspection of the LWECS.

**Hazardous Waste.** The permittee shall be responsible for compliance with all laws applicable to the generation, storage, transportation, clean up and disposal of hazardous wastes generated during any phase of the project's life.

**Application of Herbicides.** Restrict use to those herbicides and methods approved by the Minnesota Department of Agriculture. The permittee must contact landowner prior to application.

**Public Safety.** The permittee shall provide educational materials to landowners within the site boundaries and, upon request, to interested persons, about the Project and any restrictions or dangers associated with the LWECS Project. The permittee shall also provide any necessary safety measures, such as warning signs and gates for traffic control or to restrict public access to turbine access roads, substations and wind turbines.

**Fire Protection.** Prior to construction, the permittee shall prepare a fire protection and medical emergency plan in consultation with the fire department having jurisdiction over the area prior to LWECS construction. The permittee shall register the LWECS in the local government's emergency 911 system.

**Native Prairie.** Native prairie plan must be submitted if native prairie is present and will be impacted by the project. The permittee shall, with the advice of the DNR and any others selected by the permittee, prepare a prairie protection and management plan and submit it to the county and DNR Commissioner 60 days prior to the start of construction. The plan shall address steps to be taken to identify native prairie within the Project area, measures to avoid impacts to native prairie, and measures to mitigate for impacts if unavoidable. Wind turbines and all associated facilities, including foundations, access roads, underground cable and transformers, shall not be placed in native prairie unless addressed in the prairie protection and management plan. Unavoidable impacts to native prairie shall be mitigated by restoration or management of other native prairie areas that are in degraded condition, or by conveyance of conservation easements, or by other means agreed to by the permittee, DNR and PUC or county.

**Electromagnetic Interference.** Prior to beginning construction, the permittee shall submit a plan for conducting an assessment of television signal reception and microwave signal patterns in the Project area prior to commencement of construction of the Project. The assessment shall be designed to provide data that can be used in the future to determine whether the turbines and associated facilities are the cause of disruption or interference of television reception or microwave patterns in the event residents should complain about such disruption or interference after the turbines are placed in operation. The assessment shall be completed prior to operation of the turbines. The permittee shall be responsible for alleviating any disruption or interference of these services caused by the turbines or any associated facilities.

The permittee shall not operate the LWECS and associated facilities so as to cause microwave, television, radio, telecommunications or navigation interference contrary to Federal Communications Commission (FCC) regulations or other law. In the event the LWECS and its associated facilities or its operations cause such interference, the permittee shall take timely measures necessary to correct the problem.

**Turbine Lighting.** Towers shall be marked as required by the Federal Aviation Administration (FAA). There shall be no lights on the towers other than what is required by the FAA.

**Pre-Construction Biological Preservation Survey:** The permittee, in consultation with DNR and other interested parties, shall request a DNR Natural Heritage Information Service Database search for the project site, conduct a pre-construction inventory of existing wildlife management areas, scientific and natural areas, recreation areas, native prairies and forests, wetlands, and any other biologically sensitive areas within the site and assess the presence of state- or federally-listed or threatened species. The results of the survey shall be submitted to the permitting authority (PUC or county) and DNR prior to the commencement of construction.

**Archeological Resource Survey and Consultation:** The permittee shall work with the State Historic Preservation Office (SHPO) at the Minnesota Historical Society and the State Archaeologist as early as possible in the planning process to determine whether an archaeological survey is recommended for any part of the proposed Project. The permittee will contract with a qualified archaeologist to complete such surveys, and will submit the results to the permitting authority (PUC or county), the SHPO and the State Archaeologist. The SHPO and the State Archaeologist will make recommendations for the treatment of any significant archaeological sites which are identified. Any issues in the implementation of these recommendations will be resolved by permitting authority (PUC or county) in consultation with SHPO and the State Archaeologist. In addition, the permittee shall mark and preserve any previously unrecorded archaeological sites that are found during construction and shall promptly notify the SHPO, the State Archaeologist, and the permitting authority (PUC or county) of such discovery. The permittee shall not excavate at such locations until so authorized by the permitting authority (PUC or county) in consultation with the SHPO and the State Archaeologist.

If human remains are encountered during construction, the permittee shall immediately halt construction at that location and promptly notify local law enforcement authorities and the State Archaeologist. Construction at the human remains location shall not proceed until authorized by local law enforcement authorities or the State Archaeologist.

If any federal funding, permit or license is involved or required, the permittee shall notify the MHS as soon as possible in the planning process to coordinate section 106 (36 C.F.R 800) review.



Prior to construction, construction workers shall be trained about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If any archaeological sites are found during construction, the permittee shall immediately stop work at the site and shall mark and preserve the site and notify the permitting authority (PUC or county) and the MHS about the discovery. The permitting authority (PUC or county) and the MHS shall have three working days from the time the agency is notified to conduct an inspection of the site if either agency shall choose to do so. On the fourth day after notification, the permittee may begin work on the site unless the MHS has directed that work shall cease. In such event, work shall not continue until the MHS determines that construction can proceed.

**Project Energy Production:** The permittee shall, by July 15 of each year, report to the PUC on the monthly energy production of the Project and the average monthly wind speed collected at one permanent meteorological tower selected by the PUC during the preceding year or partial year of operation.

**Site Plan:** Prior to commencing construction, the permittee shall submit to the permitting authority (PUC or county) a site plan for all turbines, roads, electrical equipment, collector and feeder lines and other associated facilities to be constructed and engineering drawings for site preparation, construction of the facilities, and a plan for restoration of the site due to construction. The permittee may submit a site plan and engineering drawings for only a portion of the LWECS if the permittee is prepared to commence construction on certain parts of the Project before completing the site plan and engineering drawings for other parts of the LWECS. The permittee shall have the right to move or relocate turbine sites due to the discovery of environmental conditions during construction, not previously identified, which by law or pursuant to this Permit would prevent such use. The permittee shall notify the permitting authority (PUC or county) of any turbines that are to be relocated before the turbine is constructed on the new site.

**Pre-construction Meeting:** Prior to the start of any construction, the permittee shall conduct a preconstruction meeting with the person designated by the permitting authority (PUC or county) to coordinate field monitoring of construction activities.

**Extraordinary Events:** Within 24 hours of an occurrence, the permittee shall notify the permitting authority (PUC or county) of any extraordinary event. Extraordinary events include but shall not be limited to: fires, tower collapse, thrown blade, collector or feeder line failure, injured LWECS worker or private person, kills of migratory, threatened or endangered species, or discovery of a large number of dead birds or bats of any variety on site. In the event of extraordinary avian mortality the DNR shall also be notified within 24 hours. The permittee shall, within 30 days of the occurrence, submit a report to the permitting authority (PUC or county) describing the cause of the occurrence and the steps taken to avoid future occurrences.

**Complaints:** Prior to the start of construction, the permittee shall submit to the permitting authority (PUC or county) the company's procedures to be used to receive and respond to *complaints*. The permittee shall report to the permitting authority (PUC or county) all complaints received concerning any part of the LWECS in accordance with the procedures provided in permit.

**As-Built Plans and Specifications:** Within 60 days after completion of construction, the permittee shall submit to the county and PUC a copy of the as-built plans and specifications. The permittee must also submit this data in a geographic information system (GIS) format for use in a statewide wind turbine database.

**Decommissioning Plan.** As part of its permit application, the permittee must submit a decommissioning plan describing the manner the permittee plans on meeting requirements of Minnesota Rule 7836.0500, subpart 13.

**Special Conditions:** Pursuant to Minnesota Statute 216F.04 and Minnesota Rule 7836.1000, the permitting authority (PUC or county) may adopt special permit conditions to LWECS site permits to address specific issues on a case-by-case basis.

STATE OF MINNESOTA)  
COUNTY OF RAMSEY )SS

AFFIDAVIT OF SERVICE

I, Margie DeLaHunt, being first duly sworn, deposes and says:

That on the 11th day of January, 2008 she served the attached

ORDER ESTABLISHING GENERAL WIND PERMIT STANDARDS.

MNPUC Docket Number: E.G-999/M-07-1102

XX By depositing in the United States Mail at the City of St. Paul, a true and correct copy thereof, properly enveloped with postage prepaid

XX By personal service

XX By inter-office mail

to all persons at the addresses indicated below or on the attached list:

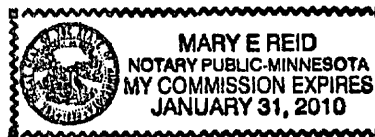
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Bob Cupit  
Bret Eknes  
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Jessie Schmoker  
Sharon Ferguson - DOC  
Julia Anderson - OAG  
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Margie DeLaHunt

Subscribed and sworn to before me,

a notary public, this 11<sup>th</sup> day of

January, 2008  
Mary E. Reid  
Notary Public



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AFCL Exhibit A - General Wind Standards - Small Wind

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**Table 5.1-4: Turbine Siting Considerations and Approximate Schedule**

Issue	Approximate Schedule	Siting Consideration
<b>Cultural</b>	Applicable areas with proposed ground disturbance will be surveyed for cultural resources before construction activities begin.	Cultural resources identified within the proposed construction areas and previously documented cultural resources in the Project Area will be avoided to the greatest extent possible. If avoidance is not practicable, additional investigation of the resource may be needed and further discussion with regulating agencies would be necessary prior to any direct impact to the resource occurring.

## 5.2 Description of Turbines and Towers

### 5.2.1 Wind Turbine Design and Operation

Wind turbine components are made up of the rotor (blades and hub), nacelle, tower, and foundation. The generator, gear boxes, controller, shafts, brake, generator cabling, hoist, generator cooling, and associated equipment are located within the nacelle. Turbine blades convert kinetic energy from wind into rotational energy. An anemometer and wind/weather vane, which monitor wind speed and direction, respectively, are located on top of the nacelle at the opposite end from the rotor.

The hub supports the blades and connecting rotor, yaw motors, mechanical braking system, and a power supply for emergency braking. An emergency power supply is also located within the hub that allows the mechanical brakes to work if power is lost. The three blades are composed of carbon fiber, fiberglass, and internal supports to be lightweight but strong. Lighting receptors are attached at the tip of each blade to safely conduct lightning strikes to ground.

The foundation and tower support the rotor and nacelle. Foundations for the towers are anticipated to be spread foundation design. The foundation above ground is approximately 13 ft in diameter. The tubular towers will be painted a non-glare white.

Electrical and communication cables and a control system are located at the base of the tower. Access to the turbine from the outside is through the bottom of the tower via a door equipped with a lock. A ladder is within the tower to access the top platform of the tower. Access to the nacelle from the top platform in the tower is by ladder. There are several electrical and mechanical safety, fire protection, first aid, escape, climbing, and work area features included within each turbine assembly for safe operation and maintenance of equipment.

During operation, the nacelle orientation can be adjusted by yaw motors to match wind speed direction to maximize energy generation and operational factors. Pitch motors rotate the blades

the ROW), it is lower impact and more efficient for the cranes to travel through the fields and perform de-compaction as needed. If the cranes are travelling on frozen ground, de-compaction may not be needed.

Depending upon soil conditions and time of year, crane paths are generally prepared by utilizing a bulldozer or grader to blade off the topsoil to expose firmer layers of underlying clay, till, or rock to a depth necessary to achieve greater bearing capacity than may be available with the topsoil conditions. In most cases, satisfactory bearing is achieved in 12 inches. In the event that soil conditions do not improve at such depths, localized matting can be used during crane walks. For dry or frozen conditions, no work may be required to prepare crane paths; however, in wet conditions or other such conditions that may pose very soft soil conditions, sections of wood matting will be rotated through part or the entire course of the walk.

Additional stone may be brought in to support crane movement when blading the existing material aside is not practical. This might occur at ditch crossings or when travelling next to an existing access road where the material adjacent to the road is not suitable. Typically in those cases, after removing the topsoil and piling it adjacent to the area, larger (3- to 4-inch) stone will be placed along the bottom of the route and topped with 0.75 to 1 inch maximum of well graded gravel. For ditch crossings, temporary culverts may be added to allow for through-flow in a rain event. If fish can pass through culverts prior to construction, post construction their ability to pass through shall be maintained.

Crane paths are typically 32 ft wide (a common main erection crane on wind farm sites, the Manitowoc 16000 has a track width of 29 ft).

Additional material is typically not imported for the crane paths so removing these paths is simply a matter of bulldozing the previously windrowed material evenly back across the areas from which it was removed. After replacing and leveling the material, rippers or plows are run through the affected area (crane path and where windrows existed) to de-compact material back to its original farmed density.

In circumstances where additional stone is brought in and put down for crane walks, all added stone and culverts are removed and the topsoil, which had been removed and piled aside, is returned to its original condition and de-compacted, as applicable.

## **10.4 Turbine Site Location**

### **10.4.1 Foundation Design**

This Project will incorporate a spread footing foundation which is comprised of a footing and a pedestal to support each wind turbine assembly. The footing portion is octagonal and spreads out below grade approximately 55 ft in diameter. Its depth is approximately 8 ft. The pedestal portion is a concrete cylinder rising approximately 3 ft above the foundation. The anchor bolt cage for the spread footing foundation consists of steel tie rods within PVC sleeves. At the top and bottom of the cage are embedment rings which hold the tie rods in alignment. The anchor

bolt cage extends from the bottom of the footing through the top of the pedestal providing anchors for the turbine tower.

The excavation of soil will be performed in separate stages to minimize comingling between soil strata. For example, in areas where black dirt overlays clay or rock, the top layer will be removed and stockpiled on one side of the foundation site prior to excavating the underlying material. This underlying soil is then removed with an excavator and placed into a separate pile around the excavation.

Foundations are constructed by identifying and rerouting drainage tiles out of the excavation area; excavating a hole; pouring a mud mat of lean concrete; placing reinforcing steel; installing the tower mounting system (anchor bolt cage); placing concrete forms; and pouring concrete into the excavation.

Upon completion of the foundation and sub-grade grounding, backfilling is done by reverse process by which it was taken out. Material excavated from the deepest section of the foundation holes would be the first material replaced back into the hole, with the final fill being the topsoil that was initially removed. All subgrade material replaced back in the hole is placed in 12- to 18-inch lifts and is compacted with sheepsfoot rollers between successive lifts. Unless specifically requested to beneficially use the material, all spoils excavated from a foundation hole are placed back into the same hole from which they originated. Excess material displaced by the turbine foundation is feathered in around the base of the foundation to tie the pedestal in to the existing contours. Any materials which cannot be properly replaced, compacted, and graded will be removed and transported to a licensed disposal facility.

#### **10.4.2 Tower**

The towers are conical tubular steel with a hub height of 80 m (262 ft). The towers consist of three sections manufactured from rolled steel plates welded together along with thick flanges for bolting the sections together. All surfaces are multi-layer coated for protection against corrosion. Access to the turbine is through a lockable steel door at the base of the tower. Access to the nacelle is provided by a ladder equipped with a fall-arresting safety system.

### **10.5 Post-construction Cleanup and Site Restoration**

During construction, additional areas will be temporarily impacted. Activities causing temporary impacts are associated with the widening of access roads for equipment transport, installation of turbine foundations, installation of underground electrical collector and communication cables, and for staging and support purposes. At the completion of construction activities, all temporarily disturbed areas will be graded back to natural contours, de-compacted, and seeded as needed. Erosion control practices will be maintained until seeded areas are stabilized. New gravel roads that are to be kept for ongoing operation and maintenance access will be corrected of any deterioration due to the construction process. Freeborn Wind is committed to cleaning up construction debris and restoring temporarily impacted areas to the extent practicable, and to the satisfaction of landowners.





September 28, 2017  
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Minnesota Public Utilities Commission  
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RE: Bent Tree Wind Farm Noise Monitoring – Monitoring Report  
**Docket No. ET6657/WS-08-573**

Dear Mr. Wolf:

The Department of Commerce's Energy Environmental Review and Analysis (EERA) staff submits the enclosed Bent Tree Wind Farm Post-Construction Noise Assessment Report (Report) pursuant to the Commission's August 24<sup>th</sup>, 2016 order requiring noise monitoring, noise study and further study to address noise-related complaints filed by three landowners regarding the Bent Tree project (E-dockets WS-08-573, Document ID [20168-124382-01](#)).

DNV GL-Energy was selected to complete noise monitoring at the Bent Tree Wind Farm as ordered by the Commission, and EERA consulted with Commission staff on the contract, work terms, and scope of work. DNV GL-Energy conducted the noise assessment in accordance with the Guidance for Large Wind Energy Conversion System Noise Study Protocol and Report authored by the Minnesota Department of Commerce<sup>1</sup> and the Post Construction Noise Measurement Study Protocol developed by DNV GL- Energy (attached to this letter). The enclosed Report details the outcomes of the monitoring and identifies 16 total hours of non-compliance during the monitoring period.

As discussed in Appendix A of the Large Wind Energy Conversion System Noise Study Protocol and Report, if noise exceedances are recorded, it is necessary to determine the increment due to the turbine noise. Due to the exceedances documented during the monitoring period, an additional measurement campaign to properly isolate wind turbine sound from total measured sound is recommended in the Report.

Based on the recommendation in the Report and consultation with Commission staff, EERA has requested DNV-GL to conduct further measurements to isolate noise contribution from Bent Tree

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<sup>1</sup> Minnesota Department of Commerce, Energy Facilities Permitting. October 8, 2012. Guidance for Large wind Energy Conversion System Noise Study Protocol and Report.  
<https://mn.gov/commerce/energyfacilities/documents/FINAL%20LWECS%20Guidance%20Noise%20Study%20Protocol%20OCT%208%202012.pdf>

## AFCL Exhibit C-1 - Bent Tree Noise Monitoring Report

Wind Farm turbines. Specifically, at EERA's request, DNV-GL has developed the attached Phase 2 Post-Construction Noise Measurement Study Protocol. Following this protocol, wind turbine sound will be isolated from total measured sound by conducting measurements with all turbines operational and also conducting measurements with a subset of wind turbines in proximity to complaint receptors turned off ("on/off monitoring") across a range of wind and atmospheric conditions. We believe completion of an "on/off" monitoring campaign is necessary to fulfill the Commission's August 24<sup>th</sup> order to conduct monitoring consistent with the guidance contained in the Large Wind Energy Conversion System Noise Study Protocol and Report.

EERA plans to move forward with DNV GL conducting this additional monitoring according to the Phase 2 Post-Construction Noise Measurement Study Protocol and will continue to consult with Commission staff on an ongoing basis.

Please do not hesitate to contact me if you have any questions concerning this letter.

Sincerely,

s/ Louise I. Miltich

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enclosure: Report: Bent Tree Wind Farm Post-Construction Noise Assessment  
Report/Protocol: Post Construction Noise Measurement Study Protocol  
Report/Protocol: Phase 2 Post-Construction Noise Measurement Study Protocol

BENT TREE WIND FARM

# Post-Construction Noise Assessment

Wisconsin Power and Light Co

Document No.: 10046144-HOU-R-02

Issue: B, Status: Final

Date: 30 August 2017



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## Task and objective:

This report presents the results of analysis conducted by DNV GL on behalf of Wisconsin Power and Light Co.

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Sound, noise, measurement, post-construction

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Reference to part of this report which may lead to misinterpretation is not permissible.

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## 1 INTRODUCTION

The Department of Commerce, Energy, Environment Review and Analysis (EERA, formerly Energy Facilities Permitting) of the state of Minnesota has requested, on behalf of Wisconsin Power and Light Co ("**WPL**" or the "**Company**"), that Garrad Hassan America, Inc. (DNV GL) perform a post-construction noise assessment for the Bent Tree Wind Farm (the "**Project**"). The Project is located in Freeborn County, MN, approximately 90 miles south of Minneapolis, consisting of 122 Vestas V82-1.65 MW wind turbine generators (WTG) with a hub height of 80 m and a rotor diameter of 82 m. The Project began operation in 2011.

This post-construction noise assessment (the "**Assessment**") has been completed in accordance with the Guidance for Large Wind Energy Conversion System Noise Study Protocol and Report (LWECS Guidance) authored by the Minnesota Department of Commerce [1], and the Post-Construction Noise Measurement Study Protocol (DNV GL Protocol) developed by DNV GL [2]. More specifically, the Assessment was requested by EERA due to on-going complaints at two receptors within the Project Area; the Hagen and Langrud receptors.

The purpose of this Assessment is to determine the post-construction noise levels and compliance with Minnesota noise standards.

## 2 BACKGROUND

### 2.1 Environmental Sound Background

Sound levels are expressed in the decibel unit and are quantified on a logarithmic scale to account for the large range of acoustic pressures to which the human ear is exposed. A decibel (dB) is used to quantify sound levels relative to a 0 dB reference. The reference level of 0 dB is defined as a sound pressure level of 20 micropascals ( $\mu\text{Pa}$ ), which is the typical lower threshold of hearing for humans.

Sound levels can be presented both in broadband (sound energy summed across the entire audible frequency spectrum) and in octave band spectra (audible frequency spectrum divided into bands). Frequency is expressed in the Hertz unit (Hz), measuring the cycles per second of the sound pressure waves. The audible range of the human ear spans from 20 to 20,000 Hz. Since the human ear does not perceive every frequency with equal loudness, spectrally varying sounds are often adjusted with a weighting filter. The A-weighting filter is applied to closely approximate the human ear's response to sound. Sound expressed in the A-weighted scale is denoted dBA. A C-weighting filter can also be applied, which can be used to evaluate the potential presence of low-frequency sounds and is denoted as dBC.

A sound source has a certain sound power level (PWL) rating which describes the amount of sound energy per unit of time. This is a basic measure of how much acoustical energy a sound source can produce and is independent of its surroundings. Sound pressure is created as sound energy flows away from the source. The measured sound pressure level (SPL) at a given point depends not only on the power rating of the source and the distance between the source and the measurement point (geometric divergence), but also on the amount of sound energy absorbed by environmental elements between the source and the measurement point (attenuation). Sound attenuation factors include meteorological conditions such as wind direction, temperature, and humidity; sound interaction with the ground; atmospheric absorption; terrain effects; diffraction of sound around objects and topographical features; and foliage.



## 2.2 Minnesota Noise Limits

The regulations applicable to the Project are the Minnesota Noise Standards [3].

Minnesota Pollution Control Agency (MPCA) 7030.0040 Noise Standards state the following:

*7030.0040 Noise Standards.*

*Subpart 1. Scope. These standards describe the limiting levels of sound established on the basis of present knowledge for the preservation of public health and welfare. 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) system established in part 7030.0050. However, these standards do not, by themselves, identify the limiting levels of impulsive noise needed for the preservation of public health and welfare. Noise standards in subpart 2 apply to all sources.*

*Subpart. 2. Noise Standards.*

Table 2-1 Minnesota Noise Standards

Noise Area Classification	Daytime		Nighttime	
	<i>L<sub>50</sub></i>	<i>L<sub>10</sub></i>	<i>L<sub>50</sub></i>	<i>L<sub>10</sub></i>
1	60	65	50	55
2	65	70	65	70
3	75	80	75	80

Nighttime hours are between 10 pm and 7 am, as per the MPCA noise standards.

The Project is considered under noise area classification 1, which includes homes, other residential uses, religious activities, and educational services. The applicable nighttime *L<sub>50</sub>* limit is therefore 50 dBA and the applicable nighttime *L<sub>10</sub>* limit is 55 dBA at each receptor. Daytime *L<sub>50</sub>* and *L<sub>10</sub>* limits are 60 dBA and 65 dBA, respectively.

Sound pressure levels can be reported in a variety of ways. *L<sub>50</sub>* and *L<sub>10</sub>* represent noise levels that are exceeded 50% and 10% of the time, respectively. *Leq* represents the average sound over a period of time. *L<sub>50</sub>*, *L<sub>10</sub>*, and *Leq* sound pressure levels can be reported in dBA and dBC, both of which are used throughout this report. All sound levels are presented as hourly averages as per Minnesota standards.

## 2.3 Sources of Sound

Measurement of Project-related sound requires an understanding of sound produced by Project components. The sources of noise produced by the Project are comprised of the wind turbine generators and transformers, and the substation.

The broadband sound power level for the Vestas V82-1.65 MW wind turbine generators, at a hub height of 80 m, was provided by EERA and the Company [4]. According to the information obtained, the maximum acoustic emission at standard setting (no sound restriction control mode) is 103.2 dBA ± 2 dB for the Vestas V82-1.65 MW.

## 2.4 Measurement Methods

All instrumentation, measurement settings, data collection, processing and reporting procedures have been **conducted in accordance with the LWCS Guidance as well as with the MPCA's Measurement Procedure** for Non-impulsive noise, designated as method NTP-1 [5]. The methodology additionally considered the following ISO standards related to acoustic sound measurements: 1996-1, 1996-2 and 1996-3 [6].

## 2.5 Instrumentation

The instrumentation used for the post-construction noise monitoring included the following:

- Larson Davis soundmeters model 831 Class I;
- FreeField ½ inch microphone model 377B02;
- Preamplifier model PRM831;
- Vaisala Weather Transmitter model SEN-031;
- Larson Davis Precision Acoustic on-site Calibrator model CAL200; and
- Complete kit for outside sound measurement (including large tripods, wind and rain screen, protective Pelican case and long range batteries).

The sound meters meet the IEC 61672 Class 1 specifications. All instruments had a valid calibration, and calibration sheets are included in Appendix C of this document. Based on the above descriptions, the instrumentation complies with the requirements of the Guidance and NTP-1 [3].

Table 2-2 below summarizes the equipment used at each monitoring location.

Table 2-2 Monitoring Equipment Serial Numbers by Monitoring Location

Monitoring location	Sound Level Meter	Preamplifier	Microphone	Weather sensor
Langrud (M01)	3308	19107	152980	G404008
Hagen (M02)	3004	46571	163147	H4720002

The following meteorological parameters were recorded, with the Vaisala weather station, at the in-situ measurement locations that were within the Project area:

- Wind speed and direction;
- Relative humidity and precipitation;
- Temperature.

## 2.6 Data Collection

Over two weeks (17 days) of data was collected from midday 6 June 2017 through the afternoon of 23 June 2017 to collect data in various wind conditions, during day and night, and during different operational regimes. During this period, ambient sound was not overly affected by farming activity such as significant planting or harvesting. However, the ambient sound was relatively high at both receptors due to wind induced noise on nearby vegetation and tree leaves, and frequent bird chirping and insect sounds within the

vicinity of the measurement points. This type of ambient noise typically results in higher measured sounds throughout a campaign as opposed to a measurement campaign in early spring or late fall.

During the two weeks of measurements collected for the Assessment, the wind turbines were operational except during periods of maintenance or forced utility curtailment which resulted in reduced turbine production (i.e. turbine curtailment). Curtailment and maintenance records were provided by EERA on behalf of the Project operator [7]. To accurately capture the noise levels, DNV GL excluded noise measurements from the Assessment when turbine downtime or curtailment occurred at turbines within 1.5 miles of the measurement points (see Appendix A), distance at which wind turbine sound becomes negligible at the audited receptors. These measurements represent the core of the post-construction measurement campaign.

It should be noted that the LWECS Guidance requires a minimum of 7 days of measurements; due to the un-planned forced utility curtailment during the 1<sup>st</sup> week of measurements, the campaign was extended by more than 1 week to ensure a sufficient and representative dataset was gathered for the Assessment.

Microphones were installed on tripods approximately 5 feet above ground, and site calibration was performed before and after each monitoring period, as well as at the midway point of the measurement campaign. As per the Table 2-3, the differential calibration was not greater than 0.5 dBA. The microphones were both placed at least 20 feet from large reflecting surfaces. Photos of sound equipment stations at each measurement point are included in Appendix B.

Table 2-3 Site Calibration log

Monitoring location	Mid-campaign site calibration		End-of-campaign site calibration	
	Date	Differential (dBA)	Date	Differential (dBA)
Langrud (BT-M01)	14 June 2017	-0.04	23 June 2017	-0.17
Hagen (BT-M02)	14 June 2017	-0.04	23 June 2017	0.12

Sound measurements were made continuously using a FAST response setting and were averaged and stored every 10 seconds and hour, along with the relevant statistics for the periods. Sound events louder than 60 dBA were recorded for analysis and possible filtering.

The recorded measurements included un-weighted sound (in dB); A-weighted as L<sub>10</sub>, L<sub>50</sub>, L<sub>90</sub> and Leq (dBA); and C-weighted L<sub>10</sub>, L<sub>50</sub>, L<sub>90</sub> and Leq (dBC). Third octave band measurements ranging from 16 Hz to 8000 Hz were also recorded. A-weighted Leq, L<sub>10</sub>, L<sub>50</sub>, and L<sub>90</sub>; and C-weighted Leq were also recorded on an hourly basis. C-weighted L<sub>10</sub>, L<sub>50</sub>, and L<sub>90</sub> were calculated from the 10 second C-weighted Leq records.

Because environmental sound measurements are greatly influenced by wind-induced sound, the measurement stations included a foam wind screen, as per industry standards. This enabled the measurement of sound (without significant wind-induced sound effects on the microphone) in winds up to 11 miles per hour (mph) (i.e. 5 m/s) at the measurement level. Measurements taken during winds higher than 11 miles per hour and other adverse conditions such as rain were not used in the measurement campaign as per Monitoring Condition 4 of the LWECS Guidance.

It should be noted that units in this report are generally provided in English units, to suit the Minnesota regulatory body and related guidance document. However, wind turbine data is generally reported worldwide in metric units, as per the international standards that govern certification.

Table 2-4 below provides a comparison between wind speed in miles per hour and meters per second.

Table 2-4 Wind speed units comparison

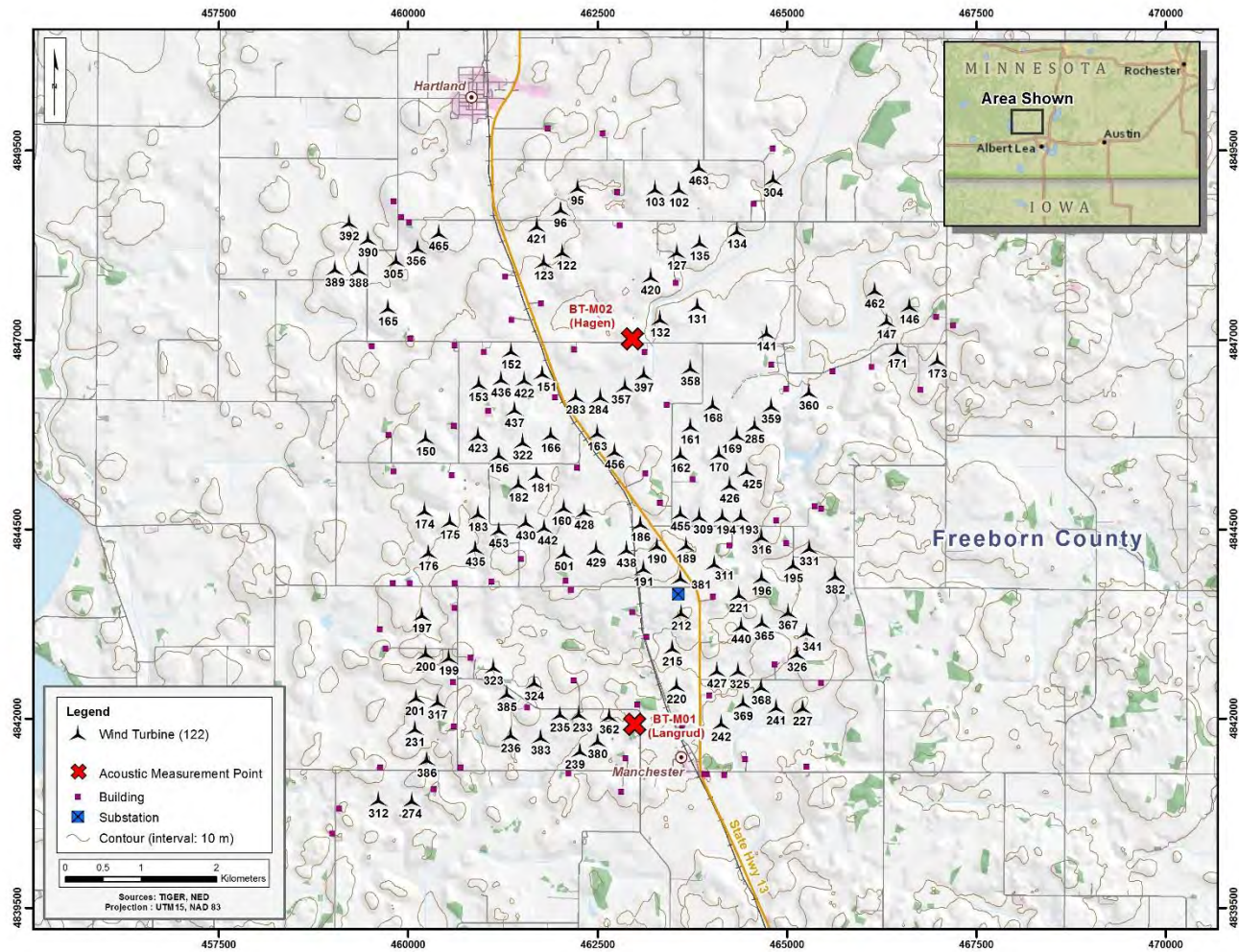
Miles per hour (mph)	Meters per second (m/s)
1	0.4
2	0.9
3	1.3
4	1.8
5	2.2
6	2.7
7	3.1
8	3.6
9	4.0
10	4.5
11	4.9
12	5.4
13	5.8
14	6.3
15	6.7
16	7.2
17	7.6
18	8.0
19	8.5
20	8.9

In addition to wind speed and wind direction, temperature, relative humidity and precipitation at the microphone height and location were recorded by the weather stations; and hub height hourly anemometry and operational data were also provided from the turbines' internal SCADA system [7]. Precipitation data obtained on-site was compared to the nearest National Oceanic and Atmospheric Administration (NOAA) station, and data broadly concurred. Due to the benefit of the in-situ weather stations, the related data was used for data processing in lieu of data from a distant NOAA station.

### 3 MEASUREMENT LOCATIONS

Post-construction sound levels were measured at two locations (BT-M01, BT-M02). These locations are shown below in Figure 1.

Figure 1 Sound Measurement Locations



The two on-site measurement points, BT-M01 and BT-M02, were located at the two complaint receptor locations to adequately characterize the total sound levels, including the contribution of the Project, as required by the LWECS Guidance. The measurement location coordinates are listed in Table 3-1 and shown in more detail in Figure 2.

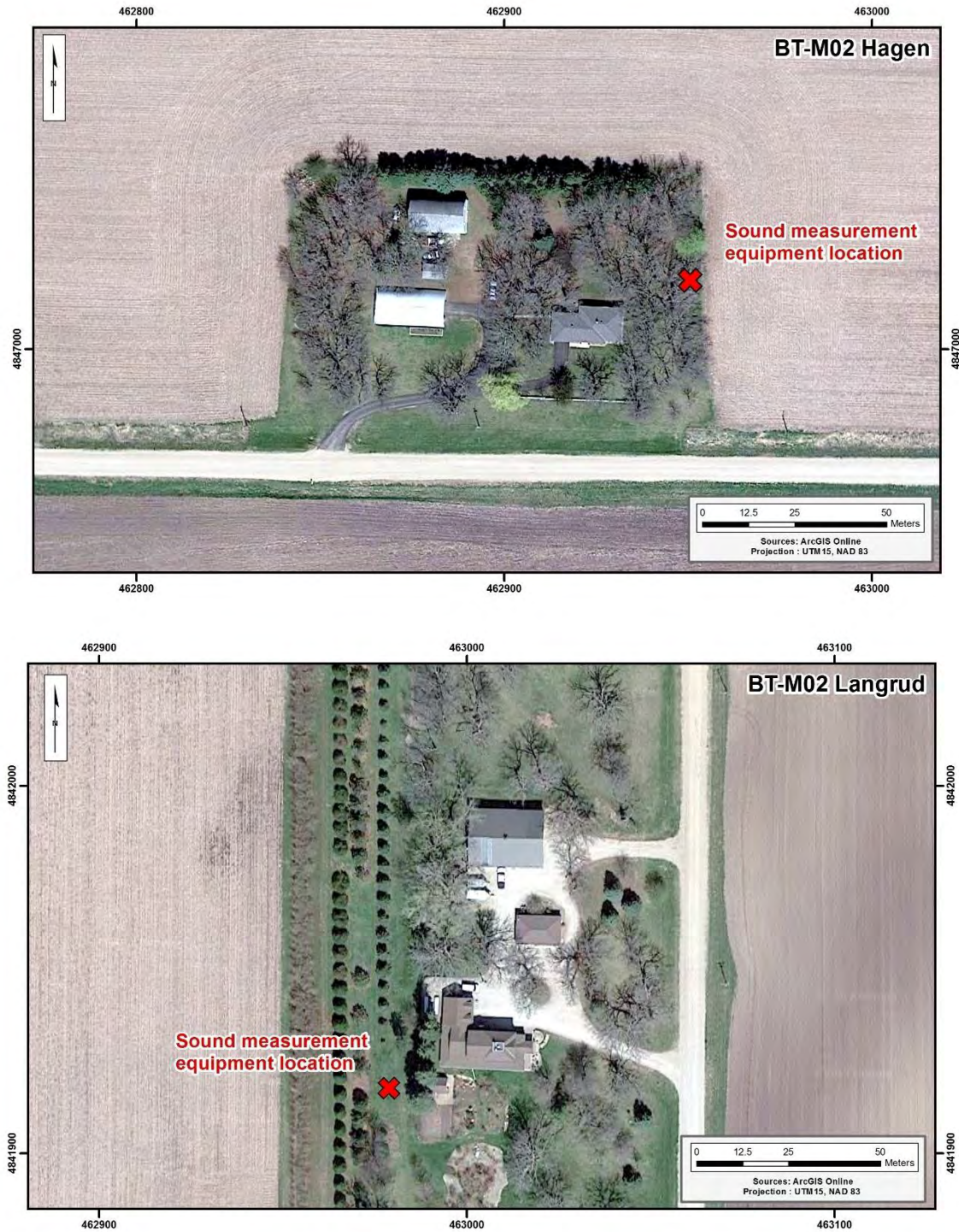
Table 3-1 Final Measurement Point Locations

Final Measurement Point	Easting	Northing	Distance to nearest turbine, ft
Langrud (BT-M01)	462985	4841921	1150 – Turbine 362
Hagen (BT-M02)	462949	4847019	1525 – Turbine 132

UTM NAD83 zone 15



Figure 2 Sound Measurement Locations – Detailed view



Existing ambient noise levels at the measurement points were characterized mainly by wind induced noise on nearby tree leaves and vegetation, domestic and rural activities, natural bird and insect sounds,

transportation noise on secondary gravel and asphalted roads, and occasional noise from the wind farm. The Project has no nearby neighboring wind farms.

Photos of the measurement points and stations can be found in Appendix B.

## 4 NOISE MONITORING RESULTS

The results presented in this section include the full two weeks of measurement data, meeting the conditions of 1.b. of the LWECS Guidance for BT-M01 and BT-M02.

Data is presented at hourly intervals and excludes periods of precipitation and microphone height winds greater than 11 miles per hour (mph) per the LWECS Guidance. For BT-M01 and BT-M02, precipitation and microphone height wind speed data was taken from the weather stations located at each measurement station. It should be noted that due to overhead shielding by trees, some light precipitation might not have been recorded by the precipitation sensor at BT-M02.

Periods of extraneous sound not associated with the Project or the typical natural environment (lawn mowers, farm equipment, etc.), which are in excess of 60 dBA, were excluded from the dataset. The sound meters used for the campaign record the sound exceedances above 60 dBA, which allows for proper data analysis and filtering of extraneous events.

In addition, records coinciding with periods of turbine downtime due to maintenance or utility curtailment were excluded as sound levels would likely be affected by the down turbine(s). DNV GL identified those periods based on a turbine downtime report provided by EERA on behalf of the Company [7]. This was done to eliminate any sound recordings that would be quieter than expected due to turbine downtime. Doing so ensures that all valid data presented demonstrates sound levels typically expected during Project operations at corresponding hub height wind speeds. It should be noted that records when the wind turbines were not operating due to winds below the cut-in wind speed were not excluded from the dataset. Therefore, the results shown in Section 4 graphs do not include contribution from the facility when hub height wind speeds are generally below 6.7 mph (i.e. 3 m/s).

It shall be noted that the timestamps were adjusted on the datasets acquired after the mid-campaign site intervention, in order to accurately coincide with the actual date and time of measurements. No other adjustments were applied to the data.

In the figures presented for each measurement point, excluded data is identified by gray and green vertical shading. For each measurement point, as required by the LWECS Guidance, hourly data series for the measurement period is presented as A-weighted and C-weighted  $L_{eq}$ ,  $L_{10}$ ,  $L_{50}$ , and  $L_{90}$ . These data series are compared against microphone wind speed, hub height wind speed, and precipitation. Hourly  $L_{10}$  and  $L_{50}$  data are also charted against the daytime and nighttime  $L_{10}$  and  $L_{50}$  MPCA noise limits to demonstrate instances of non-compliance. Nighttime hours are between 10 pm and 7 am, as per the MPCA noise standards.

### 4.1 Measurement Point BT-M01 - Langrud

BT-M01 is in the south of the Project area. Excluded data includes periods of precipitation and microphone height wind speeds greater than 11 mph; and 101 hours of excluded data due to turbine curtailment and the operation of a lawn mower and other miscellaneous farm equipment near the measurement station. Records

when the wind turbines were not operating due to winds below the cut-in wind speed, were not excluded. There was a short period where recordings were not taken from 14 June to 15 June due to data collection and battery maintenance on the sound equipment.

Table 4-1 below summarizes the excluded and remaining data, as a percentage and number of hours based on the overall measurement hours.

Table 4-1 BT-M01 Excluded data

BT-M01 Excluded data as a % of total data and number of hours		
	Percentage (%)	Hours
Turbine curtailment	24.5%	93
Precipitation	6.3%	24
Microphone wind speed >11 mph	0.0%	0
Extraneous noise	3.1%	8
Total Hours Remaining	67.0%	254

Hourly A-weighted Leq values during valid hours over the course of the measurement period ranged from 28.1 dBA to 59.6 dBA.

The A-weighted and C-weighted Leq values are plotted with precipitation in Figure 3, and with hub height wind speed in Figure 4. The grey- and green-shaded areas represent the excluded data discussed above and in Table 4-1. The majority of excluded time periods are due to turbine curtailment events during the first week of the measurement campaign. Some spikes in Leq values correspond to periods of lawn mowing and/or farm machinery near the measurement station. There is general correlation between Leq values and hub height wind speeds.

The relevant portion of the graph with regards to potential sound level exceedances with the LWECS Guidance are outside of the shaded areas.



Figure 3 BT-M01 Hourly Leq with Precipitation

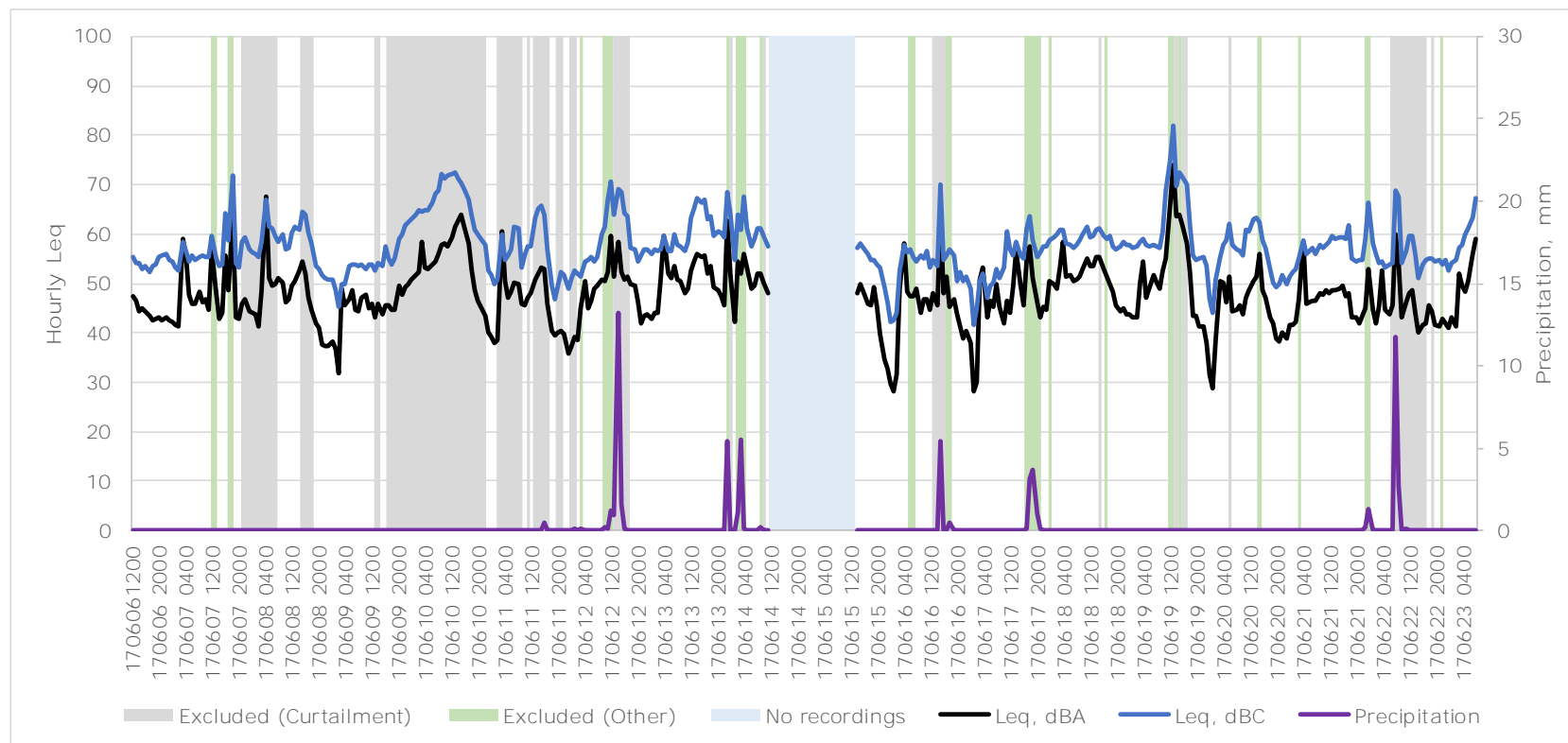


Figure 4 BT-M01 Hourly Leq with Hub Height Wind Speed

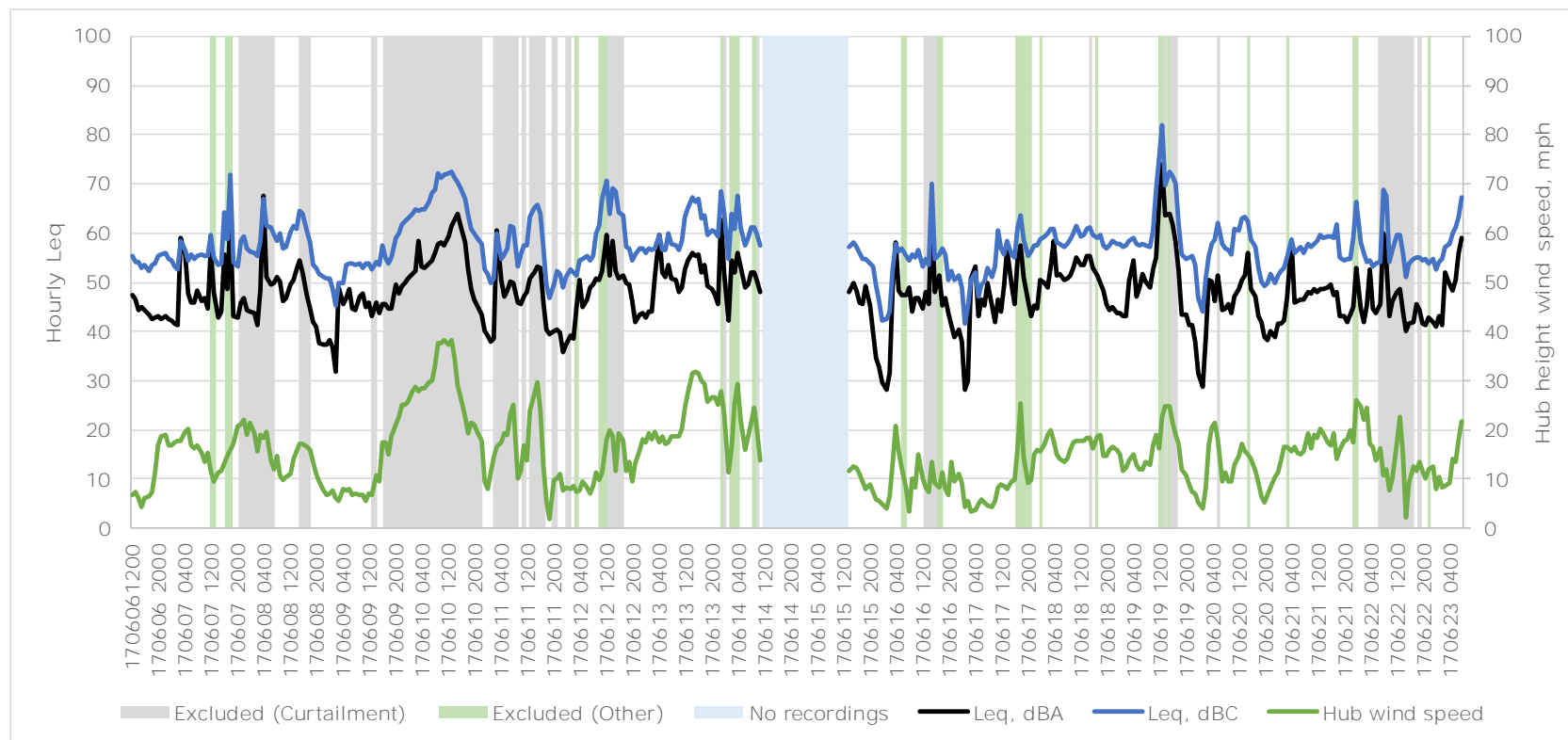


Figure 5 and Figure 6, A-weighted and C-weighted centiles are plotted with hub height wind speeds. The marker on these figures represents the  $L_{50}$ , with the top of the line representing the  $L_{10}$  and the bottom of the line representing the  $L_{90}$ . A longer line between the  $L_{10}$  and  $L_{90}$  values means that there was more **variability within the hour's sound levels**. During the campaign, general correlation between centile levels and hub winds were observed during most periods of valid data.

Figure 5 BT-M01 Hourly A-Weighted Centiles with Hub Height Wind Speed

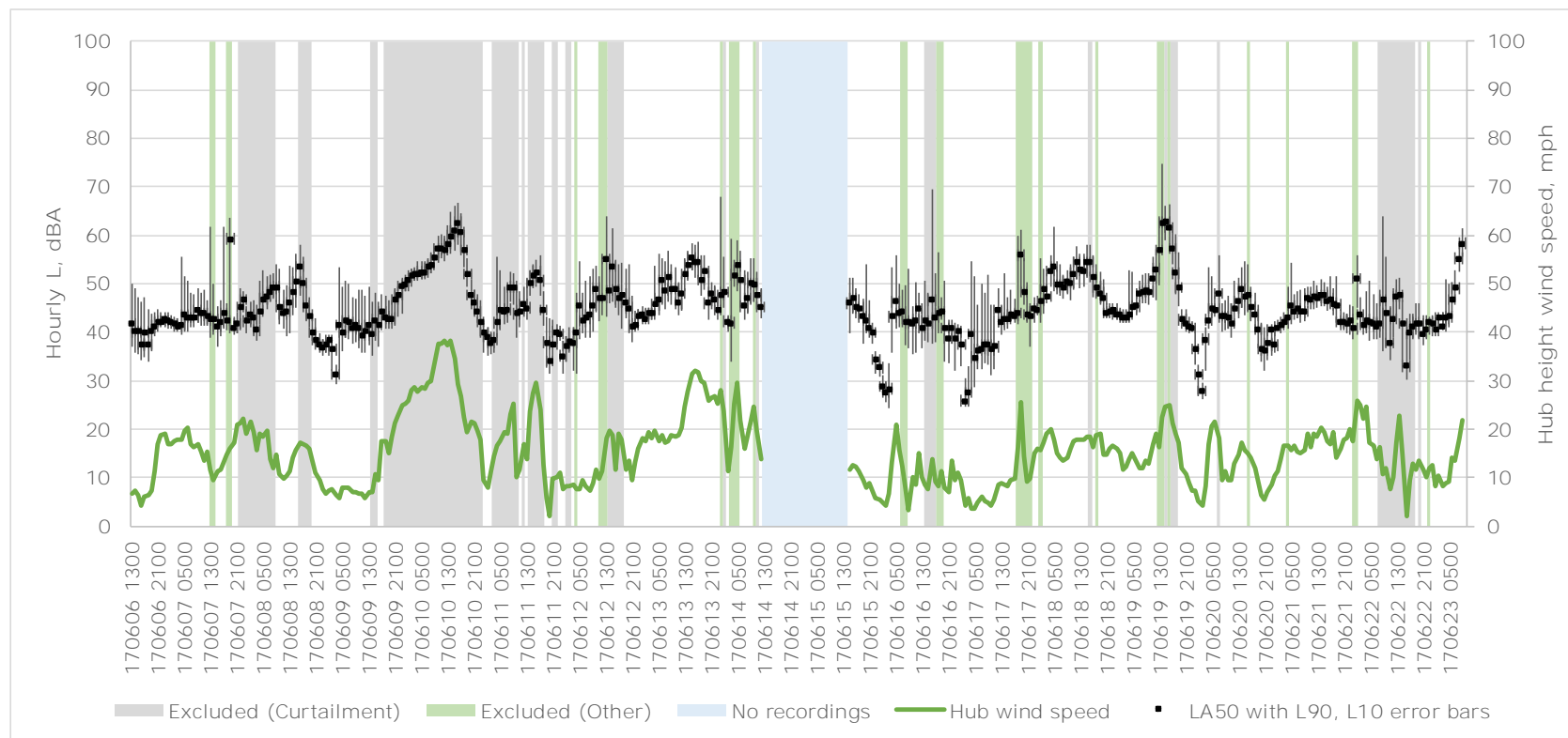
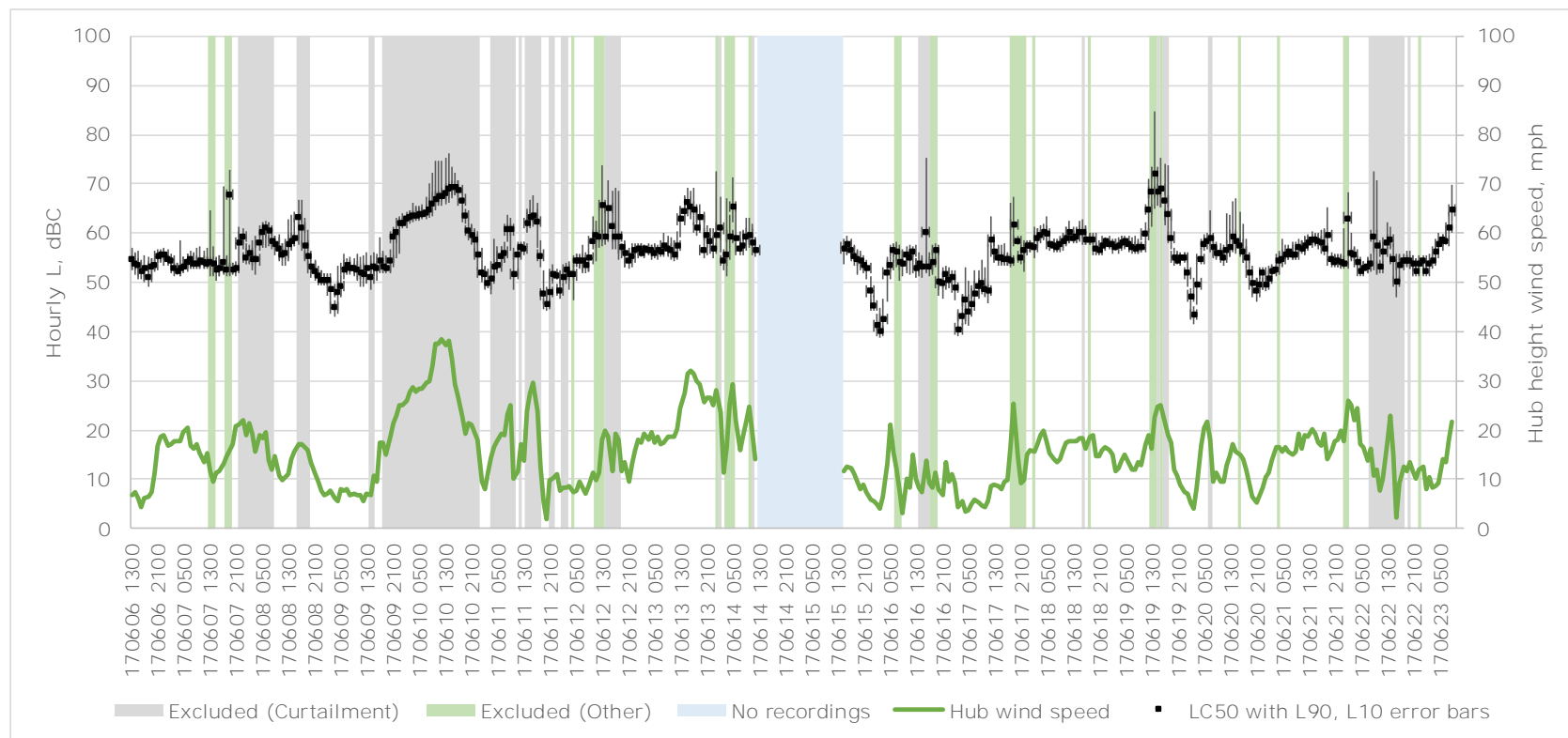


Figure 6 BT-M01 Hourly C-Weighted Centiles with Hub Height Wind Speed



In Figure 7 and Figure 8, A-weighted and C-weighted centiles are plotted with microphone height wind speeds. Microphone height winds can indicate the influence of wind noise on measured levels observed during periods of excluded data when microphone wind speeds were greater than 11 mph. Sound levels are generally correlated with microphone height wind speeds demonstrating the general effect of wind influence on ambient sound, regardless of wind turbine operations.

Figure 7 BT-M01 Hourly A-Weighted Centiles with Microphone Wind Speed

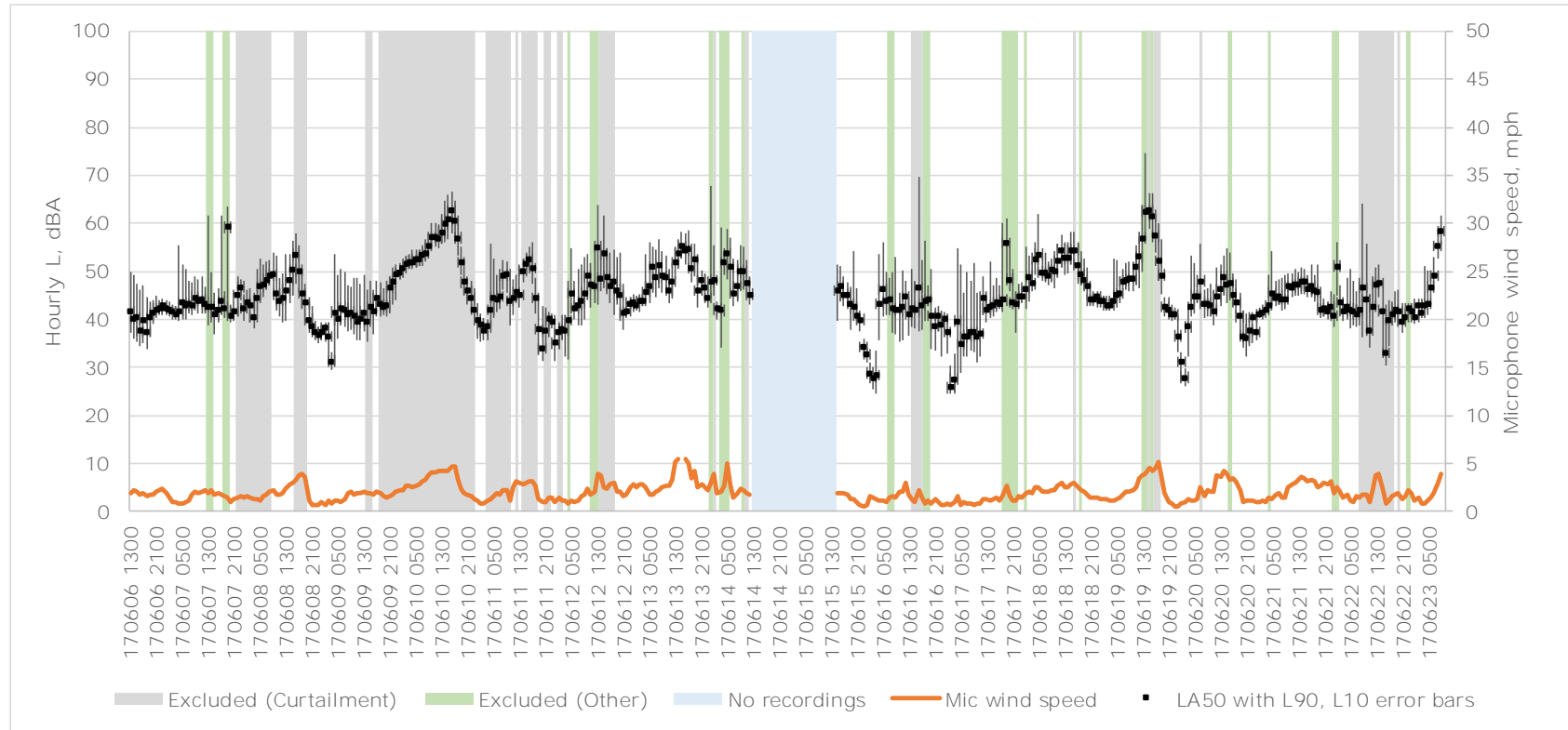


Figure 8 BT-M01 Hourly C-Weighted Centiles with Microphone Wind Speed

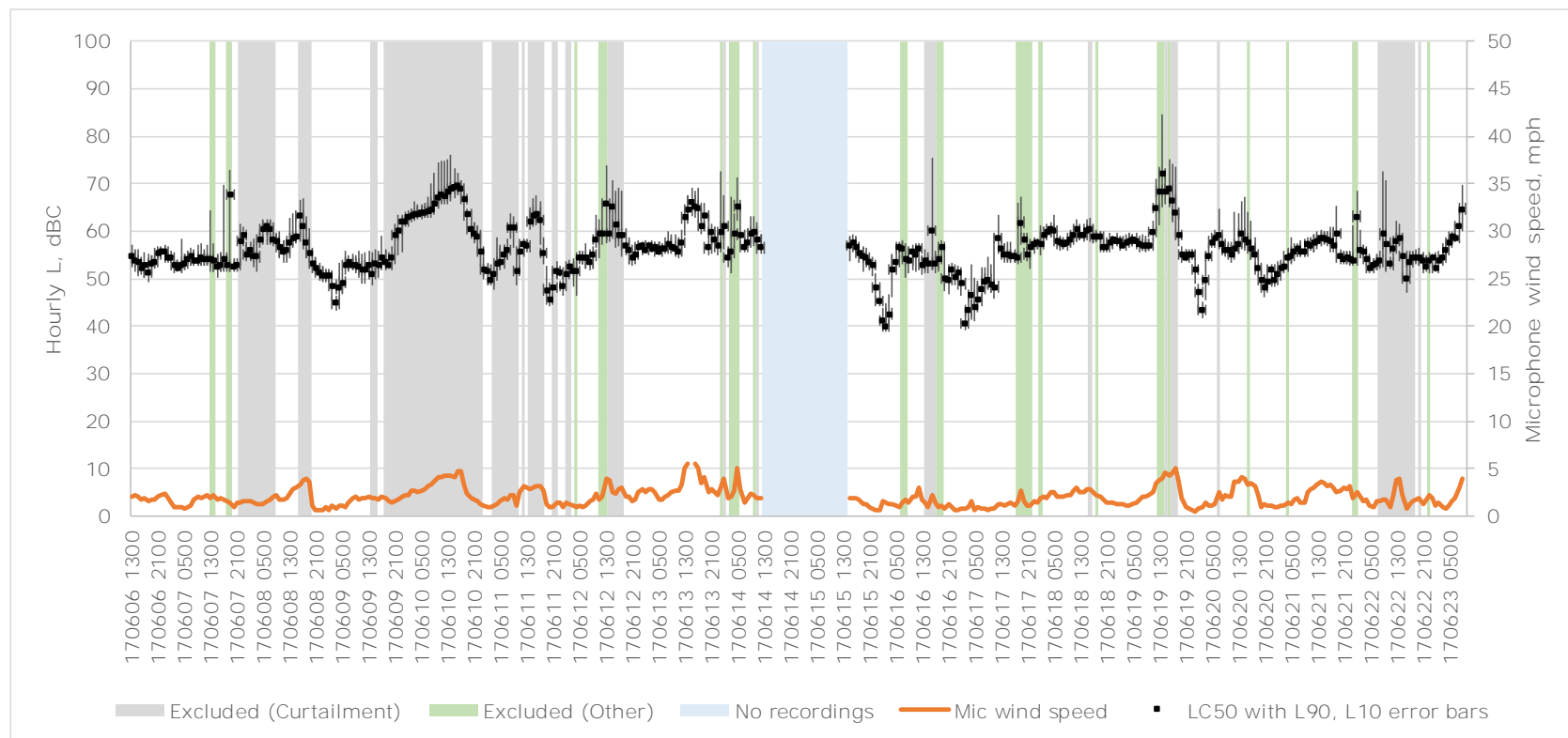




Figure 9 and Figure 10 compare the measurement data against the MPCA L10 and L50 nighttime and daytime limits. Excluded data points are shown as light grey dots, while valid data points are shown as black dots. Seven (7) hours of exceedance of the L<sub>10</sub> and/or L<sub>50</sub> limits were identified at BT-M01; the exceedances are shown as black dots circled in red on the graphs. Further details are provided in Table 4-2 below.

Table 4-2 BT-M01 MPCA Limit Exceedances

BT-M01 Exceedances				
Date	Time (1 hour period starting at)	Statistic Exceeded	L <sub>10</sub> Sound Level	L <sub>50</sub> Sound Level
7 June	4:00 am	LA10 nighttime limit of 55.0	55.5	n/a
13 June	5:00 am	LA10 nighttime limit of 55.0	56.2	n/a
13 June	6:00 am	LA10 nighttime limit of 55.0; LA50 nighttime limit of 50.0	55.2	50.8
14 June	6:00 am	LA10 nighttime limit of 55.0; LA50 nighttime limit of 50.0	56.9	50.8
16 June	5:00 am	LA10 nighttime limit of 55.0	55.9	n/a
18 June	4:00 am	LA10 nighttime limit of 55.0; LA50 nighttime limit of 50.0	55.9	52.6
18 June	5:00 am	LA10 nighttime limit of 55.0; LA50 nighttime limit of 50.0	61.8	53.5

During most of the seven exceedance periods, bird sounds and/or wind induced sound on tree leaves appear to be the primary contributor to the exceedances. Birds are chirping and singing in several of the recordings at the beginning of most exceedance periods between the hours of 4:00 am and 6:00 am. Wind turbine sound appears to be audible in the recordings during some of the exceedance periods. However, the contribution from the wind turbines cannot be determined without further detailed investigations in order to isolate wind turbine sound from total measured sound.

However, exceedance cannot be attributed to the wind turbines without further detailed investigations, in order to isolate wind turbine sound from total measured sound.

Figure 9 BT-M01 Houly L10 Sound Levels vs. MPCA Noise Limits

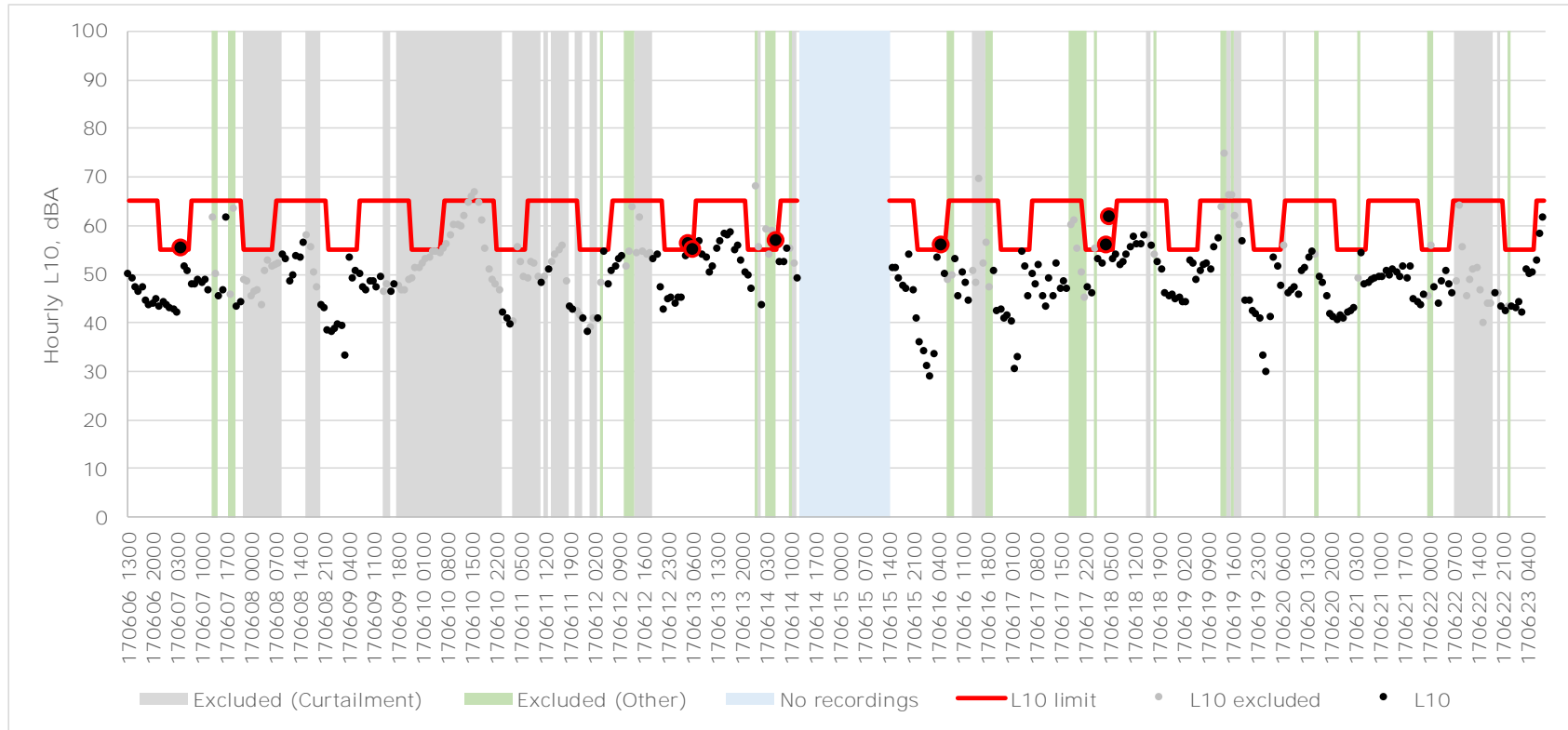
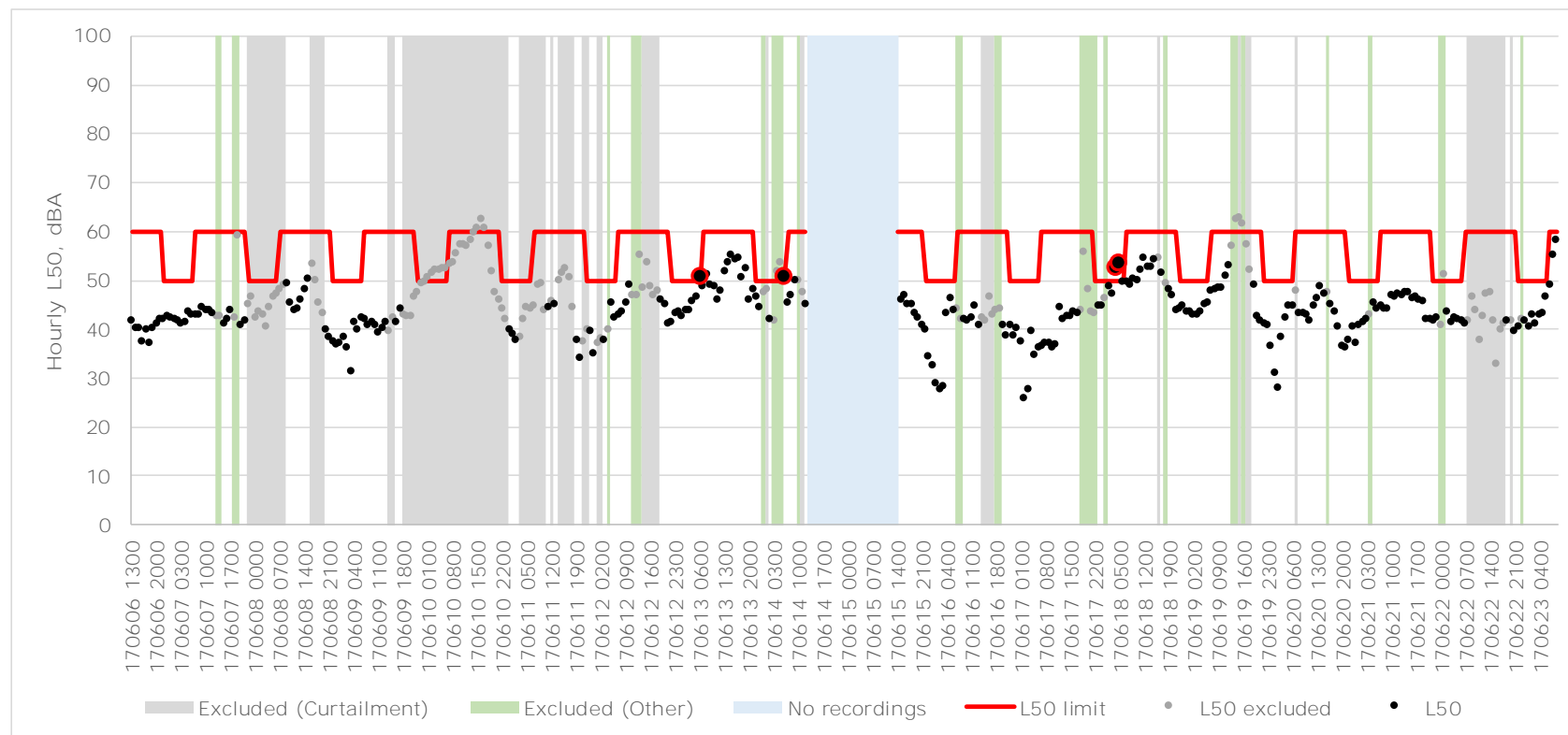


Figure 10 BT-M01 Hourly L50 Sound Levels vs. MPCA Noise Limits



## 4.2 Measurement Point BT-M02 - Hagens

BT-M02 is in the northern portion of the Project area. Excluded data includes periods of precipitation and microphone height wind speeds greater than 11 mph; and 108 hours of excluded data due to turbine curtailment and lawn mowing and other extraneous sound near the measurement station. Records when the wind turbines were not operating due to winds below the cut-in wind speed, were not excluded. There was a short period without recordings from 14 June to 15 June for data collection and battery maintenance on the sound equipment.

Table 4-3 below summarizes the excluded and remaining data, as a percentage and number of hours based on the overall measurement hours.

Table 4-3 BT-M02 Excluded data

BT-M02 Excluded data as a % of total data and number of hours		
	Percentage (%)	Hours
Turbine curtailment	22.4%	85
Precipitation	4.7%	18
Microphone wind speed >11 mph	0.5%	2
Extraneous noise	6.1%	23
Total Hours Remaining	66.2%	251

Hourly A-weighted Leq values during valid hours over the course of the measurement period ranged from 25.0 dBA to 60.3 dBA. It shall be noted that most periods of winds >11 mph occurred during periods of turbine forced utility curtailment and are **therefore accounted for under "Turbine curtailment"**.

The A-weighted and C-weighted Leq values are plotted with precipitation in Figure 11, and with hub height wind speed in Figure 12. The grey- and green-shaded areas represent the excluded data discussed above and in Table 4-3. The majority of excluded time periods are due to turbine curtailment events during the first week of the measurement campaign. There is general correlation between Leq values and hub height wind speeds.

The relevant portion of the graph with regards to potential exceedances as per the LWECS Guidance are outside of the shaded areas.

Figure 11 BT-M02 Hourly Leq with Precipitation

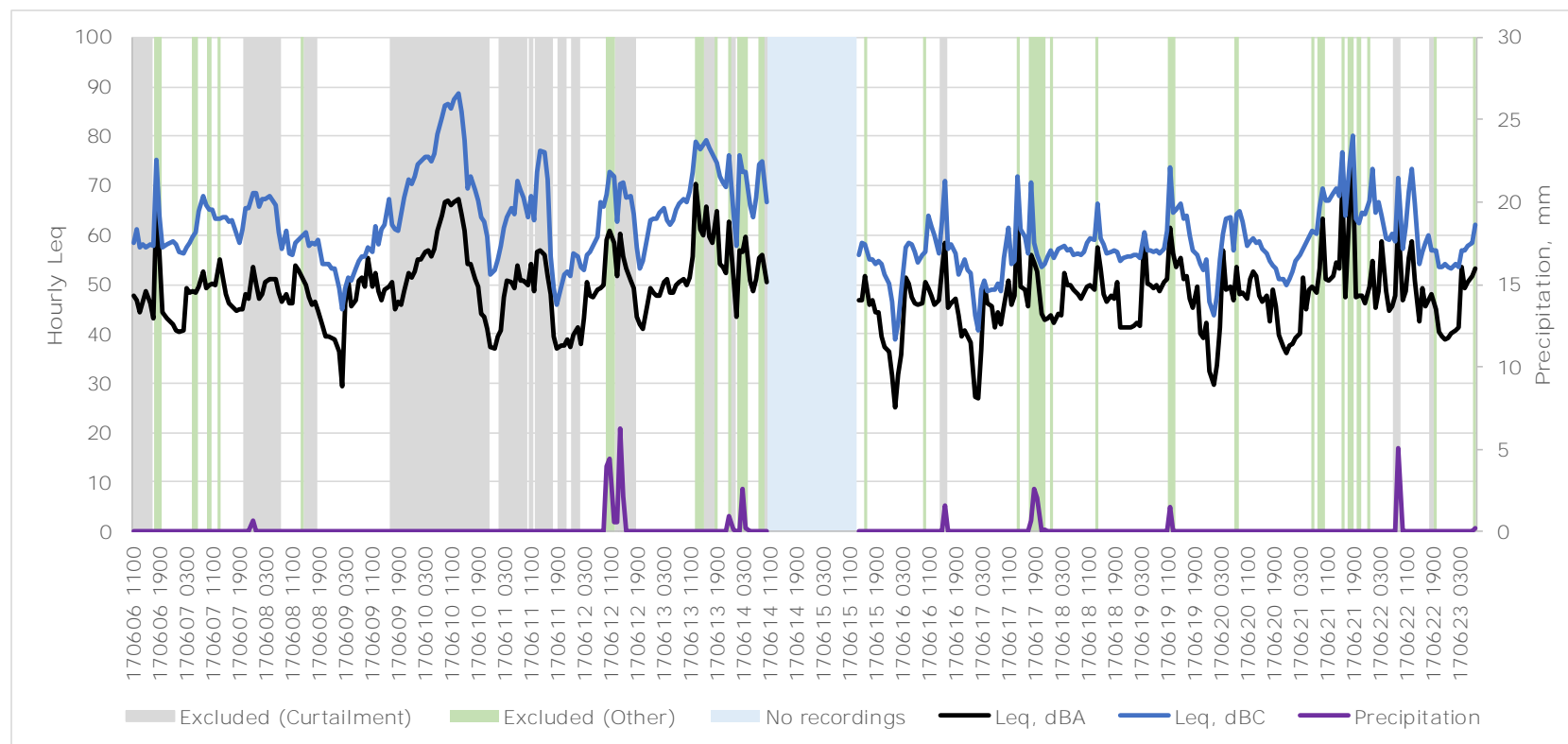
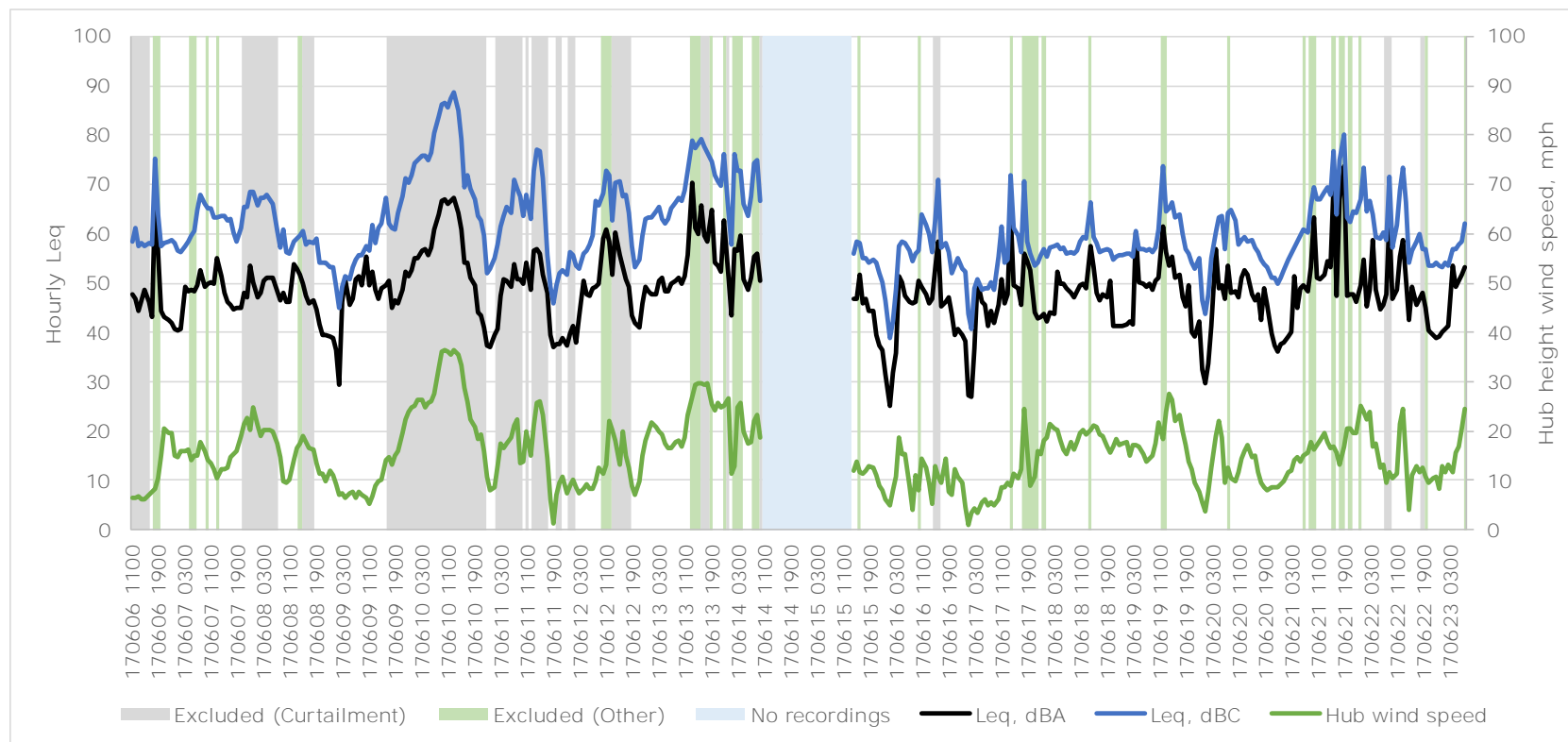


Figure 12 BT-M02 Hourly Leq with Hub Height Wind Speed



In Figure 13 and Figure 14, A-weighted and C-weighted centiles are plotted with hub height wind speeds. The marker on these figures represents the L50, with the top of the line representing the L10 and the bottom of the line representing the L90. A longer line between the L10 and L90 values means that there was **more variability within the hour's sound levels**. During the campaign, general correlation between centile levels and hub winds were observed during most periods of valid data.

Figure 13 BT-M02 Hourly A-Weighted Centiles with Hub Height Wind Speed

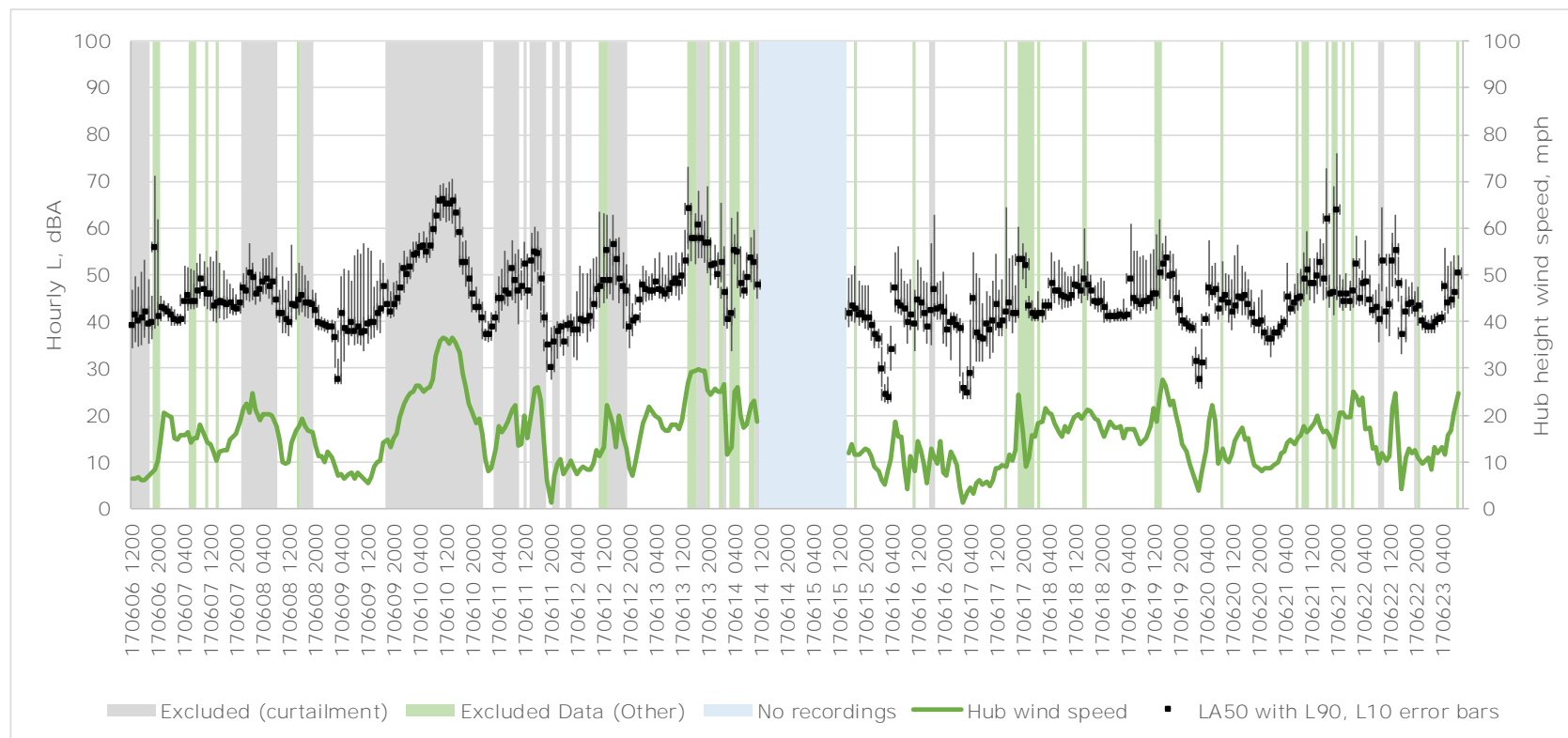
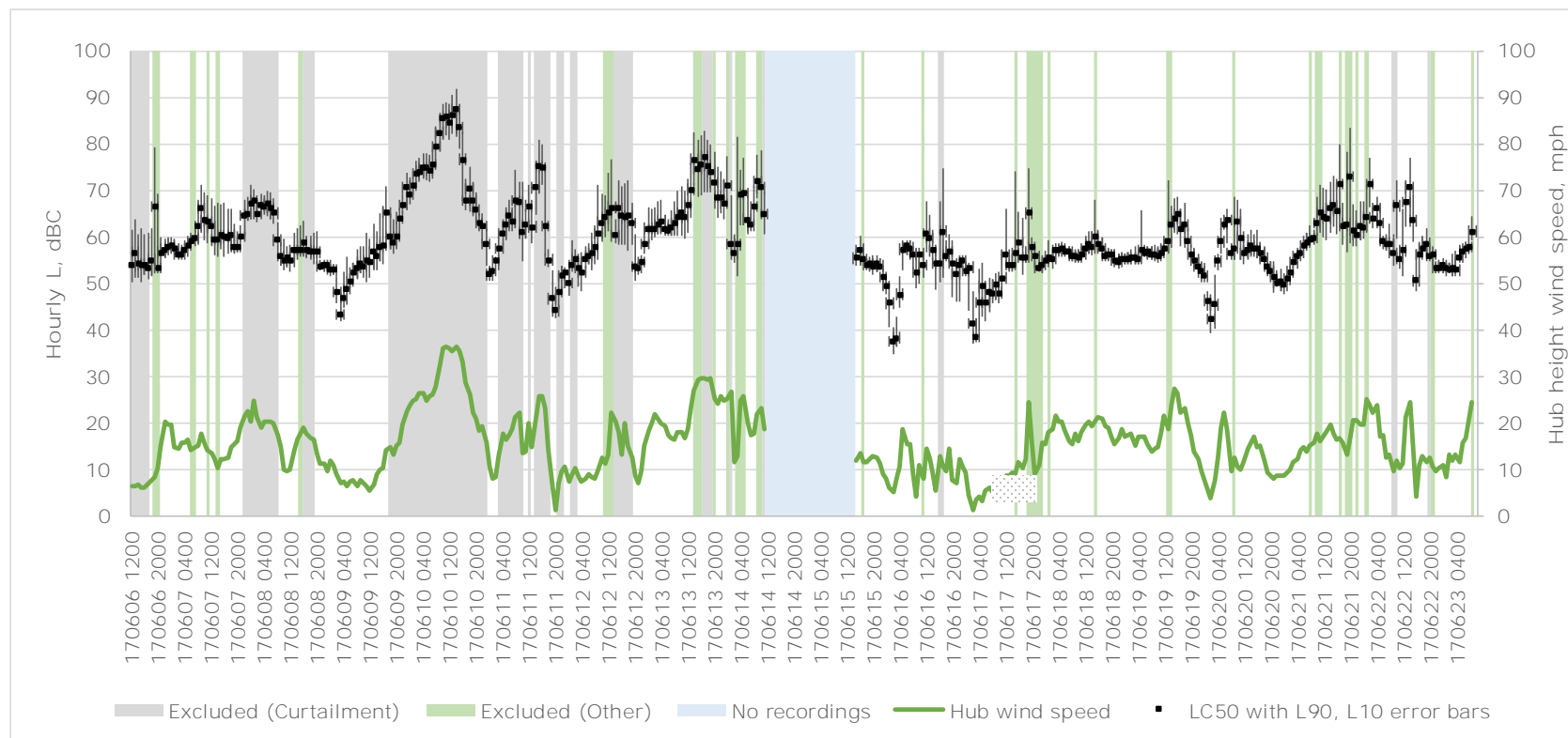




Figure 14 BT-M02 Hourly C-Weighted Centiles with Hub Height Wind Speed



In Figure 15 and Figure 16, A-weighted and C-weighted centiles are plotted with microphone height wind speeds. As mentioned above in Section 4.1, microphone height winds can be an indicator of the influence of wind noise on measured levels.

Figure 15 BT-M02 Hourly A-Weighted Centiles with Microphone Wind Speed

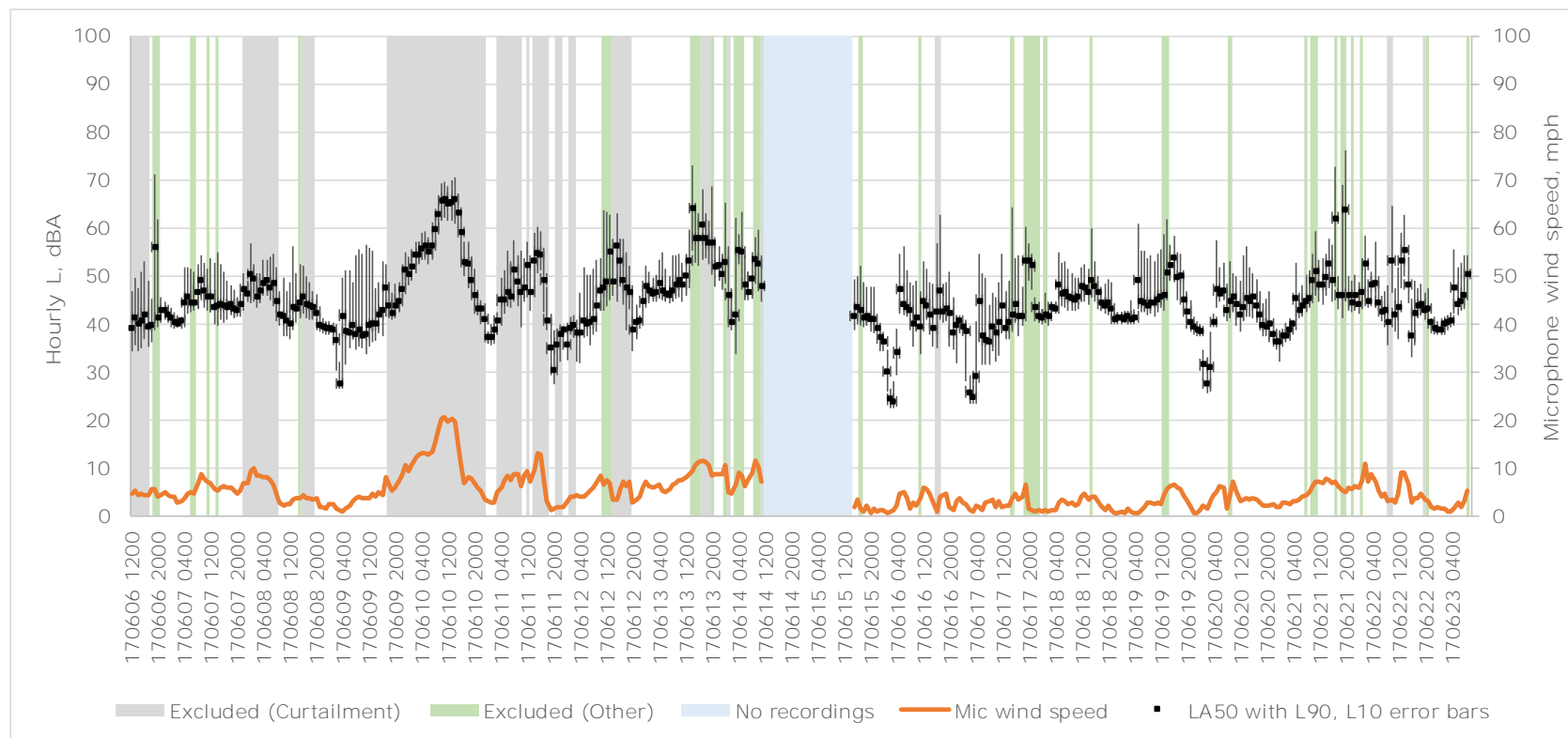


Figure 16 BT-M02 Hourly C-Weighted Centiles with Microphone Wind Speed

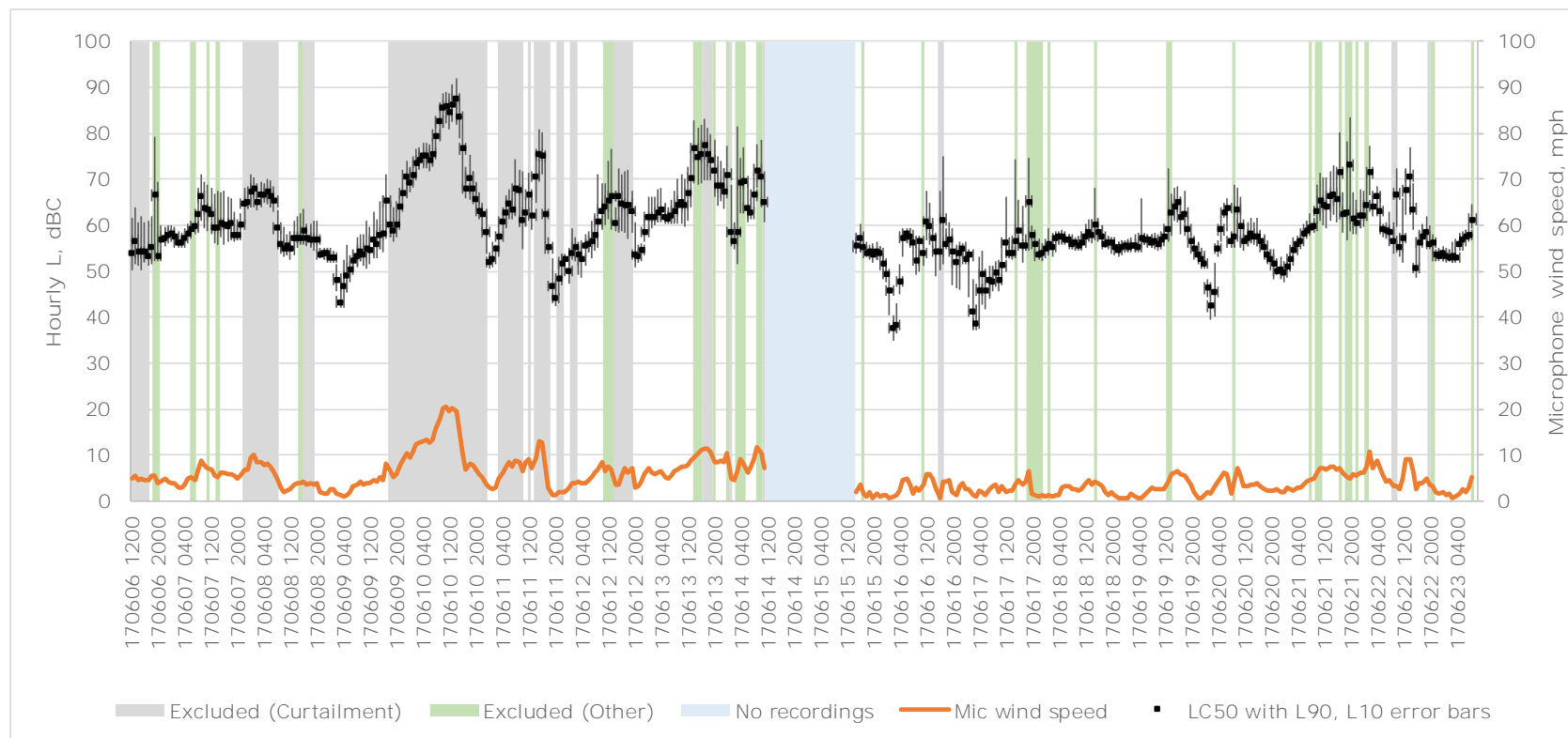


Figure 17 and Figure 18 compare the measurement data against the MPCA L<sub>10</sub> and L<sub>50</sub> nighttime and daytime limits. Excluded data points are shown as light grey dots, while valid data points are shown as black dots. Nine (9) hours of exceedance of the L<sub>10</sub> and/or L<sub>50</sub> limits were identified at BT-M02; the exceedances are shown as black dots circled in red on the graphs. Further details are provided in Table 4-4 below.

Table 4-4 BT-M02 MPCA Limit Exceedances

BT-M02 Exceedances				
Date	Time (1 hour period starting at)	Statistic Exceeded	L <sub>10</sub> Sound Level	L <sub>50</sub> Sound Level
13 June	10:00 pm	LA10 nighttime limit of 55.0; LA50 nighttime limit of 50.0	56.3	52.3
13 June	11:00 pm	LA50 nighttime limit of 50.0	n/a	50.3
16 June	6:00 am	LA10 nighttime limit of 55.0	56.1	n/a
19 June	5:00 am	LA10 nighttime limit of 55.0	61.0	n/a
19 June	6:00 am	LA10 nighttime limit of 55.0	55.3	n/a
20 June	5:00 am	LA10 nighttime limit of 55.0	57.5	n/a
22 June	2:00 am	LA10 nighttime limit of 55.0; LA50 nighttime limit of 50.0	58.4	52.5
22 June	5:00 am	LA10 nighttime limit of 55.0	57.3	n/a
23 June	5:00 am	LA10 nighttime limit of 55.0	55.7	n/a

During most of the nine exceedance periods, bird sounds and/or wind induced sound on tree leaves appear to be the primary contributor to the exceedances. Birds are chirping and singing in several of the recordings at the beginning of most exceedance periods between the hours of 4:00 am and 6:00 am. Wind turbine sound appears to be audible in the recordings during some of the exceedance periods. However, the contribution from the wind turbines cannot be determined without further detailed investigations in order to isolate wind turbine sound from total measured sound.

Figure 17 BT-M02 Hourly L10 Sound Levels vs. MPCA Noise Limits

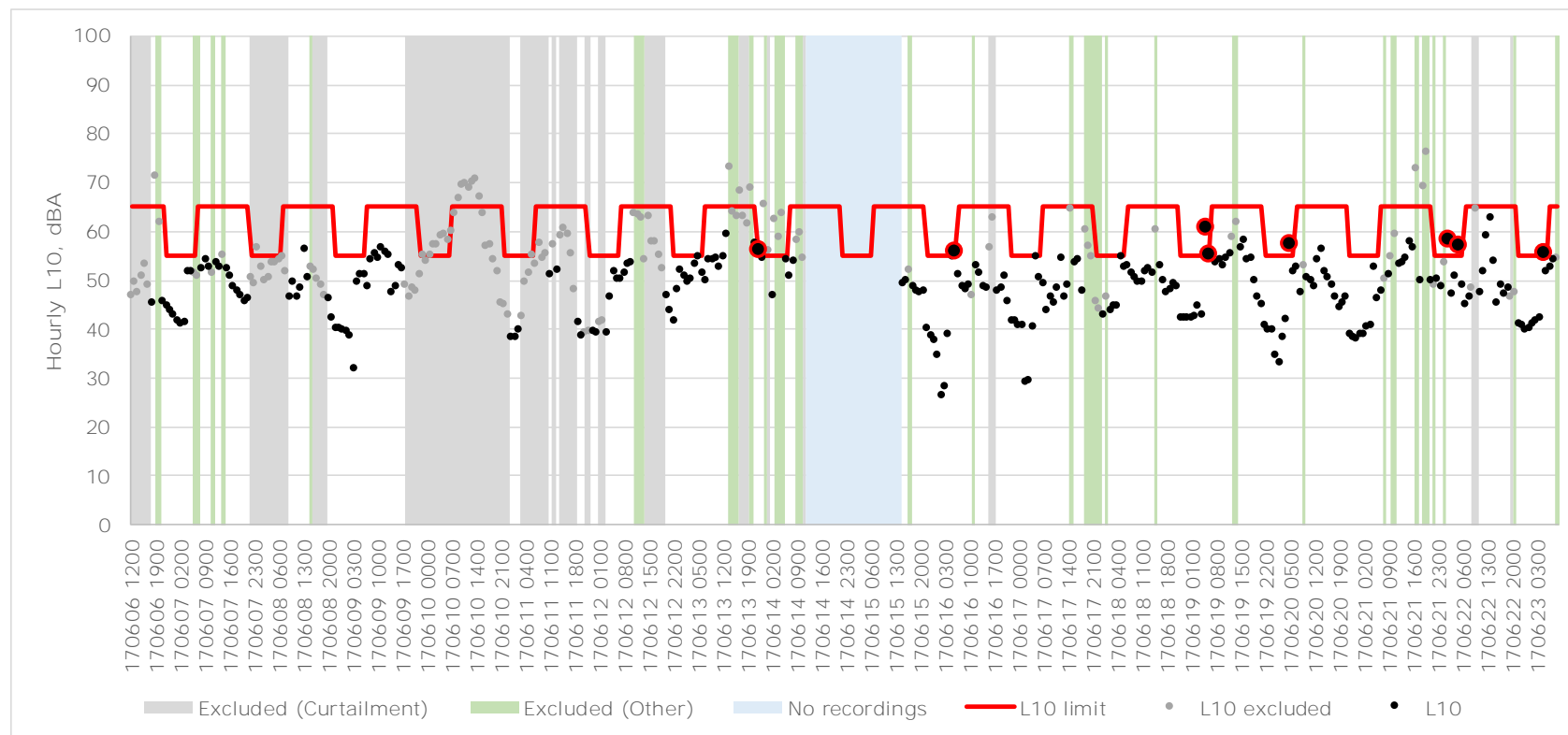
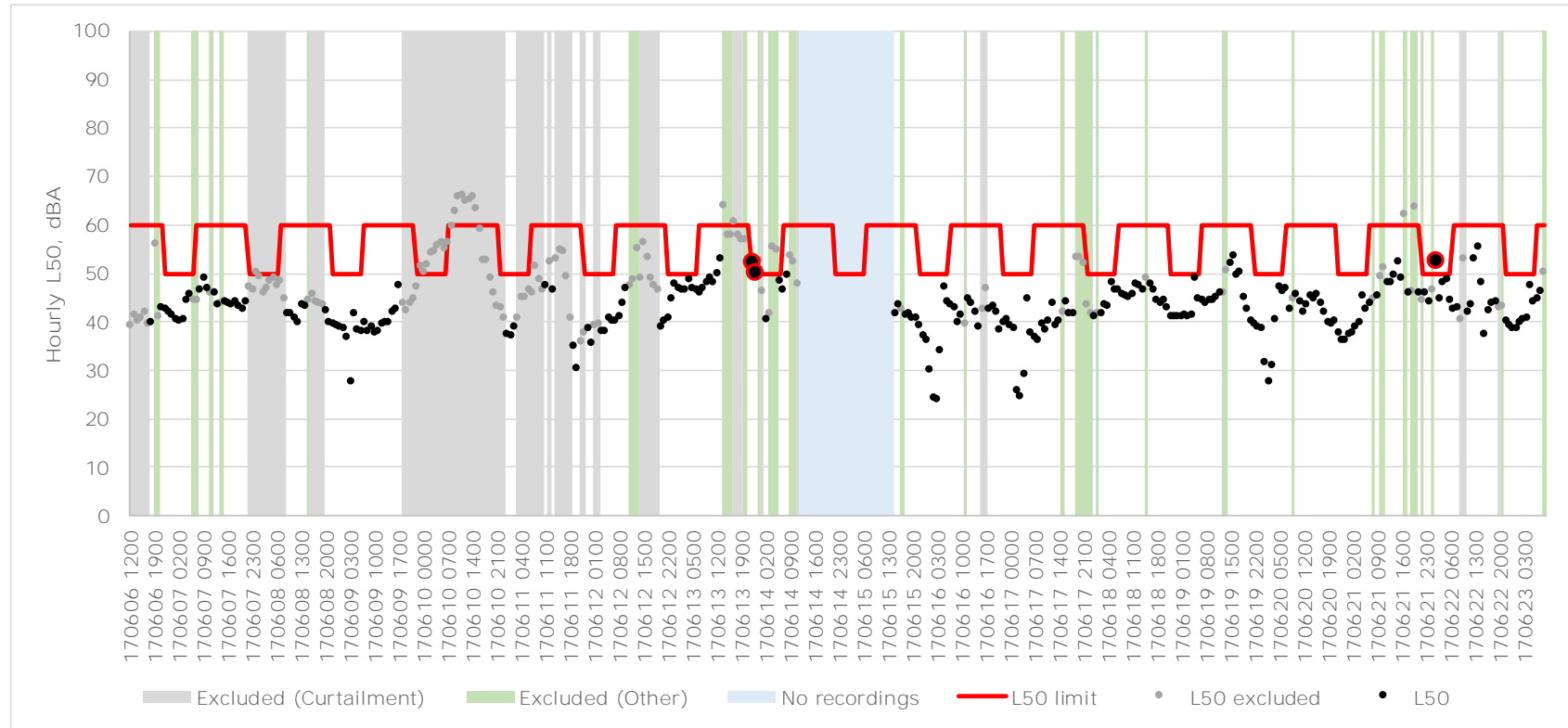


Figure 18 BT-M02 Hourly L50 Sound Levels vs. MPCA Noise Limits



### 4.3 Summary of Exceedances

16 total hours of non-compliance were identified at BT-M01 and BT-M02, as described in Table 4-5 and Table 4-6 below, and accompanying summaries.

Table 4-5 BT-M01 Langrud MPCA Limit Exceedances

Date	Time (1 hour period starting at)	Statistic Exceeded	L <sub>10</sub> Sound Level	L <sub>50</sub> Sound Level
7 June	4:00 am	LA10 nighttime limit of 55.0	55.5	n/a
13 June	5:00 am	LA10 nighttime limit of 55.0	56.2	n/a
13 June	6:00 am	LA10 nighttime limit of 55.0; LA50 nighttime limit of 50.0	55.2	50.8
14 June	6:00 am	LA10 nighttime limit of 55.0; LA50 nighttime limit of 50.0	56.9	50.8
16 June	5:00 am	LA10 nighttime limit of 55.0	55.9	n/a
18 June	4:00 am	LA10 nighttime limit of 55.0; LA50 nighttime limit of 50.0	55.9	52.6
18 June	5:00 am	LA10 nighttime limit of 55.0; LA50 nighttime limit of 50.0	61.8	53.5

Table 4-6 BT-M02 Hagens MPCA Limit Exceedances

Date	Time (1 hour period starting at)	Statistic Exceeded	L <sub>10</sub> Sound Level	L <sub>50</sub> Sound Level
13 June	10:00 pm	LA10 nighttime limit of 55.0; LA50 nighttime limit of 50.0	56.3	52.3
13 June	11:00 pm	LA50 nighttime limit of 50.0	n/a	50.3
16 June	6:00 am	LA10 nighttime limit of 55.0	56.1	n/a
19 June	5:00 am	LA10 nighttime limit of 55.0	61.0	n/a
19 June	6:00 am	LA10 nighttime limit of 55.0	55.3	n/a
20 June	5:00 am	LA10 nighttime limit of 55.0	57.5	n/a
22 June	2:00 am	LA10 nighttime limit of 55.0; LA50 nighttime limit of 50.0	58.4	52.5
22 June	5:00 am	LA10 nighttime limit of 55.0	57.3	n/a
23 June	5:00 am	LA10 nighttime limit of 55.0	55.7	n/a

During most of the 16 exceedance periods, bird sounds and/or wind induced sound on vegetation and tree leaves appear to be the primary contributor to the exceedances. Aside from two (2) 13 June and one (1) 22 June exceedances at BT-M02, all exceedances occurred between the hours of 4 and 7 am. Birds are chirping and singing in several of the recordings at the beginning of most exceedance periods starting between the hours of 4:00 am and 6:00 am.

Wind turbines were producing power during all exceedances, however with varying production ranging from 50 kW to 1,500 kW. Wind turbine sound appears to be audible in the recordings during some of the exceedance periods. However, the contribution from the wind turbines cannot be determined without further detailed investigations in order to isolate wind turbine sound from total measured sound.



## 5 CONCLUSION

DNV GL has completed this post-construction noise assessment in accordance with the Guidance for Large Wind Energy Conversion System Noise Study Protocol and Report (LWECS Guidance) authored by the Minnesota Department of Commerce [1], and the Post-Construction Noise Measurement Study Protocol (DNV GL Protocol) developed by DNV GL [2]. More specifically, the Assessment was requested by EERA due to on-going complaints at two receptors within the Project Area; the Hagen and Langrud receptors.

Post-construction noise levels were hence determined at two locations within the Project area using in-situ sound meters and weather sensors.

Hourly A-weighted Leq values fluctuated at each measurement point as follows:

- 28.1 dBA to 59.6 dBA for BT-M01 (Langrud); and
- 25.0 dBA to 60.3 dBA for BT-M02 (Hagen).

16 total hours of non-compliance with the LWECS Guidance were identified at BT-M01 and BT-M02. During most of the exceedance periods, bird sounds and/or wind induced sound on vegetation and tree leaves appear to be the primary contributor to the exceedances. Wind turbine sound appears to be audible in the recordings during some of the exceedance periods. However, as stipulated in Appendix A of the LWECS Guidance, further detailed investigations would be necessary to assess the contribution of the wind turbines to the total sound levels experienced at the receptors.

As such, it is recommended to perform an additional measurement campaign to properly isolate wind turbine sound from total measured sound. This is achieved by conducting measurements where a subset of wind turbines in proximity of the complaint receptors are turned off and on under various wind and atmospheric conditions.

## 6 REFERENCES

- [1] Minnesota Department of Commerce, Energy Facilities Permitting. Guidance for Large Wind Energy Conversion System Noise Study Protocol and Report. 8 October 2012.
- [2] DNV GL. Bent Tree Wind Farm Post-Construction Noise Measurement Study Protocol. 18 April 2017.
- [3] Minnesota Administrative Rules 7030.0040 Noise Standards. Posted 12 December 2003, <https://www.revisor.leg.state.mn.us/rules/?id=7030.0040>.
- [4] Email from Louise Miltich, EERA to Shant Dokouzian, DNV GL on 29 June 2017.
- [5] Minnesota Pollution Control Agency. A Guide to Noise Control in Minnesota – Acoustic Properties, Measurement, Analysis and Regulation. 2008.
- [6] International Organization for Standardization. ISO 1996-2: Acoustics – Description, measurement, and assessment of environmental noise – Part 2: Determination of environmental noise levels. 2008.
- [7] Turbine curtailment and wind speed records sent by email from L. Miltich, Minnesota Department of Commerce, to S. Dokouzian, DNV GL, 27 June 2017, **"BT Sound Study Curtailment Update.xlsx"**.

## APPENDIX A – NEARBY TURBINES TO MEASUREMENTS POINTS

Turbines within 1.5 miles of each measurement point are listed in the table below.

Turbine ID	Easting	Northing	Corresponding Measurement Point
T212	463605	4843373	Langrud (M01)
T215	463487	4842910	Langrud (M01)
T220	463543	4842412	Langrud (M01)
T233	462250	4842035	Langrud (M01)
T235	462002	4842033	Langrud (M01)
T236	461353	4841760	Langrud (M01)
T239	462266	4841548	Langrud (M01)
T241	464857	4842126	Langrud (M01)
T242	464133	4841911	Langrud (M01)
T323	461124	4842656	Langrud (M01)
T324	461661	4842451	Langrud (M01)
T325	464357	4842609	Langrud (M01)
T362	462655	4842008	Langrud (M01)
T368	464659	4842396	Langrud (M01)
T369	464424	4842187	Langrud (M01)
T380	462503	4841682	Langrud (M01)
T383	461749	4841732	Langrud (M01)
T385	461300	4842304	Langrud (M01)
T427	464076	4842611	Langrud (M01)
T440	464399	4843200	Langrud (M01)
T122	462032	4848134	Hagen (M02)
T123	461789	4848005	Hagen (M02)
T127	463548	4848137	Hagen (M02)
T131	463816	4847430	Hagen (M02)
T132	463324	4847251	Hagen (M02)
T134	464343	4848417	Hagen (M02)
T135	463846	4848264	Hagen (M02)
T141	464733	4847071	Hagen (M02)
T151	461771	4846535	Hagen (M02)
T152	461356	4846831	Hagen (M02)
T161	463727	4845838	Hagen (M02)
T162	463592	4845462	Hagen (M02)
T163	462497	4845748	Hagen (M02)
T166	461883	4845729	Hagen (M02)
T168	464023	4846121	Hagen (M02)
T169	464341	4845718	Hagen (M02)
T170	464102	4845475	Hagen (M02)
T283	462210	4846230	Hagen (M02)
T284	462537	4846228	Hagen (M02)
T285	464575	4845843	Hagen (M02)

T357	462865	4846369	Hagen (M02)
T358	463725	4846605	Hagen (M02)
T359	464791	4846106	Hagen (M02)
T397	463111	4846525	Hagen (M02)
T420	463205	4847812	Hagen (M02)
T422	461531	4846450	Hagen (M02)
T436	461228	4846459	Hagen (M02)
T437	461406	4846058	Hagen (M02)
T456	462723	4845507	Hagen (M02)

UTM NAD83 Zone 15

## APPENDIX B – MEASUREMENT POINT PHOTOS



BT-M01 facing Project



BT-M01 facing residence



BT-M02 facing Project



BT-M02 facing residence

## APPENDIX C – CALIBRATION SHEETS

---

## Certificate of Calibration and Conformance

This document certifies that the instrument referenced below meets published specifications per Procedure PRD-P263; ANSI S1.4-1983 (R 2006) Type 1; S1.4A-1985; S1.43-1997 Type 1; S1.11-2004 Octave Band Class 0; S1.25-1991; IEC 61672-2002 Class 1; 60651-2001 Type 1; 60804-2000 Type 1; 61260-2001 Class 0; 61252-2002.

Manufacturer:	Larson Davis	Temperature:	74.9 °F
Model Number:	831		23.83 °C
Serial Number:	3004	Rel. Humidity:	41.4 %
Customer:	TMS Rental	Pressure:	979 mbars
Description:	Sound Level Meter		979 hPa
Note:	As Found/As Left: In Tolerance		

Upon receipt for testing, this instrument was found to be:

Within the stated tolerance of the manufacturer's specification.

Calibration Date: 5/5/2017

Calibration Due: \_\_\_\_\_

### Calibration Standards Used:

Manufacturer	Model	Serial Number	Cal Due
Stanford Research Systems	DS360	123270	4/25/2018

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at The Modal Shop and/or Larson Davis Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. Calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of The Modal Shop.

Technician: Adam Magee

Signature: \_\_\_\_\_



# THE MODAL SHOP

A PCB GROUP CO.

3149 East Kemper Road  
Cincinnati, OH, 45241  
Phone: (513) 351-9919  
(800) 860-4867  
[www.modalshop.com](http://www.modalshop.com)





# ~Certificate of Calibration~

3149 East Kemper Rd.  
Cincinnati, OH 45241  
Ph : 513-351-9919  
Fax: 513-458-2172  
www.modalshop.com

**Manufacturer:** PCB  
**Model Number:** 377B02  
**Serial Number:** 163147  
**Asset ID:**  
**Description:** Free-Field Microphone

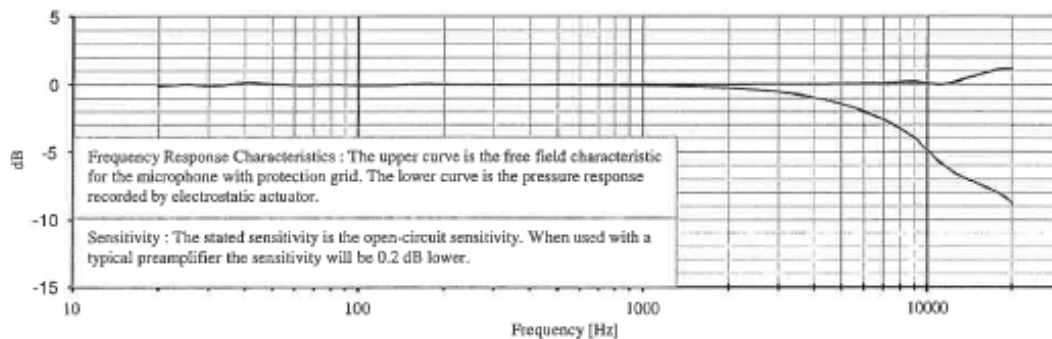
**Customer:** TMS Rental  
**Address:**

**Calibration Date:** Apr 20, 2017 11:58:29  
**Due Date:**

**Sensitivity:** 250 Hz 1 kHz  
-26.24 -26.33 dB re. 1V/Pa  
48.73 48.22 mV/Pa

**Temperature:** 75 (24) °F (°C)  
**Humidity:** 42 %  
**Ambient Pressure:** 994.6 mbar  
**Polarization Voltage:** 0 VDC

**Cal. Results:** In Tolerance



**Traceability:** The calibration is traceable through 683/284413-14.

**Notes:** Calibration results relate only to the items calibrated.

This certificate may not be reproduced, except in full, without written permission.

This calibration is performed in compliance with ISO 9001, ISO 17025 and ANSI Z540.

Measurement uncertainty (250 Hz sensitivity calibration) at 95% confidence level: 0.30 dB.

Calibrated per procedure PRD-P204.

**User Note:** As Found / As Left: In Tolerance.

## Frequency Response with reference to level at 250 Hz

Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)
20	-0.15	630	-0.01	4500	0.06		
25	-0.01	800	0.02	5000	0.07		
31.5	-0.13	1000	0.03	5600	0.09		
40	0.15	1120	0.03	6300	0.10		
50	0.05	1250	0.03	7100	0.13		
63	-0.08	1400	0.03	8000	0.18		
80	-0.03	1600	0.02	9000	0.21		
100	-0.08	1800	0.02	10000	0.09		
125	-0.08	2000	0.03	11200	0.02		
160	0.03	2240	0.03	12500	0.18		
200	0.02	2500	0.04	14000	0.48		
250	0.00	2800	0.05	16000	0.85		
315	-0.02	3150	0.05	18000	1.15		
400	-0.02	3550	0.05	20000	1.17		
500	0.01	4000	0.04				

**Technician:** Ed Devlin

**Approval:** *Charles A. & Co.*

## Reference Equipment Used:

Manuf.	Model	Serial	Cal. Date	Due Date
GRAS	40AG	9542	9/20/2016	9/20/2017



CALIBRATION CERT 2649.01





## ~Calibration Certificate~

3149 East Kemper Rd.  
Cincinnati, OH 45241  
Ph : 513-351-9919  
Fax: 513-458-2172  
www.modalshop.com

Manufacturer:	Larson Davis	Asset ID:	
Model:	CAL200	Calibration Date:	Apr 20, 2017 12:43:17
Serial Number:	11085	Due Date:	
Description:	Acoustic Calibrator	Technician:	Ed Devlin
Customer:	TMS Rental	Approval:	<i>Ed Devlin</i>

### Calibration Results:

Measured SPL : 93.91 dB re. 20 $\mu$ Pa	Temperature:	24 °C (75 °F)
Measured Frequency : 1,000.00 Hz	Humidity:	42.00%
	Pressure:	993.9 mbar

Upon receipt for calibration, the instrument was found to be:  
**WITHIN** the stated tolerance of the manufacturer's specification.

Note: **As Found / As Left: In Tolerance.**

Measurement uncertainty at 95% confidence level: 0.25 dB

The subject instrument was calibrated to the indicated specification using standards stated below or to accepted values of natural physical constants. This document certifies that the instrument met the following specification

This calibration is traceable through : 683/284413-14

### Notes:

The calibration was performed under operating procedures intended to implement the requirements of ISO 9001, ISO 17025 and ANSI Z540. Unless otherwise noted, the reported value is both "as found" and "as left" data. Calibration results relate only to the items calibrated. This certificate may not be reproduced, except in full, without written permission.

### Reference Equipment Used:

Manuf.	Model	Serial	Cal. Date	Due Date
GRAS	40AG	9542	9/20/2016	9/20/2017



## ~Calibration Certificate~

3149 East Kemper Rd.  
Cincinnati, OH 45241  
Ph : 513-351-9919  
Fax: 513-458-2172  
www.modalshop.com

Manufacturer:	Larson Davis	Asset ID:	
Model:	CAL200	Calibration Date:	Apr 20, 2017 12:50:20
Serial Number:	11085	Due Date:	
Description:	Acoustic Calibrator	Technician:	Ed Devlin
Customer:	TMS Rental	Approval:	<i>Ed Devlin</i>

### Calibration Results:

Temperature:	24 °C (75 °F)
Measured SPL : 113.90 dB re. 20μPa	Humidity: 42.00%
Measured Frequency : 1,000.00 Hz	Pressure: 993.9 mbar

Upon receipt for calibration, the instrument was found to be:

**WITHIN** the stated tolerance of the manufacturer's specification.

Note: **As Found / As Left: In Tolerance.**

Measurement uncertainty at 95% confidence level: 0.25 dB

The subject instrument was calibrated to the indicated specification using standards stated below or to accepted values of natural physical constants. This document certifies that the instrument met the following specification

This calibration is traceable through : 683/284413-14

### Notes:

The calibration was performed under operating procedures intended to implement the requirements of ISO 9001, ISO 17025 and ANSI Z540. Unless otherwise noted, the reported value is both "as found" and "as left" data. Calibration results relate only to the items calibrated. This certificate may not be reproduced, except in full, without written permission.

### Reference Equipment Used:

Manuf.	Model	Serial	Cal. Date	Due Date
GRAS	40AG	9542	9/20/2016	9/20/2017

## Certificate of Calibration and Conformance

This document certifies that the instrument referenced below meets published specifications per Procedure PRD-P263; ANSI S1.4-1983 (R 2006) Type 1; S1.4A-1985; S1.43-1997 Type 1; S1.11-2004 Octave Band Class 0; S1.25-1991; IEC 61672-2002 Class 1; 60651-2001 Type 1; 60804-2000 Type 1; 61260-2001 Class 0; 61252-2002.

Manufacturer:	Larson Davis	Temperature:	75.5 °F
Model Number:	831		24.20 °C
Serial Number:	3308	Rel. Humidity:	37.9 %
Customer:	TMS Rental	Pressure:	986.9 mbars
Description:	Sound Level Meter		986.9 hPa
Note:	As Found / As Left: In Tolerance		

Upon receipt for testing, this instrument was found to be:

Within the stated tolerance of the manufacturer's specification.

Calibration Date: 4/5/2017 Calibration Due: \_\_\_\_\_

### Calibration Standards Used:

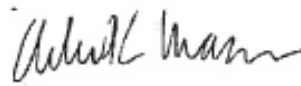
Manufacturer	Model	Serial Number	Cal Due
Stanford Research Systems	DS360	123270	4/19/2017
Larson Davis	2239	109	4/22/2017

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at The Modal Shop and/or Larson Davis Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. Calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of The Modal Shop.

Technician: Adam Magee

Signature: \_\_\_\_\_




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Ph : 513-351-9919  
Fax: 513-458-2172  
www.modalshop.com

**Manufacturer:** PCB  
**Model Number:** 377B02  
**Serial Number:** 152980  
**Asset ID:**  
**Description:** Free-Field Microphone

**Customer:** TMS Rental  
**Address:**

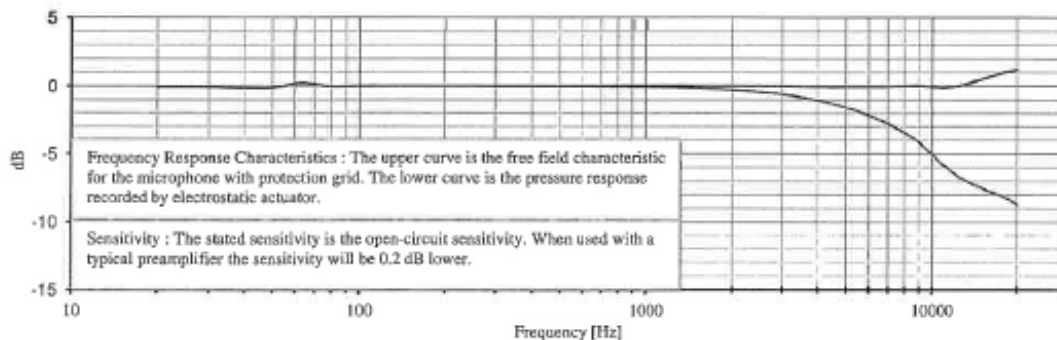
**Calibration Date:** Apr 20, 2017 11:54:25  
**Due Date:**

**Sensitivity:**     **250 Hz**     **1 kHz**  
                    -26.76    -26.85   dB re. 1V/Pa  
                    45.92    45.44   mV/Pa

**Temperature:**     75 (24)   °F (°C)  
**Humidity:**        42        %  
**Ambient Pressure:** 994.6   mbar

**Cal. Results:**     In Tolerance

**Polarization Voltage:**   0   VDC



**Traceability:**    The calibration is traceable through 683/284413-14.

**Notes:**           Calibration results relate only to the items calibrated.

This certificate may not be reproduced, except in full, without written permission.

This calibration is performed in compliance with ISO 9001, ISO 17025 and ANSI Z540.

Measurement uncertainty (250 Hz sensitivity calibration) at 95% confidence level: 0.30 dB.

Calibrated per procedure PRD-P204.

**User Note:**       As Found / As Left: In Tolerance.

### Frequency Response with reference to level at 250 Hz

Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)
20	-0.08	630	0.00	4500	-0.08		
25	-0.09	800	0.02	5000	-0.08		
31.5	-0.11	1000	0.03	5600	-0.07		
40	-0.18	1120	0.03	6300	-0.07		
50	-0.15	1250	0.03	7100	-0.06		
63	0.21	1400	0.03	8000	-0.01		
80	-0.03	1600	0.01	9000	0.03		
100	0.01	1800	0.00	10000	-0.09		
125	0.02	2000	0.01	11200	-0.14		
160	0.01	2240	0.00	12500	0.02		
200	0.01	2500	0.00	14000	0.29		
250	0.00	2800	-0.01	16000	0.66		
315	0.01	3150	-0.02	18000	1.00		
400	0.00	3550	-0.05	20000	1.18		
500	0.01	4000	-0.07				

**Technician:** Ed Devlin

**Approval:**

### Reference Equipment Used:

Manuf.	Model	Serial	Cal. Date	Due Date
GRAS	40AG	9542	9/20/2016	9/20/2017



Calibration Lab  
CALIBRATION CERT 2649.01

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BENT TREE WIND FARM

# Post-Construction Noise Measurement Study Protocol

Wisconsin Power and Light Co

Document No.: 10046144-HOU-R-01-A

Date: 18 April 2017

Revision: A





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Task and objective: Prepare a protocol for post-construction noise measurements

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## 1 INTRODUCTION

### 1.1 Background

The Department of Commerce, Energy, Environment Review and Analysis (EERA, formerly Energy Facilities Permitting) of the state of Minnesota has requested, on behalf of Wisconsin Power and Light Co (“WPL” or the “Customer”), that Garrad Hassan America, Inc. (“DNV GL”) provide Acoustic audit services, in the form of a post-construction noise measurement audit for the Bent Tree Wind Farm (“Bent Tree” or “Project”). The Project is located near the town of Hartland, in Freeborn County, Minnesota, approximately 90 miles south of Minneapolis. The Project consists of 122 Vestas V82-1.65 MW wind turbine generators, which began operation in 2011.

The purpose of the proposed noise measurement protocol **is to satisfy the requirements of the Project’s permit while following the “Guidance for Large Wind Energy Conversion System (LWECS) Noise Study Protocol and Report” (“Guidance”)** [1] issued by the EERA, in collaboration with the Minnesota Pollution Control Agency (MPCA) 7030.0040 Noise standards [2]. More specifically, the audit will be conducted, at the request of EERA, due to on-going complaints at two receptors within the Project Area; the Hagen and Langrud receptors.

The present document outlines the noise measurement protocol that has been developed prior to undertaking the post-construction noise measurements. The measurement campaign will enable the EERA to validate if compliance is met at the complainants, as evaluated according to the Guidance.

### 1.2 Compliance with the Guidance Requirements

Table 1-1 below helps demonstrate the compliance of the protocol proposed herein by providing the key to Sections of this report relevant to the requirements of the Guidance.

Table 1-1 Compliance Matrix.

Guidance Requirements	Relevant Section in this Report	Comments on the Protocol described in this Report
Monitoring Conditions		
1. Monitoring Within the Project, Same Locations, Turbines On, Turbines Off.	Sections 2.2.1 & 2.3.1	Compliant with Guidance 1.b as it is a post-construction audit
2. Monitoring Off-Site, Same Timeframe.	Section 2.2.1	As agreed with the EERA
3. Results from Monitoring Without Turbines Present or Operating.	N/A	Compliant with Guidance 1.b as it is a post-construction audit
4. Data Sets.	Sections 2.3.1 & 2.4	Compliant
5. Seasonal Timing.	Section 2.3.2	Compliant
6. All Turbines Operating.	Section 2.2.1	Compliant
Monitoring Locations 7, 8, 9, 10, 11, 12 & 13	Section 2.2	Compliant, with consideration that the locations are for two complaints (e.g. at two receptors) and will not include an off-site location
Monitoring Duration 14.	Section 2.3.1	Compliant
Monitoring Wind Speeds 15, 16 & 17	Sections 2.1 & 2.3.1	Compliant
Instruments 18.	Section 2.1	Compliant
Methodology 19, 20, 21 & 22	Section 2.3.1 & 2.4	Compliant
Processing the Data 23, 24 & 25	Sections 2.4 & 2.4.1	Compliant
Results and Charts		
26. Results at Varying Wind Speeds	Section 2.4	Compliant

Guidance Requirements	Relevant Section in this Report	Comments on the Protocol described in this Report
27. Results at Varying Frequencies.	Section 2.4	Compliant
28. Document Varying Wind Directions and Other Meteorological Conditions	Section 2.4	Compliant; will be obtained from turbine anemometry and weather sensors at measurement locations
29. Comparison to Minnesota Noise Standards.	Section 2.4.4	Compliant
30. Map Location of Monitoring Points.	Section 2.4 & Figure 2-1	Compliant
31. Results of Noise Modeling.	Sections 2.4.2 & 2.4.3	Compliant
Conclusions 32.	Section 2.4	Compliant
Noise Study Protocol 33 & 34	Sections 2.4 & 3	Compliant
Noise Study Report 35 & 36	Sections 2.4 & 3	Compliant
E-Filing 37	Section 3	Compliant

## 2 METHODOLOGY

All instrumentation, measurement settings, data collection, processing and reporting procedures will be **compliant with the Guidance as well as with the MPCA's Measurement Procedure for Non-impulsive noise**, designated as method NTP-1 [3]. The methodology will additionally consider the following ISO standards related to acoustic sound measurements: 1996-1, 1996-2 and 1996-3 [4]. The following subsections provide details and description.

### 2.1 Instrumentation

The acoustic and meteorological measurements data gathered in the context of this study will be obtained using the following instruments (see Appendix A for photographs):

- Larson Davis sound meter model 831 Class I;
- FreeField ½ inch microphone model 377B02;
- Preamplifier model PRM831; and
- Complete kit for outside noise measurement (including a wind and rain screen, protective Pelican case, long range batteries, etc.).

The sound meters used by DNV GL meet the IEC 61672 Class 1 specifications. The accuracy of the sound meter calibration will be verified on site before and after each measurement with a Larson Davis CAL200 Class I calibrator: the differential calibration will not be greater than 0.5 dBA. All instruments will have a valid calibration. In addition to recording sound levels, the Larson Davis sound meter will also record sounds at the beginning of each monitoring hour and when certain levels are attained. In addition to observations from the DNV GL field engineer, this facilitates the screening of particular events and determining if the corresponding high sound level is representative of the ambient noise or if it is an exceptional event which should be rejected from the final dataset.

The following meteorological parameters will be recorded, at the measurement locations and heights:

- Wind speed and direction;
- Precipitation and relative humidity;
- Temperature.

In addition, operational data, including wind turbine anemometry data, will be considered during the post-construction campaign.

Based on the above descriptions, the instrumentation will comply with the requirements of the Guidance and NTP-1 [3].

## 2.2 Selection of Measurement Locations

It is expected that existing ambient noise levels (e.g. without the contribution of the Project) will be characterized mainly by domestic and rural activities, natural sounds and transportation noise on secondary roads. The following subsections describe the approach suggested to comply with the requirements of the Guidance.

### 2.2.1 On-site monitoring

On-site monitoring will be conducted at the two receptors, identified as BT-M01 and BT-M02, while the Project is in full operation. Table 2-1 summarizes the selected monitoring locations.

Figure 2-1 presents a general overview map of the measurement locations in relation to the Project. Figure 2-2 provide preliminary locations for the equipment on the properties. Final locations on the properties will be confirmed during equipment set-up in order to ensure compliance with the Guidance and measurement best practices.

As discussed with EERA, off-site monitoring will not be conducted as it does not provide additional benefit in evaluating compliance at the complainants receptors.

Table 2-1 Measurement Point Summary

Measurement point ID	Receptor address	Distance to nearest turbine	Notes
BT-M01 (Langrud)	25887 – 705 <sup>th</sup> Avenue, Alden, MN 56009	350 m (1150 feet) from Turbine 362	Closest wind turbines are NE and SE
BT-M02 (Hagen)	70286 – 290 <sup>th</sup> Street, Hartland, MN 56042	465 m (1525 feet) from Turbine 132	Closest wind turbine is West

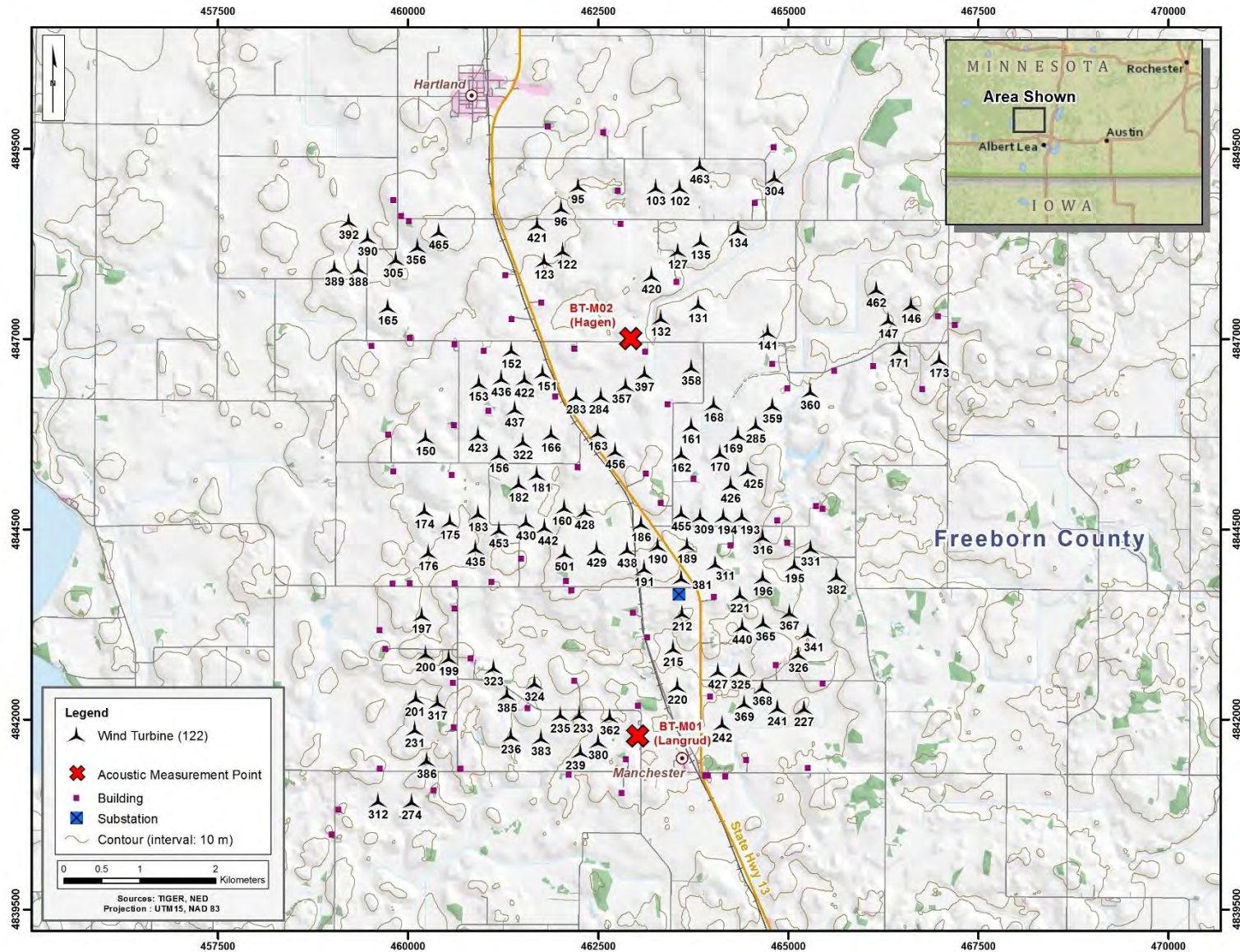


Figure 2-1 Map of Project and Monitoring Locations



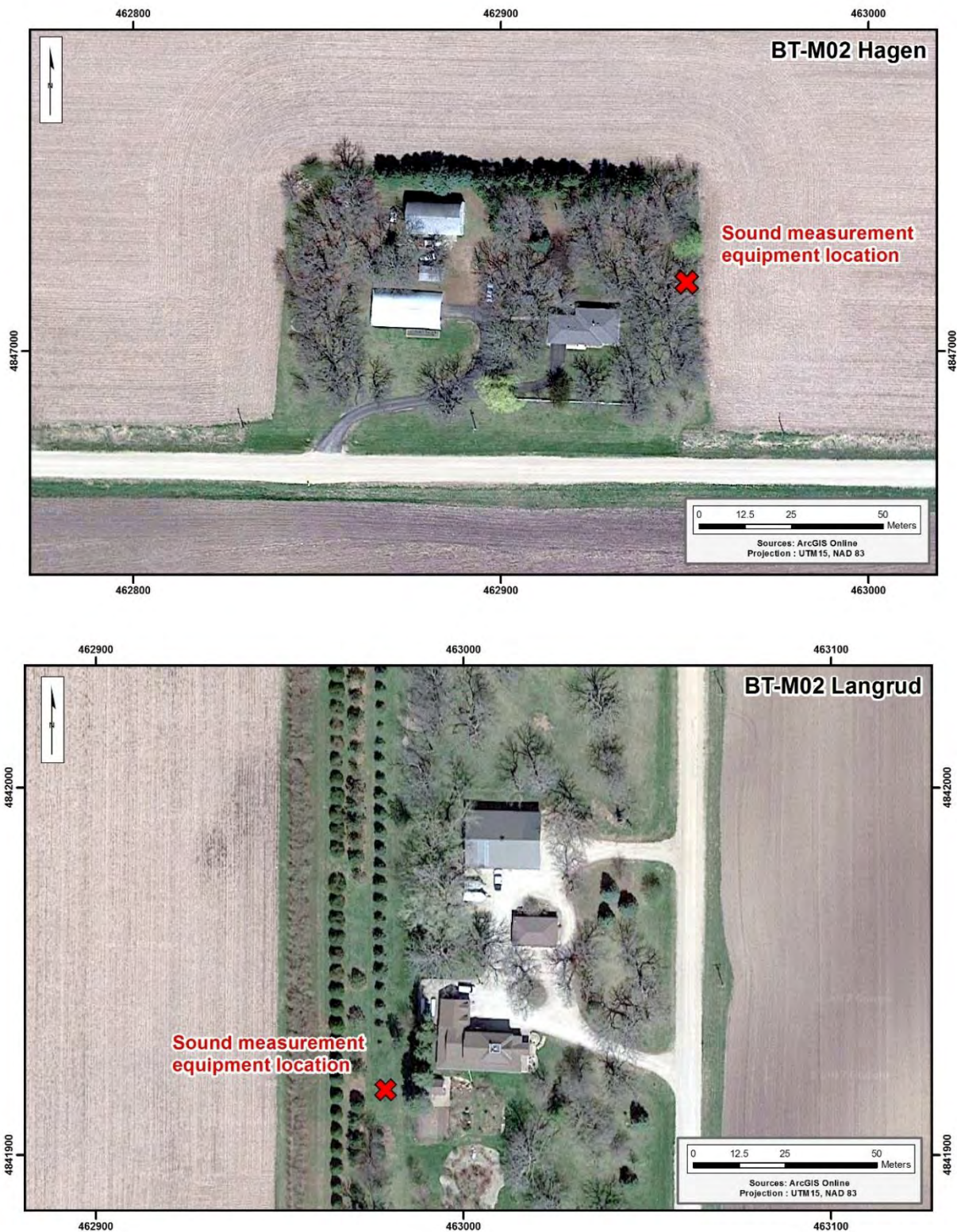


Figure 2-2 Equipment Locations



## 2.3 Data Collection

### 2.3.1 Measurements

Un-attended measurements will last for at least 7 days, in order to collect data in various wind conditions, during day and night. This timeframe may be extended if it is deemed that too much data will be filtered out due to extended periods of high wind or precipitation.

Microphones will be installed approximately 1.5 m (5 feet) above ground, and site calibration will be performed before and after each monitoring period. The microphones will also be placed at least 6 m (20 feet) from large reflecting surfaces.

Measurements will be made continuously using a FAST response setting and will be averaged and stored every 10 seconds, along with the relevant statistics for that period. Sound events louder than 60 dBA will be recorded for analysis and possible filtering. The remaining data will be averaged on an hourly basis during post processing.

The measurements will include un-weighted sound (in dB); A-weighted as  $L_{10}$ ,  $L_{50}$ ,  $L_{90}$  and  $Leq$  (dBA); and C-weighted  $L_{10}$ ,  $L_{50}$ ,  $L_{90}$  and  $Leq$  (dBC). Third octave band measurements ranging from 16 Hz to 8000 Hz will also be recorded.

Environmental sound measurements are greatly influenced by wind-induced sound. To avoid this unwanted effect, DNV GL uses a foam wind screen, as per industry standards. This enables the measurement of sound (without wind-induced sound effects on the microphone) in winds up to 11 miles/hour (i.e. 5 m/s) at the measurement level. Measurements taken during winds higher than 11 miles per hour and other adverse conditions such as rain will not be used in the measurement campaign as per Monitoring Condition 4 of the Guidance. For each location both raw and filtered data will be provided along with the percentage of data removed.

In addition to wind speed and direction, temperature, precipitation and relative humidity monitoring at the microphone level, hub height hourly anemometry and operational data will be provided from the turbines internal SCADA system.

A log of precipitation events occurring during the measurement period will be obtained from the nearest weather station.

### 2.3.2 Seasonal Timing

Post-construction measurements will be conducted in spring 2017, while the Project is in full operation. Spring has a variety of wind and atmospheric conditions, with less intrusion of natural sounds.

## 2.4 Data Processing and Reporting

Once the post-construction measurement campaign is complete, all data sets will be quality controlled as per the Guidance requirements notably including:

- Results at varying wind speeds,

- Results at varying frequencies,
- Wind speed, direction and relevant meteorological conditions, and
- Percentage of filtered data for each hour will be reported.

**Collected data and reporting will align with the Guidance's requirements** and identification of any hourly exceedances, if any. As per the **Guidance's** requirements, the report will discuss the following:

- A narrative conclusion regarding how well the results compare to the expected sound levels for the project; including explanations, to the extent possible, if the results do not compare favorably.
- A summary of the  $L_{10}$  and  $L_{50}$  hourly determinations that are above the Minnesota noise standards for each monitoring location.
- A narrative conclusion regarding how well the results provide information regarding the modeling as a predictor of probable compliance with the Minnesota noise standards; including explanations, to the extent possible, if the results do not compare favorably.

#### 2.4.1 Data processing in compliance with the Guidance

Hourly data series for the entire measurement period for each point will be created in the form of  $L_{10}$ ,  $L_{50}$ ,  $L_{90}$  and  $Leq$  sound levels, in dB, dBA and dBC. These cleaned data series as well as concurrent data series of wind speed (miles per hour) at hub height and microphone height and relative humidity will be presented in different charts (one per measurement point).

For the worst case receptor measurement location, a comparative third-octave band chart will be created for a representative wind speed and over a range of at least 16 Hz to 8000 Hz, using un-weighted, A-weighted, and C-weighted  $Leq$  data.

#### 2.4.2 Validation of noise modelling

In order to evaluate the accuracy of pre-construction noise modelling, the total quality-controlled measured night-time A-weighted  $L_{50}$  values for each measurement will be compared to modeled sound levels (including ambient noise) at each of the 2 receptors. Large discrepancies, if any, will be documented.

A map of the simulated noise contours will also be presented, adjusted to the final as-built turbine layout.

#### 2.4.3 Discussion of noise modelling performance as a probable predictor of compliance

Should any large discrepancies between modelling and measured data be observed; a discussion will be provided to help understand the differences to the extent possible. The focus will be to provide useful information for future noise modelling and noise measurements.

#### 2.4.4 Identification of hourly exceedances

For compliance purposes, hourly  $L_{50}$  and  $L_{10}$  data series will be graphed and every data point will be compared to the MPCA limits [2] for every receptor. Periods of high wind and precipitation will be identified. It is understood that the limits apply to total noise and not just facility noise, unless there are exceedances

in which case Project attribution, e.g. assessing contribution from the Project only, may be investigated at a later stage.

### 3 CONCLUSION

EERA has requested, on behalf of WPL, that DNV GL provide a post-construction noise measurement audit and protocol for the Bent Tree Wind Farm. The Project is located near the town of Hartland, in Freeborn County, Minnesota, approximately 90 miles south of Minneapolis. The Project consists of 122 Vestas V82-1.65 MW wind turbine generators, which began operation in 2011.

**This protocol has been developed to follow the “Guidance for Large Wind Energy Conversion System Noise Study Protocol and Report”,** wherever applicable in the context of a post-**construction audit at complainant’s** properties.

This protocol as well as the final noise measurement report will be E-filed as per the instructions in the Guidance paragraphs 33 through 37.

## 4 REFERENCES

- [1] Minnesota Department of Commerce, Energy Facility Permitting. "Guidance for Large Wind Energy Conversion System Noise Study Protocol and Report." October 8 2012.
- [2] Minnesota Administrative Rules. 7030.0040 NOISE STANDARDS.  
<https://www.revisor.leg.state.mn.us/rules/?id=7030.0040>
- [3] A Guide to Noise Control in Minnesota – Acoustic Properties, Measurement, Analysis and Regulation, Minnesota Pollution Control Agency, 2008.
- [4] ISO 1996-2 "Acoustics -- Description, measurement and assessment of environmental noise -- Part 2: Determination of environmental noise levels".
- [5] International Electrotechnical Commission, "IEC 61672 Electroacoustics – Sound Level Meter," First Edition 2002-05.

## APPENDIX A – TYPICAL INSTRUMENTATION PHOTOGRAPH



In-situ set-up of Sound Measurement Equipment

BENT TREE WIND FARM

# Phase 2 Post-Construction Noise Measurement Study Protocol

Wisconsin Power and Light Co

Document No.: 10046144-HOU-R-03-A

Date: 27 September 2017

Revision: A





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## 1 INTRODUCTION

The Department of Commerce, Energy, Environment Review and Analysis (EERA, formerly Energy Facilities Permitting) of the state of Minnesota has requested, on behalf of Wisconsin Power and Light Co (“WPL” or the “Customer”), that Garrad Hassan America, Inc. (“DNV GL”) provide Acoustic audit services, in the form of a post-construction noise measurement audit for the Bent Tree Wind Farm (“Bent Tree” or “Project”). The Project is located near the town of Hartland, in Freeborn County, Minnesota, approximately 90 miles south of Minneapolis. The Project consists of 122 Vestas V82-1.65 MW wind turbine generators, which began operation in 2011.

### 1.1 Background

An audit was conducted in June 2017 by DNV GL [1], closely following the requirements under the “Guidance for Large Wind Energy Conversion System (LWECS) Noise Study Protocol and Report” (“Guidance”) [1] issued by the EERA, in collaboration with the Minnesota Pollution Control Agency (MPCA) 7030.0040 Noise standards [3]. More specifically, the audit was conducted, at the request of the EERA, due to on-going complaints at two receptors within the Project Area; the Hagen and Langrud receptors. The audit, which measured the total noise experienced at the receptors, concluded that:

*“(…) 16 total hours of non-compliance with the LWECS Guidance were identified at BT-M01 and BT-M02. During most of the exceedance periods, bird sounds and/or wind induced sound on vegetation and tree leaves appear to be the primary contributor to the exceedances. Wind turbine sound appears to be audible in the recordings during some of the exceedance periods. However, as stipulated in Appendix A of the LWECS Guidance, further detailed investigations would be necessary to assess the contribution of the wind turbines to the total sound levels experienced at the receptors.*

*As such, it is recommended to perform an additional measurement campaign to properly isolate wind turbine sound from total measured sound. This is achieved by conducting measurements where a subset of wind turbines in proximity of the complaint receptors are turned off and on under various wind and atmospheric conditions.”*

As requested by the EERA, a second audit (i.e Phase 2 audit), will be undertaken with the primary goal of isolating the wind turbine sound from the total measured sound.

The present document outlines the noise measurement protocol for this Phase 2 audit, which has been developed prior to undertaking the noise measurements. The measurement campaign will enable the EERA to validate if compliance is met at the complainants.

## 2 METHODOLOGY

All instrumentation, measurement settings, data collection, processing and reporting procedures will be compliant with **MPCA's Measurement Procedure for Non-impulsive noise**, designated as method NTP-1 [4] and will additionally consider the following ISO standards related to acoustic sound measurements: 1996-1, 1996-2 and 1996-3 [5]. The following subsections provide details and description.

### 2.1 Instrumentation

The acoustic and meteorological measurements data gathered in the context of this study will be obtained using the following instruments (see Appendix A for photographs):

- Larson Davis sound meter model 831 Class I;
- FreeField ½ inch microphone model 377B02;
- Preamplifier model PRM831;
- Vaisala Weather Transmitter model SEN-031; and
- Complete kit for outside noise measurement (including a wind and rain screen, protective Pelican case, long range batteries, etc.).

The sound meters used by DNV GL meet the IEC 61672 Class 1 specifications [6]. The accuracy of the sound meter calibration will be verified on site before and after each measurement with a Larson Davis CAL200 Class I calibrator: the differential calibration will not be greater than 0.5 dBA. All instruments will have a valid calibration. In addition to recording sound levels, the Larson Davis sound meter will also record sounds at the beginning of each monitoring hour and when certain levels are attained. In addition to observations from the DNV GL field engineer, this facilitates the screening of particular events and determining if the corresponding high sound level is representative of the ambient noise or if it is an exceptional event which should be rejected from the final dataset.

The following meteorological parameters will be recorded, at the measurement locations and heights:

- Wind speed and direction;
- Precipitation and relative humidity;
- Temperature.

In addition, operational data, including wind turbine anemometry data, will be considered during the post-construction campaign.

### 2.2 Measurement Locations

On-site monitoring will be conducted at the two receptors, identified as BT-M01 and BT-M02, while the Project is in full operation and while a subset of wind turbines will be parked. Table 2-1 summarizes the selected monitoring locations, which are the same as for the initial audit [1].

Figure 2-1 presents a general overview map of the measurement locations in relation to the Project. Figure 2-2 provide locations for the equipment on the properties.

Table 2-1 Measurement Point Summary

Measurement point ID	Receptor address	Distance to nearest turbine	Notes
BT-M01 (Langrud)	25887 – 705 <sup>th</sup> Avenue, Alden, MN 56009	350 m (1150 feet) from Turbine 362	Closest wind turbines are NE and SE
BT-M02 (Hagen)	70286 – 290 <sup>th</sup> Street, Hartland, MN 56042	465 m (1525 feet) from Turbine 132	Closest wind turbine is West

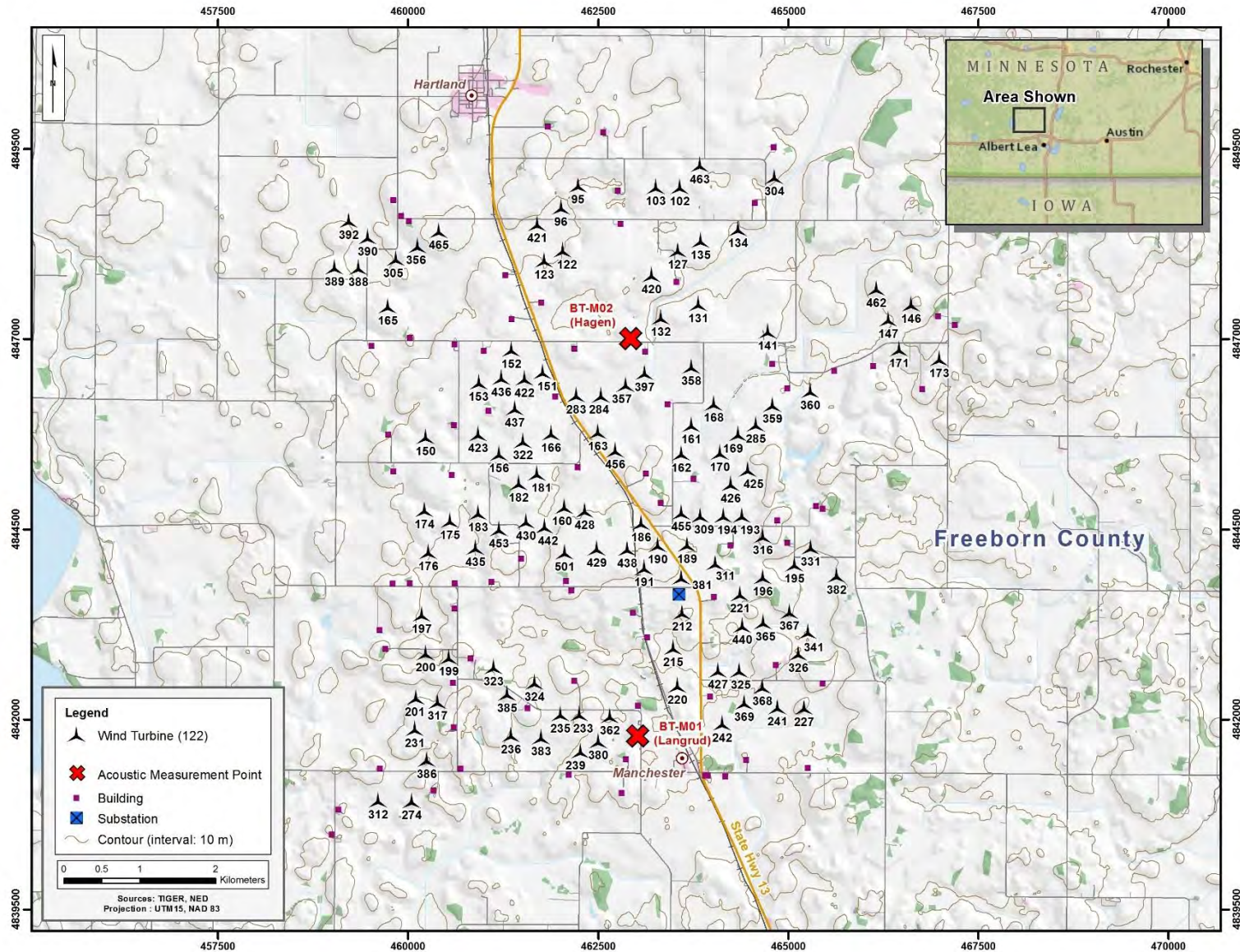


Figure 2-1 Map of Project and Monitoring Locations



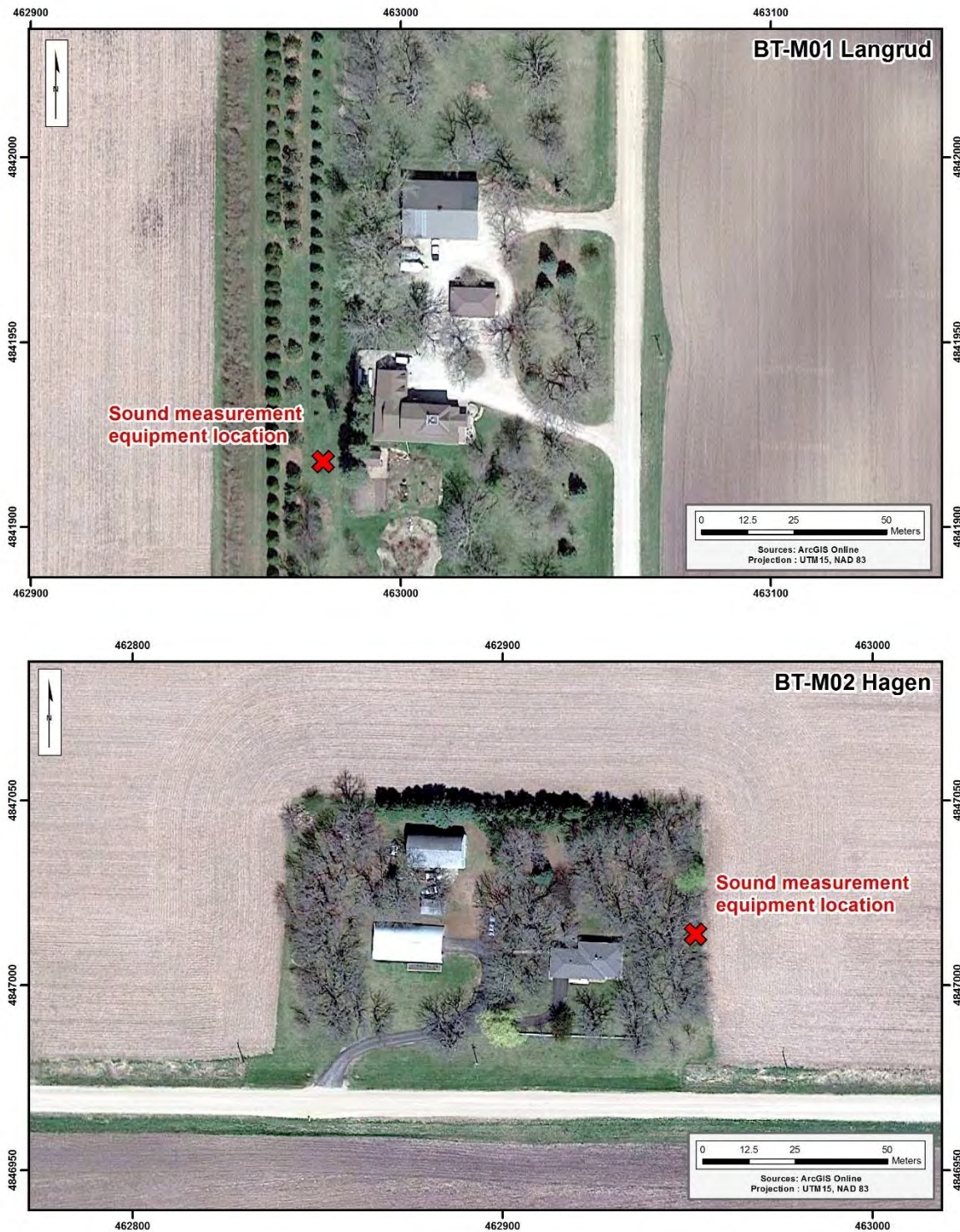


Figure 2-2 Equipment Locations on properties

## 2.3 Data Collection

### 2.3.1 Measurements

Un-attended measurements will last for approximately 7 days, in order to collect data in various wind conditions, during day and night. This timeframe may be extended if it is deemed that too much data will be filtered out due to extended periods of very high wind or precipitation.

Microphones will be installed approximately 1.5 m (5 feet) above ground, and site calibration will be performed before and after each monitoring period. The microphones will be placed at least 6 m (20 feet) from large reflecting surfaces.

Measurements will be made continuously using a FAST response setting and will be averaged and stored every 10 seconds, along with the relevant statistics for that period. Sound events louder than 60 dBA will be recorded for analysis and possible filtering.

The measurements will include un-weighted sound (in dB) and A-weighted as  $L_{10}$ ,  $L_{50}$ ,  $L_{90}$  and  $Leq$  (dBA). Third octave band measurements ranging from 16 Hz to 16000 Hz will be recorded.

Environmental sound measurements are greatly influenced by wind-induced sound. To avoid this unwanted effect, DNV GL will use a 175 mm (7 in) foam wind screen, as per industry standards. This enables the measurement of sound (without significant wind-induced sound effects on the microphone) in winds across a wider range of wind turbine operational wind speeds. For each location both raw and filtered data will be stored along with the percentage of data removed.

In addition to wind speed and direction, temperature, precipitation and relative humidity monitoring at the microphone level, hub height hourly anemometry and operational data will be provided from the turbines internal SCADA system.

A log of precipitation events occurring during the measurement period will be obtained from the nearest weather station.

### 2.3.2 Operational wind turbines (ON)

Measurements will last for 3-4 days, in order to collect data under various wind conditions. This timeframe may be extended if it is deemed that too much data will be filtered out due to extended periods of high wind or precipitation. The timeframe may also be extended if it is deemed that a representative range of wind turbine operational noise conditions did not occur.

### 2.3.3 Parked wind turbines (OFF)

**Measurements will be conducted with turbines in a parked or "off" condition, for a duration of 2-3 days, during nighttime hours only.** This will allow collection of data in various wind and atmospheric conditions when the ambient sound is at its lowest, i.e. at night, and without the contribution of the facility. Nighttime hours are between 10 pm and 7 am, as per [2].

73 turbines out of the 122 operational turbines will be parked during this period. This represents all wind turbines within 1.5 miles of the measurement points. At a distance beyond 1.5 miles, the noise contribution from the remaining 49 turbines is considered insignificant (i.e. their cumulative noise contribution is



approximately 10 dB lower when compared to the cumulative contribution of the entire wind farm). Figure 2-3 and Appendix B, identifies wind turbines to be parked.

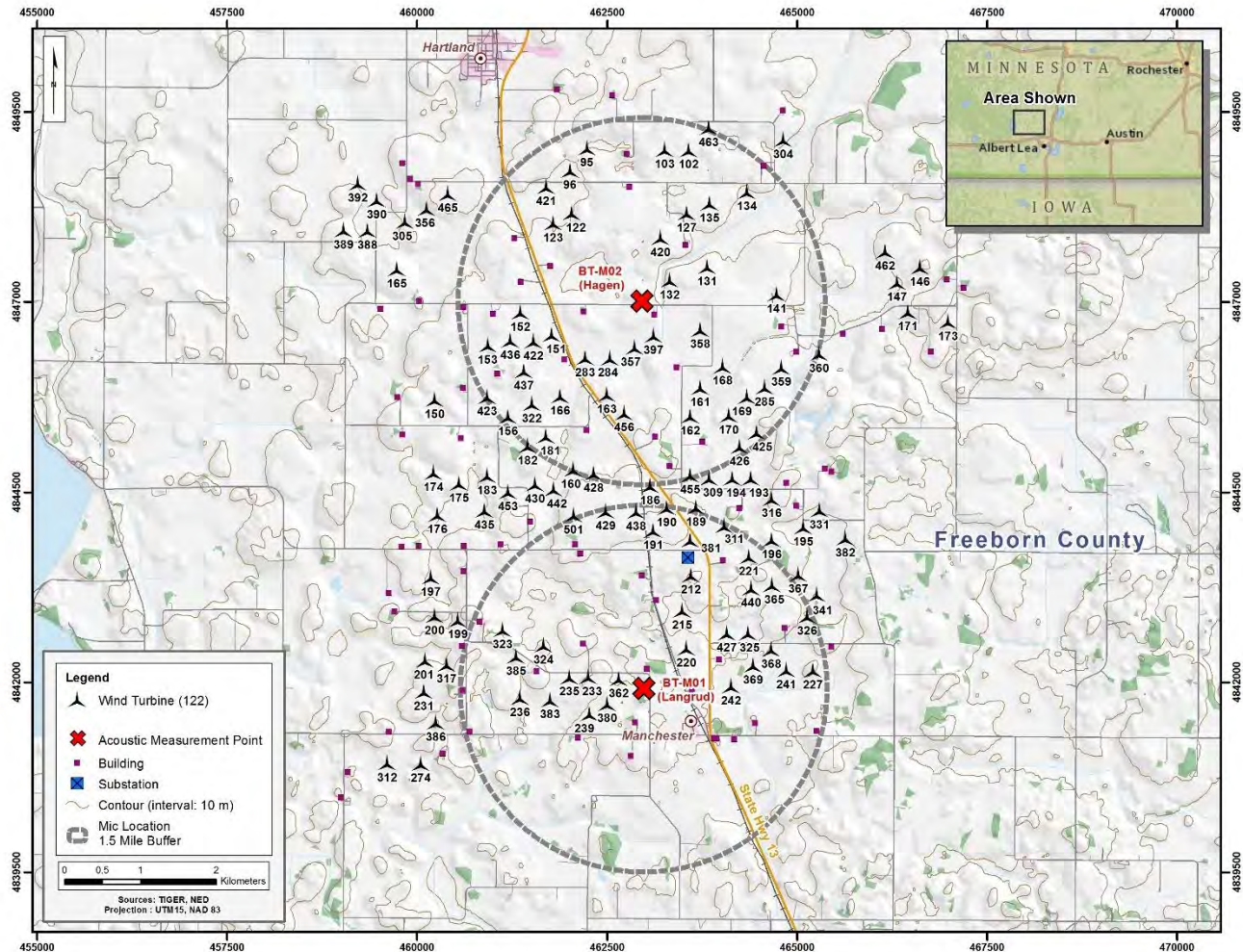


Figure 2-3 Parked wind turbines

### 2.3.4 Timing

Measurements will be conducted in late Fall 2017. This period has a variety of wind and atmospheric conditions, with less intrusion of natural sounds from nearby vegetation.

## 2.4 Data Processing and Reporting

Once the post-construction measurement campaign is complete, all data sets will be quality controlled. For each monitoring point, quality controlled A-weighted Leq nighttime data will be binned per wind speed (at

microphone height), for the operational and parked scenarios described under Sections 2.3.2 and 2.3.3. Turbine ON and Turbine OFF plots will be provided, including the 95% confidence interval limits.

The wind turbine only contribution at each wind speed bin will then be computed by logarithmically subtracting the turbine OFF results from the turbine ON results.

The maximum wind turbine only contributions will be compared against the MPCA limits [3] for every receptor, and within the exceedance context identified under the initial audit [1].

The report will include the methodology, analysis results and identification of any wind turbine only exceedances, for review by the EERA.

### 3 CONCLUSION

EERA has requested, on behalf of WPL, that DNV GL provide a post-construction noise measurement audit and protocol for the Bent Tree Wind Farm. The Project is located near the town of Hartland, in Freeborn County, Minnesota, approximately 90 miles south of Minneapolis. The Project consists of 122 Vestas V82-1.65 MW wind turbine generators, which began operation in 2011.

An initial audit was conducted in June 2017 at two receptors, where total noise exceedances were recorded. As per the Guidance, further detailed investigations are necessary to assess the contribution of the wind turbines to the total sound levels experienced at the receptors. As such, an additional measurement campaign will be undertaken to properly isolate wind turbine sound from total measured sound.

This protocol has been developed for the additional measurements, i.e. Phase 2 measurements.

This protocol as well as the final noise measurement report will be E-filed as per the instructions in the Guidance paragraphs 33 through 37.

## 4 REFERENCES

- [1] Bent Tree Wind farm Post-Construction Noise Assessment, 10046144-HOU-R-02-B, dated 30 August 2017, DNV GL.
- [2] **Minnesota Department of Commerce, Energy Facility Permitting. "Guidance for Large Wind Energy Conversion System Noise Study Protocol and Report." October 8 2012.**
- [3] Minnesota Administrative Rules. 7030.0040 NOISE STANDARDS.  
<https://www.revisor.leg.state.mn.us/rules/?id=7030.0040>
- [4] A Guide to Noise Control in Minnesota – Acoustic Properties, Measurement, Analysis and Regulation, Minnesota Pollution Control Agency, 2008.
- [5] ISO 1996-2 **"Acoustics -- Description, measurement and assessment of environmental noise -- Part 2: Determination of environmental noise levels"**.
- [6] **International Electrotechnical Commission, "IEC 61672 Electroacoustics – Sound Level Meter," First Edition 2002-05.**



## APPENDIX A – TYPICAL INSTRUMENTATION PHOTOGRAPH



In-situ set-up of Sound Measurement Equipment

## APPENDIX B – WIND TURBINES TO BE PARKED

Turbine	UTM Zone 15 NAD83		Parked (Y/N)
	Easting (m)	Northing (m)	
WT102	463573	4848967	Yes
WT103	463259	4848971	Yes
WT122	462032	4848134	Yes
WT123	461789	4848005	Yes
WT127	463548	4848137	Yes
WT131	463816	4847430	Yes
WT132	463324	4847251	Yes
WT134	464343	4848417	Yes
WT135	463846	4848264	Yes
WT141	464733	4847071	Yes
WT146	466619	4847426	
WT147	466317	4847225	
WT150	460233	4845683	
WT151	461771	4846535	Yes
WT152	461356	4846831	Yes
WT153	460931	4846397	Yes
WT156	461197	4845460	Yes
WT160	462054	4844763	
WT161	463727	4845838	Yes
WT162	463592	4845462	Yes
WT163	462497	4845748	Yes
WT165	459734	4847400	
WT166	461883	4845729	Yes
WT168	464023	4846121	Yes
WT169	464341	4845718	Yes
WT170	464102	4845475	Yes
WT171	466459	4846838	
WT173	466986	4846708	
WT174	460218	4844723	
WT175	460552	4844581	
WT176	460268	4844169	
WT181	461692	4845198	Yes
WT182	461457	4845073	
WT183	460923	4844682	
WT186	463064	4844550	
WT189	463669	4844263	

Turbine	UTM Zone 15 NAD83		Parked (Y/N)
WT190	463285	4844258	Yes
WT191	463107	4843959	Yes
WT193	464392	4844644	
WT194	464147	4844644	
WT195	465082	4844005	
WT196	464664	4843838	
WT197	460182	4843345	
WT199	460536	4842783	
WT200	460231	4842839	
WT201	460105	4842253	
WT212	463605	4843373	Yes
WT215	463487	4842910	Yes
WT220	463543	4842412	Yes
WT221	464365	4843615	Yes
WT227	465211	4842121	Yes
WT231	460090	4841843	
WT233	462250	4842035	Yes
WT235	462002	4842033	Yes
WT236	461353	4841760	Yes
WT239	462266	4841548	Yes
WT241	464857	4842126	Yes
WT242	464133	4841911	Yes
WT274	460047	4840894	
WT283	462210	4846230	Yes
WT284	462537	4846228	Yes
WT285	464575	4845843	Yes
WT304	464816	4849101	
WT305	459841	4848023	
WT309	463844	4844648	
WT311	464043	4844020	Yes
WT312	459604	4840902	
WT316	464663	4844379	
WT317	460389	4842200	
WT322	461509	4845628	Yes
WT323	461124	4842656	Yes
WT324	461661	4842451	Yes
WT325	464357	4842609	Yes
WT326	465134	4842830	Yes
WT331	465297	4844229	

Turbine	UTM Zone 15 NAD83		Parked (Y/N)
WT341	465261	4843118	
WT356	460124	4848194	
WT357	462865	4846369	Yes
WT358	463725	4846605	Yes
WT359	464791	4846106	Yes
WT360	465290	4846287	
WT362	462655	4842008	Yes
WT365	464670	4843243	Yes
WT367	465016	4843383	
WT368	464659	4842396	Yes
WT369	464424	4842187	Yes
WT380	462503	4841682	Yes
WT381	463593	4843831	Yes
WT382	465635	4843857	
WT383	461749	4841732	Yes
WT385	461300	4842304	Yes
WT386	460249	4841436	
WT388	459348	4847909	
WT389	459030	4847912	
WT390	459469	4848309	
WT392	459221	4848526	
WT397	463111	4846525	Yes
WT420	463205	4847812	Yes
WT421	461700	4848484	Yes
WT422	461531	4846450	Yes
WT423	460921	4845720	Yes
WT425	464466	4845252	Yes
WT426	464244	4845064	Yes
WT427	464076	4842611	Yes
WT428	462324	4844713	Yes
WT429	462482	4844212	Yes
WT430	461551	4844570	
WT435	460887	4844225	
WT436	461228	4846459	Yes
WT437	461406	4846058	Yes
WT438	462885	4844210	Yes
WT440	464399	4843200	Yes
WT442	461794	4844504	
WT453	461197	4844469	



Turbine	UTM Zone 15 NAD83		Parked (Y/N)
WT455	463596	4844689	Yes
WT456	462723	4845507	Yes
WT462	466158	4847631	
WT463	463836	4849260	
WT465	460405	4848393	
WT501	462059	4844164	
WT95	462237	4848992	Yes
WT96	462013	4848698	Yes



Alliant Energy Corporate Service, Inc.  
Legal Department  
608.458.6223 – Telephone  
608.458.4820 -- Fax

Andrew C. Hanson  
Senior Attorney

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Office: 1.800.822.4348  
[www.alliantenergy.com](http://www.alliantenergy.com)

April 19, 2018

Mr. Daniel Wolf, Executive Secretary  
Minnesota Public Utilities Commission  
121 Seventh Place East Suite 350  
St. Paul, MN 55101-2147

**RE: Notice of Confidential Settlement Agreement and  
Joint Recommendation and Request**

**Docket No. ET6657/WS-08-573**

Dear Mr. Wolf:

Consistent with the March 23, 2018 Order of the Minnesota Public Utilities Commission in the above referenced docket (the "Order"), Ordering Clause 5, Wisconsin Power and Light Company ("WPL") met with Bernie Hagen and Cheryl Hagen (the "Hagens") and the Minnesota Department of Commerce Energy Environmental Review and Analysis Division to discuss the issues outlined in the Order.

As a result of those discussions, the Hagens and WPL have entered into a Confidential Settlement Agreement under which, among other provisions: (1) WPL shall purchase the Hagens' Property; (2) the Hagens shall enter into a Neighbor Agreement and Easement that shall be binding on any future owners of the Hagens' Property; and (3) the Hagens shall release any and all past, present, and future claims against WPL. The Confidential Settlement Agreement is contingent upon the Commission issuing a written order that includes, at a minimum, terms that after WPL takes possession of the property the Commission shall order that the Commission will not require any further curtailment of Bent Tree Turbine Nos. 132 and 397 and shall not require any further sound monitoring at any location pertaining to Bent Tree on the basis of the DNV-GL Sound Reports.

Mr. Daniel Wolf  
Minnesota Public Utilities Commission  
April 19, 2018  
Page 2

As explained more fully in the Notice of Confidential Settlement and Joint Recommendation and Request (the "Joint Request") filed herewith, the Hagens and WPL jointly agree, stipulate and respectfully recommend that the Commission issue a written order consistent the conditions identified in the Joint Request to allow the parties fully implement the terms of the Confidential Settlement Agreement.

Yours Truly,

/s/ Andrew C. Hanson  
Andrew C. Hanson  
Senior Attorney

ACH/ab  
cc: Service List

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

**Nancy Lange**  
**Dan Lipschultz**  
**Matt Schuerger**  
**Katie Sieben**  
**John Tuma**

**Chair**  
**Commissioner**  
**Commissioner**  
**Commissioner**  
**Commissioner**

**IN THE MATTER OF WISCONSIN  
POWER AND LIGHT COMPANY'S  
SITE PERMIT APPLICATION FOR  
A LARGE WIND ENERGY  
CONVERSION SYSTEM**

**DOCKET NO. ET6657/WS-08-573**

**AFFIDAVIT OF SERVICE**

STATE OF WISCONSIN        )  
  ) ss.  
COUNTY OF DANE         )

Annette K. Behnke, being first duly sworn on oath, deposes and states:

That on the 19<sup>th</sup> day of April, 2018, copies of the foregoing Affidavit of Service, together with Wisconsin Power and Light Company's Notice of Confidential Settlement Agreement and Joint Recommendation and Request, was served upon the parties on the attached service list, by e-filing, overnight delivery, electronic mail, and/or first-class mail, proper postage prepaid from Madison, Wisconsin.

/s/ Annette K. Behnke  
Annette K. Behnke

Subscribed and Sworn to Before Me  
This 19<sup>th</sup> day of April, 2018.

/s/ Kathy M. Chiono  
Notary Public, State of Wisconsin  
My Commission expires February 5, 2021

## AFCL Exhibit C-2 \_ Settlement Agreement - Hagens

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## Service List Member Information

## Electronic Service Member(s)

Last Name	First Name	Email	Company Name	Delivery Method	View Trade Secret
Anderson	Julia	Julia.Anderson@ag.state.mn.us	Office of the Attorney General-DOC	Electronic Service	Yes
Dobson	Ian	Residential.Utilities@ag.state.mn.us	Office of the Attorney General-RUD	Electronic Service	Yes
Ferguson	Sharon	sharon.ferguson@state.mn.us	Department of Commerce	Electronic Service	Yes
Hanson	Andrew	andrewhanson@alliantenergy.com	Alliant Energy Corporation	Electronic Service	No
Lepinski	Jim	jim.lepinski@wisconsin.gov	Public Service Commission of Wisconsin	Electronic Service	No
Norris	Samantha	samanthanorris@alliantenergy.com	Interstate Power and Light Company	Electronic Service	No
Overland	Carol A.	overland@legalelectric.org	Legalelectric - Overland Law Office	Electronic Service	No
Ruen Blanchard	Sarah	sarahruenblanchard@alliantenergy.com	Interstate Power & Light Company - Electric	Electronic Service	No
Woeste	Robyn	robynwoeste@alliantenergy.com	Interstate Power and Light Company	Electronic Service	No
Wolf	Daniel P	dan.wolf@state.mn.us	Public Utilities Commission	Electronic Service	Yes

## Paper Service Member(s)

Last Name	First Name	Company Name	Address	Delivery Method	View Trade Secret
Troe	Katie	Safe Wind in Freeborn County	27510 - 775th Avenue, Clarks Grove, MN-56016	Paper Service	No

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

**Nancy Lange  
Dan Lipschulz  
Matt Schuerger  
Katie Sieben  
John Tuma**

**Chair  
Commissioner  
Commissioner  
Commissioner  
Commissioner**

**IN THE MATTER OF WISCONSIN  
POWER AND LIGHT COMPANY'S SITE  
PERMIT APPLICATION FOR A LARGE  
WIND ENERGY CONVERSION SYSTEM**

**DOCKET NO. ET6657/WS-08-573**

**NOTICE OF CONFIDENTIAL SETTLEMENT AGREEMENT  
AND JOINT RECOMMENDATION AND REQUEST**

Wisconsin Power & Light Company ("WPL") and Bernie Hagen and Cheryl Hagen, husband and wife, (the "Hagens") (individually each a "Party" and collectively the "Parties") have entered into a Confidential Settlement Agreement dated April 18, 2018 ("Confidential Settlement Agreement") addressing all matters raised in the above docket by the Hagens regarding the operation of the Bent Tree Wind Project ("Bent Tree"), including complaints to WPL and complaints to the Minnesota Public Utilities Commission ("Commission") and the Minnesota Department of Commerce Energy Environmental Review and Analysis ("EERA"). The Confidential Settlement Agreement is contingent upon a finding by the Commission, among other findings more fully described below, that the Commission shall terminate the curtailment of Turbine Nos. 132 and 397 at Bent Tree and shall not require any further sound monitoring at any location at Bent Tree arising from the sound monitoring required by the Commission in its August 24, 2016 Order Requiring Noise Monitoring, Noise Study and Further Study.

Based on the foregoing, and as more fully described below, the Parties jointly recommend and request that the Commission issue a written order containing the findings described below, thus satisfying the relevant contingencies and allowing the Parties to give full force and effect to the Confidential Settlement Agreement between them.

**Recitals**

- A. The Hagens own the real property located at 70286 290<sup>th</sup> Street, Hartland, MN 56042 (the "Hagens' Property").
- B. The Hagens' Property is within the Project Area of the Bent Tree Wind Project constructed, owned, operated, and maintained by WPL ("Bent Tree").

C. The Hagens' Property includes a residential dwelling that is currently occupied and used as a residence.

D. The Hagens have made various complaints regarding the operation of Bent Tree, including complaints to WPL and complaints to the Commission and EERA beginning in 2011 and continuing through the present (collectively the "Prior and Current Complaints").

E. On August 24, 2016, the Commission issued its Order Requiring Noise Monitoring, Noise Study and Further Study pertaining, in part to the Hagens' Property ("August 24, 2016 Order").

F. Pursuant to the August 24, 2016 Order, the Bent Tree Wind Farm Post-Construction Noise Assessment report was prepared by DNV-GL and filed on September 28, 2017 and the Bent Tree Wind Farm Phase 2 Post-Construction Noise Assessment Report was prepared by DNV-GL and filed on February 8, 2018 (collectively the "DNV-GL Sound Reports").

G. WPL strongly disputes the protocols used and conclusions contained in the DNV-GL Sound Reports.

H. On February 8, 2018, WPL filed a letter and implemented certain curtailments of the operation of three turbines that are part of Bent Tree and identified in the DNV-GL Sound Reports, including the curtailment of two turbines in the vicinity of the Hagens' Property (known as Turbine Nos. T132 and T397) (collectively, the "Curtailments").

I. The Hagens filed a Motion for Order to Show Cause and Hearing dated February 19, 2018 (the "Motion").

J. On March 23, 2018, the Commission issued its Order to Show Cause, Requiring Further Review by the Department Of Commerce, and Continuing Curtailment (the "March 23 Order").

K. The Hagens and WPL have agreed to a Confidential Settlement Agreement addressing all matters raised in the Prior and Current Complaints, the DNV-GL Sound Reports, the Motion, and the March 23 Order and all other matters in dispute between the Parties in this proceeding.

#### **Joint Recommendation and Request**

The Hagens and WPL have entered into a Confidential Settlement Agreement under which, among other provisions: (1) WPL shall purchase the Hagens' Property; (2) the Hagens shall enter into a Neighbor Agreement and Easement that shall be binding on any future owners of the Hagens' Property; and (3) the Hagens shall release any and all past, present, and future claims against WPL.

The Confidential Settlement Agreement is contingent upon the Commission issuing a written order that includes, at a minimum, terms that after WPL takes possession of the properties the Commission shall order that the Commission will not require any further Curtailment of Turbine Nos. T132 and T397 and shall not require any further sound monitoring at any location pertaining to Bent Tree on the basis of the DNV-GL Sound Reports.

In light of the foregoing, the Hagens and WPL jointly agree, stipulate and recommend that the Commission issue a written order adopting the terms and conditions set forth in Sections 1, 2, 3, 4, and 5, below:

1. Dismissal of the Motion and all Prior and Current Complaints. The Commission hereby determines that the Prior and Current Complaints are resolved within the meaning of WPL's Large Wind Energy Conversion System Permit for the Bent Tree Wind Project Phase I, Attachment 2 (Complaint Handling Procedures for Large Wind Energy Conversion Systems). The Motion and all Prior and Current Complaints are dismissed with prejudice.
2. Termination of Curtailments. The Curtailment of Turbine Nos. T132 and T397 T362 shall terminate on the date on which the Hagens transfer possession of the Hagens' Property to WPL, which shall occur no later than one hundred twenty (120) calendar days after closing on the purchase of the Hagens' Property by WPL. After such time, WPL may operate Turbine Nos. T132 and T397, without any curtailment imposed by the Commission as a result of the DNV-GL Sound Reports.
3. No Further Sound Monitoring. The Commission shall not require any further sound monitoring at any location pertaining to Bent Tree on the basis of the DNV-GL Sound Reports.
4. No Precedent. The Confidential Settlement Agreement reflects the unique facts of this case and is the result of negotiations between the Hagens and WPL, and the Confidential Settlement Agreement does not represent the position of either Party as to the appropriate application of the law or any binding or legal precedent related to Bent Tree or otherwise.
5. No Admission. The execution of this Confidential Settlement Agreement shall not be construed as an admission by any Party as to the validity or invalidity of any other Party's position with reference to the issues in this proceeding.
6. Closing Date. The Closing Date for the Confidential Settlement Agreement shall occur within (seven) 7 days of the date in which the Commission issues a written order with respect to this Notice of Confidential Settlement Agreement and Joint Recommendation and Request containing each and every term and condition in Sections 1 through 5, above, as determined by WPL in its sole discretion.
7. No Conditions or Modification. The Parties agree that, in the event that the Commission takes any action to reject or modify all or any part of this Joint Recommendation and Request, either Party may, in its sole discretion determine that



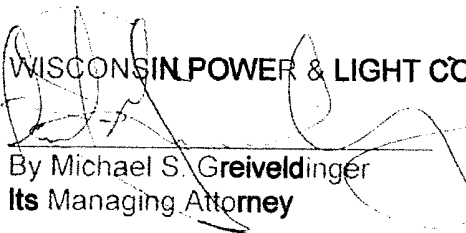
Confidential Settlement Agreement is null and void. In such event, the Joint Recommendation and Request: (1) shall not be any part of the record in relation to Bent Tree or be cited or have any precedential effect in relation to Bent Tree or any other proceeding; and (2) shall not limit either Party's rights to take different positions in relation to Bent Tree in this proceeding or any other proceeding.

Dated: April 19, 2018

Respectfully Submitted,



Carol A. Overland  
Attorney for Bernie Hagen  
and Cheryl Hagen



WISCONSIN POWER & LIGHT COMPANY

By Michael S. Greiveldinger  
Its Managing Attorney



Alliant Energy Corporate Service, Inc.  
Legal Department  
608.458.6223 – Telephone  
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Andrew C. Hanson  
Senior Attorney

Wisconsin Power and Light Company  
An Alliant Energy Company

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April 19, 2018

Mr. Daniel Wolf, Executive Secretary  
Minnesota Public Utilities Commission  
121 Seventh Place East Suite 350  
St. Paul, MN 55101-2147

**RE: Notice of Confidential Settlement Agreement and  
Joint Recommendation and Request  
Docket No. ET6657/WS-08-573**

Dear Mr. Wolf:

Consistent with the March 23, 2018 Order of the Minnesota Public Utilities Commission in the above referenced docket (the "Order"), Ordering Clause 4, Wisconsin Power and Light Company ("WPL") met with David Langrud and the Minnesota Department of Commerce Energy Environmental Review and Analysis division to discuss the issues outlined in the Order.

As a result of those discussions, WPL and David M. Langrud and Birgitt J. Langrud (the "Langruds") have entered into a Confidential Settlement Agreement under which, among other provisions: (1) WPL shall purchase the Langruds' Property; (2) the Langruds shall enter into a Neighbor Agreement and Easement that shall be binding on any future owners of the Langruds' Property; and (3) the Langruds shall release any and all past, present, and future claims against WPL. The Confidential Settlement Agreement is contingent upon the Commission issuing a written order that includes, at a minimum, terms that after WPL takes possession of the property the Commission shall order that the Commission will not require any further curtailment of Bent Tree Turbine No. T362 and shall not require any further sound monitoring at any location pertaining to Bent Tree on the basis of the DNV-GL Sound Reports.

Mr. Daniel Wolf  
Minnesota Public Utilities Commission  
April 19, 2018  
Page 2

As explained more fully in the Notice of Confidential Settlement and Joint Recommendation and Request (the "Joint Request") filed herewith, the Langruds and WPL jointly agree, stipulate and respectfully recommend that the Commission issue a written order consistent the conditions identified in the Joint Request to allow the parties fully implement the terms of the Confidential Settlement Agreement.

Yours Truly,

/s/ Andrew C. Hanson  
Andrew C. Hanson  
Senior Attorney

ACH/ab  
cc: Service List

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

Nancy Lange  
Dan Lipschultz  
Matt Schuerger  
Katie Sieben  
John Tuma

Chair  
Commissioner  
Commissioner  
Commissioner  
Commissioner

**IN THE MATTER OF WISCONSIN  
POWER AND LIGHT COMPANY'S  
SITE PERMIT APPLICATION FOR  
A LARGE WIND ENERGY  
CONVERSION SYSTEM**

**DOCKET NO. ET6657/WS-08-573**

**AFFIDAVIT OF SERVICE**

STATE OF WISCONSIN        )  
  ) ss.  
COUNTY OF DANE         )

Annette K. Behnke, being first duly sworn on oath, deposes and states:

That on the 19<sup>th</sup> day of April, 2018, copies of the foregoing Affidavit of Service, together with Wisconsin Power and Light Company's Notice of Confidential Settlement Agreement and Joint Recommendation and Request, was served upon the parties on the attached service list, by e-filing, overnight delivery, electronic mail, and/or first-class mail, proper postage prepaid from Madison, Wisconsin.

/s/ Annette K. Behnke  
Annette K. Behnke

Subscribed and Sworn to Before Me  
This 19<sup>th</sup> day of April, 2018.

/s/ Kathy M. Chiono  
Notary Public, State of Wisconsin  
My Commission expires February 5, 2021

## AFCL Exhibit C-3\_Bent Tree Settlement Agreement - Langruds

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## Service List Member Information

## Electronic Service Member(s)

Last Name	First Name	Email	Company Name	Delivery Method	View Trade Secret
Anderson	Julia	Julia.Anderson@ag.state.mn.us	Office of the Attorney General-DOC	Electronic Service	Yes
Dobson	Ian	Residential.Utilities@ag.state.mn.us	Office of the Attorney General-RUD	Electronic Service	Yes
Ferguson	Sharon	sharon.ferguson@state.mn.us	Department of Commerce	Electronic Service	Yes
Hanson	Andrew	andrewhanson@alliantenergy.com	Alliant Energy Corporation	Electronic Service	No
Lepinski	Jim	jim.lepinski@wisconsin.gov	Public Service Commission of Wisconsin	Electronic Service	No
Norris	Samantha	samanthanorris@alliantenergy.com	Interstate Power and Light Company	Electronic Service	No
Overland	Carol A.	overland@legalelectric.org	Legalelectric - Overland Law Office	Electronic Service	No
Ruen Blanchard	Sarah	sarahruenblanchard@alliantenergy.com	Interstate Power & Light Company - Electric	Electronic Service	No
Woeste	Robyn	robynwoeste@alliantenergy.com	Interstate Power and Light Company	Electronic Service	No
Wolf	Daniel P	dan.wolf@state.mn.us	Public Utilities Commission	Electronic Service	Yes

## Paper Service Member(s)

Last Name	First Name	Company Name	Address	Delivery Method	View Trade Secret
Troe	Katie	Safe Wind in Freeborn County	27510 - 775th Avenue, Clarks Grove, MN-56016	Paper Service	No

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

**Nancy Lange  
Dan Lipschulz  
Matt Schuerger  
Katie Sieben  
John Tuma**

**Chair  
Commissioner  
Commissioner  
Commissioner  
Commissioner**

**IN THE MATTER OF WISCONSIN  
POWER AND LIGHT COMPANY'S SITE  
PERMIT APPLICATION FOR A LARGE  
WIND ENERGY CONVERSION SYSTEM**

**DOCKET NO. ET6657/WS-08-573**

**NOTICE OF CONFIDENTIAL SETTLEMENT AGREEMENT  
AND JOINT RECOMMENDATION AND REQUEST**

Wisconsin Power & Light Company ("WPL") and David M. Langrud and Birgitt J. Langrud, husband and wife, (the "Langruds") (individually each a "Party" and collectively the "Parties") have entered into a Confidential Settlement Agreement, dated April 18, 2018 ("Confidential Settlement Agreement") addressing all matters raised in the above docket by the Langruds regarding the operation of the Bent Tree Wind Project ("Bent Tree"), including complaints to WPL and complaints to the Minnesota Public Utilities Commission ("Commission") and the Minnesota Department of Commerce Energy Environmental Review and Analysis ("EERA"). The Confidential Settlement Agreement is contingent upon a finding by the Commission, among other findings more fully described below, that the Commission shall terminate the curtailment of Turbine No. 362 at Bent Tree and shall not require any further sound monitoring at any location at Bent Tree arising from the sound monitoring required by the Commission in its August 24, 2016 Order Requiring Noise Monitoring, Noise Study and Further Study.

Based on the foregoing, and as more fully described below, the Parties jointly recommend and request that the Commission issue a written order containing the findings described below, thus satisfying the relevant contingencies and allowing the Parties to give full force and effect to the Confidential Settlement Agreement between them.

**Recitals**

- A. The Langruds owns the real property located at 25887 705th Ave, Alden, MN 56009 (the "Langruds' Property").
- B. The Langruds' Property is within the Project Area of the Bent Tree Wind Project constructed, owned, operated, and maintained by WPL ("Bent Tree").

C. The Langruds' Property includes a residential dwelling that is currently occupied and used as a residence.

D. The Langruds' have made various complaints regarding the operation of Bent Tree, including complaints to WPL and complaints to the Commission and EERA beginning in 2011 and continuing through the present (collectively the "Prior and Current Complaints").

E. On August 24, 2016, the Commission issued its Order Requiring Noise Monitoring, Noise Study and Further Study pertaining, in part to the Langruds' Property ("August 24, 2016 Order").

F. Pursuant to the August 24, 2016 Order, the Bent Tree Wind Farm Post-Construction Noise Assessment report was prepared by DNV-GL and filed on September 28, 2017 and the Bent Tree Wind Farm Phase 2 Post-Construction Noise Assessment Report was prepared by DNV-GL and filed on February 8, 2018 (collectively the "DNV-GL Sound Reports").

G. WPL strongly disputes the protocols used and conclusions contained in the DNV-GL Sound Reports.

H. On February 8, 2018, WPL filed a letter and implemented certain curtailments of the operation of three turbines that are part of Bent Tree and identified in the DNV-GL Sound Reports, including the curtailment of one turbine in the vicinity of the Langruds' Property (known as Turbine No. T362) (collectively, the "Curtailments").

I. The Langruds filed a Motion for Order to Show Cause and Hearing dated February 19, 2018 (the "Motion").

J. On March 23, 2018, the Commission issued its Order to Show Cause, Requiring Further Review by the Department Of Commerce, and Continuing Curtailment (the "March 23 Order").

K. The Langruds and WPL have agreed to a Confidential Settlement Agreement addressing all matters raised in the Prior and Current Complaints, the DNV-GL Sound Reports, the Motion, and the March 23 Order and all other matters in dispute between the Parties in this proceeding.

#### **Joint Recommendation and Request**

The Langruds and WPL have entered into a Confidential Settlement Agreement under which, among other provisions: (1) WPL shall purchase the Langruds' Property; (2) the Langruds shall enter into a Neighbor Agreement and Easement that shall be binding on any future owners of the Langruds' Property; and (3) the Langruds shall release any and all past, present, and future claims against WPL.

The Confidential Settlement Agreement is contingent upon the Commission issuing a written order that includes, at a minimum, terms that after WPL takes possession of the properties the Commission shall order that the Commission will not require any further Curtailment of Turbine No. T362 and shall not require any further sound monitoring at any location pertaining to Bent Tree on the basis of the DNV-GL Sound Reports.

In light of the foregoing, the Langruds and WPL jointly agree, stipulate and recommend that the Commission issue a written order adopting the terms and conditions set forth in Sections 1, 2, 3, 4, and 5, below:

1. Dismissal of the Motion and all Prior and Current Complaints. The Commission hereby determines that the Prior and Current Complaints are resolved within the meaning of WPL's Large Wind Energy Conversion System Permit for the Bent Tree Wind Project Phase I, Attachment 2 (Complaint Handling Procedures for Large Wind Energy Conversion Systems). The Motion and all Prior and Current Complaints are dismissed with prejudice.

2. Termination of Curtailments. The Curtailment of Turbine No. T362 shall terminate on the date on which the Langruds transfer possession of the Langrud Property to WPL, which shall occur no later than ninety (90) calendar days after closing on the purchase of the Langrud Property by WPL. After such time, WPL may operate Turbine No. T362 without any curtailment imposed by the Commission as a result of the DNV-GL Sound Reports.

3. No Further Sound Monitoring. The Commission shall not require any further sound monitoring at any location pertaining to Bent Tree on the basis of the DNV-GL Sound Reports.

4. No Precedent. The Confidential Settlement Agreement reflects the unique facts of this case and is the result of negotiations between the Langruds and WPL, and the Confidential Settlement Agreement does not represent the position of either Party as to the appropriate application of the law or any binding or legal precedent related to Bent Tree or otherwise.

5. No Admission. The execution of this Confidential Settlement Agreement shall not be construed as an admission by any Party as to the validity or invalidity of any other Party's position with reference to the issues in this proceeding.

6. Closing Date. The Closing Date for the Confidential Settlement Agreement shall occur within seven (7) days of the date in which the Commission issues a written order with respect to this Notice of Confidential Settlement and Joint Recommendation and Request containing each and every term and condition in Sections 1 through 5, above, as determined by WPL in its sole discretion.

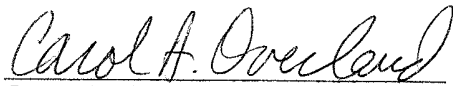
7. No Conditions or Modification. The Parties agree that, in the event that the Commission takes any action to reject or modify all or any part of this Joint Recommendation and Request, either Party may, in its sole discretion determine that



Confidential Settlement Agreement is null and void. In such event, the Joint Recommendation and Request: (1) shall not be any part of the record in relation to Bent Tree or be cited or have any precedential effect in relation to Bent Tree or any other proceeding; and (2) shall not limit either Party's rights to take different positions in relation to Bent Tree in this proceeding or any other proceeding.

Dated: April 19, 2018

Respectfully Submitted,



Carol A. Overland  
Attorney for David M. Langrud  
and Brigitt J. Langrud



WISCONSIN POWER & LIGHT COMPANY

By Michael S. Greiveldinger  
Its Managing Attorney



## AFCL - Exhibit D

### **Statement of Need and Reasonableness**

In the Matter of the Proposed Adoption of Rules Governing  
The Siting of Large Wind Energy Conversion Systems

Minnesota Rules chapter 4401

September 20, 2001

**STATE OF MINNESOTA  
MINNESOTA ENVIRONMENTAL QUALITY BOARD**

**In the Matter of the Proposed  
Adoption of Rules Governing  
the Siting of Large Wind Energy  
Conversion Systems**

**STATEMENT OF NEED  
AND REASONABLENESS**

**Minnesota Rules chapter 4401**

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**I. BACKGROUND AND INTRODUCTION**

In 1995 the Minnesota Legislature passed a law regulating large wind energy conversion systems. Minnesota Session Laws 1995, chapter 203, codified at Minnesota Statutes sections 116C.691 to 116C.697. The law required that any person seeking to construct a Large Wind Energy Conversion System (LWECS) in Minnesota was required to obtain a Site Permit from the Minnesota Environmental Quality Board.

A wind energy conversion system is a wind turbine or windmill or other device and associated facilities that converts wind energy to electrical energy. A Large Wind Energy Conversion System is a combination of these devices that generates 5,000 kilowatts or more. Minnesota Statutes section 116C.691

The law went into effect on August 1, 1995. At that time the EQB already had an application pending for a large wind energy conversion system, commonly referred to as the Northern States Power Company Phase II Project, a 107.5 megawatt project near Lake Benton, Minnesota. The EQB has successfully applied the new statutory requirements to the project and issued a Site Permit to NSP on October 31, 1995.

In December 1995, the EQB adopted Interim Site Permit Procedures for Large Wind Energy Conversion Systems. These Interim Procedures identified information to be included in a permit application and established procedures for providing the public with opportunities to participate in the permit consideration. The EQB successfully applied the Interim Site Permit Procedures to seven large wind projects since the adoption of the Interim Procedures in 1995.

The Minnesota Environmental Quality Board is proposing to adopt these rules under the statutory provisions relating to adoption of rules without a public hearing. Minnesota Statutes sections 14.22 to 14.28. These statutes allow an agency to adopt rules by giving notice to the public and allowing a period of time for the public to enter comments into the record, but do not require the agency to hold a public hearing. Because the EQB has had extensive experience applying the Interim Site Permit Procedures and issued seven site permits under those Procedures, and because the Procedures form the basis of these

proposed rules, the EQB has been able to bring these rules forward in a proven and polished form. Permit applicants and the public have had opportunities to participate in the issuance of site permits under essentially the same requirements and procedures proposed in these rules. Neither permit applicants nor the general public have complained about the manner in which the EQB has administered the site permit program under the Interim Procedures. This should allow these rules to go forward in an expeditious and noncontroversial manner.

### **Alternative Format**

Upon request, this Statement of Need and Reasonableness can be made available in a different format, such as large print, Braille, or cassette tape. To make a request, contact Larry Hartman at the Minnesota Environmental Quality Board, 658 Cedar Street, St. Paul, Minnesota 55155, phone (651) 296-5089, fax (651) 296-3698, or e-mail, [larry.hartman@state.mn.us](mailto:larry.hartman@state.mn.us) For TTY, contact Minnesota Relay Service at 800-627-3529 and ask for EQB.

## **II. STATUTORY AUTHORITY**

Minnesota Statutes section 116C.695 provides:

The board shall adopt rules governing the consideration of an application for a site permit for an LWECS that address the following:

- (1) criteria that the board shall use to designate LWECS sites, which must include the impact of LWECS on humans and the environment;
- (2) procedures that the board will follow in acting on an application for an LWECS;
- (3) procedures for notification to the public of the application and for the conduct of a public information meeting and a public hearing on the proposed LWECS;
- (4) requirements for environmental review of the LWECS;
- (5) conditions in the site permit for turbine type and designs; site layout and construction; and operation and maintenance of the LWECS, including the requirement to restore, to the extent possible, the area affected by construction of the LWECS to the natural conditions that existed immediately before construction of the LWECS;
- (6) revocation or suspension of a site permit when violations of the permit or other requirements occur; and

(7) payment of fees for the necessary and reasonable costs of the board in acting on a permit application and carrying out the requirements of sections 116C.691 to 116C.696.

As is more specifically explained below in the discussion for each individual section of the proposed rules, each of these areas described above is addressed in the rules.

Under this grant of authority, the EQB has the necessary statutory authority to adopt rules for the administration of permit applications for Large Wind Energy Conversion Systems.

Minnesota Statutes section 14.125 – a part of the Administrative Procedure Act that applies to rulemaking – provides that an agency shall publish notice of intent to adopt rules or a notice of hearing within 18 months of the effective date of the authorizing statutes or the rule authority expires. However, this provision does not apply to laws authorizing or requiring rulemaking that were enacted before January 1, 1996, and the statutes at issue here were adopted in 1995.

Because the Interim Site Permit Procedures worked well in issuing LWECS Site Permits, the EQB elected to focus its efforts on the existing and proposed wind projects rather than on the development of a comprehensive set of rules. Thus, it has taken several years to bring this set of permanent rules to rulemaking. However, the experience the EQB has had in issuing these other site permits over the past five years has assisted the EQB greatly in addressing all the matters that are included in the proposed rules.

## **II. NEED FOR THE RULES**

Rules for the administration of site permits for Large Wind Energy Conversion Systems are needed because the EQB is likely to receive a number of permit applications over the next few years and into the future for large wind projects. Wind energy continues to be developed along Buffalo Ridge in southwestern Minnesota, and other areas of the state are likely to see development as well. It is preferable to have in place a comprehensive set of procedures and requirements that have the force and effect of law that can be applied in permitting proceedings for large wind projects. The Legislature declared in 1995 that the policy of the State is to site LWECS in an orderly manner that is compatible with environmental preservation, sustainable development, and the efficient use of resources. These rules are intended to further those legislative goals and policies.

## **III. COMPLIANCE WITH VARIOUS STATUTORY REQUIREMENTS.**

### **A. SOLICITATION OF OUTSIDE OPINION**

Minnesota Statutes section 14.101 requires an agency to solicit public comments on the subject of the proposed rulemaking. On February 12, 2001, the EQB published notice in the *State Register* of its intent to promulgate rules regarding the processing of permit

applications for Large Wind Energy Conversion Systems. 25 State Register 1382 (Feb. 12, 2001). The EQB also published notice in the *EQB Monitor* on February 19, 2001.

The public was given until April 6, 2001, to submit comments in response. The EQB did not receive a single written comment in response to the notice of intent to solicit outside opinion. The EQB also solicited public comments in March 1996 with a notice to that effect in the *State Register*. 20 State Register 2256 (March 11, 1996). No comments on the subject of the rules were submitted at that time either.

## **B. DISCUSSION OF TOPICS IDENTIFIED IN SECTION 14.131**

Minnesota Statutes section 14.131 requires that an agency that is proposing to adopt rules must address a number of factors in the Statement of Need and Reasonableness. The required factors are addressed below:

### **(1) A description of the classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule.**

The persons who will be primarily affected by these rules are the wind developers. Local governmental officials and the general public and organizations involved in environmental protection are also affected by these rules but not in the same way as the developers. Utilities that purchase electricity generated by wind power can be affected by these rules.

The wind developers will bear the costs of the proposed rules because they are the persons who apply for the permits to construct the Large Wind Energy Conversion Systems. These persons will have to pay fees for the processing of their permit applications. Also, the permit conditions that are imposed in a site permit, such as environmental mitigation and construction limitations and avian mortality and other studies, will also result in costs to the permittee to perform these tasks.

Permittees will also receive a benefit from these rules, however. The rules will inform wind developers what is expected of them in constructing large wind projects. The permit will authorize the permittee to proceed with construction of a wind project in a specific area, effectively precluding other developers from building in that area. The permit may be an effective tool in finalizing financing of a proposed project. The state permit will pre-empt local review of the project and eliminate the need to seek separate permits from a number of local governmental bodies.

Local government will be affected by these rules in the sense that a permit for a LWECs project will determine the location of the facility and the conditions under which the project is to be constructed and operated. Local government will be pre-empted from enforcing its own zoning and other regulations. Minnesota Statutes section 116C.697. Local residents may be impacted by the location of wind turbines near their property. Environmental organizations will be affected because the rules will determine how the

wind resources are developed in an orderly fashion that is protective of the resource and the environment. Utilities that will purchase the electricity generated by wind turbines will be affected through the availability and cost of such power.

**(2) The probable costs to the agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues.**

The Environmental Quality Board is authorized by statute to charge permit applicants with the necessary and reasonable costs incurred by the EQB in processing the permit application. Minnesota Statutes section 116C.695(7). In addition, the EQB is authorized to make a general assessment against utilities in the state to fund the EQB's work with energy facilities. Minnesota Statutes section 116C.69, subd. 3. None of the expenses incurred by the EQB in either promulgating these rules or in administering permit applications will be paid for out of the general fund. Thus, implementation and enforcement of these rules should have no effect on state revenues.

The EQB estimates that in the next few years one or two permit applications for LWECS projects will be submitted each year. In the past six years since the law went into effect, the EQB has issued seven site permits for LWECS projects. The processing of these applications has cost about \$10,000 per application, although the first permit for the Northern States Power Company's Lake Benton I project was significantly higher, in excess of \$100,000, because it was a highly contested permit with a contested case hearing and an appeal to the Minnesota Court of Appeals by Kenetech Windpower, Inc.

**(3) A determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule.**

The EQB has operated under Interim Site Permit Procedures for the past five years. These rules are based on those Interim Procedures. Given the fact that neither the wind developers nor the general public have complained about any portions of the Interim Procedures for the past several years, it does not seem that the rules are unreasonably costly or intrusive. The EQB issued two Site Permits for LWECS in the year 2001 – one to Navitas Energy LLC and one to Chanarambie Power Partners LLC. It took about sixty days from acceptance of the application to complete the process and issue the permit, and it cost the applicants approximately \$10,000 each in fees charged by the EQB. The EQB believes that the proposed rules will provide for an expeditious consideration of a permit application with minimal cost to the applicant and ample opportunity for the public to be informed and to participate.

**(4) A description of any alternative methods for achieving the purposes of the proposed rule that were seriously considered by the agency and the reasons why they were rejected in favor of the proposed rule.**

In 1995 when the EQB first began implementing the statutory requirement to obtain a site permit for a LWECS, there were several wind developers who were competing for the



best lands along Buffalo Ridge for wind projects. In order to ensure that the best lands were available to the serious wind developers who were likely to proceed expeditiously with their projects, the EQB included in the Interim Site Permit Procedures a mechanism whereby a utility company that had applied to the Public Utilities Commission for a certificate of need for a wind project in a specific area and was directed by law to provide wind power, was entitled to have that area reserved for its development for a period of two years from the time the application was accepted by the PUC. Such a reservation is not included in the proposed rules.

The reason for eliminating this mechanism is because it is no longer necessary. Instead, the proposed rules allow a person to apply for a permit for a specific area, but the authorization to proceed is contingent on the permittee obtaining the wind rights in the area defined in the permit and obtaining a power purchase agreement with somebody who is going to buy the electricity generated. In the last few years it has been private companies, not public utilities, that have been applying for the wind permits. Developers with the wind rights and a commitment to buy the power, along with the financing to fund the project, are going to be able to proceed with their projects without any need to reserve an area in advance.

**(5) The probable costs of complying with the proposed rule.**

The most readily identifiable costs of the proposed rules are the fees to be charged for processing the permit application. These fees for the seven site permits issued to date have been approximately \$10,000 per permit proceeding, except for the first permit the EQB issued to Northern States Power Company in 1995. Unless a project is controversial for some reason, and a contested case hearing is required on the application, costs for processing a permit application should continue to be in the \$10,000 range.

Permittees, of course, will also incur costs in complying with the conditions imposed in the permit. Wind turbines can cost more than a million dollars apiece, so the costs of complying with permit conditions has not been a major factor for wind developers as far as the EQB knows. The avian mortality study that Northern States Power Company was ordered to perform in 1995 cost about \$500,000 to complete. That cost, however, is being shared proportionately by all wind developers who obtain permits from the EQB through 2002, depending on the megawatts of installed capacity permitted.

**(6) An assessment of any differences between the proposed rule and existing federal regulations and a specific analysis of the need for and reasonableness of each difference.**

This statutory requirement is primarily designed to address the situation where a proposed state rule is more stringent than a corresponding federal requirement. In this case, there is no corresponding federal regulation. Chapter 4401 applies to state permitting requirements for Large Wind Energy Conversion Systems. The federal government does not require such a permit for wind projects. The federal government could require approval for a wind project in certain circumstances, such as the case where

the wind turbines are near an airport or located on federal lands. However, the federal government does not require a permit for a wind project per se.

### **C. Performance-Based Analysis-Minnesota Statutes Section 14.002.**

Minnesota Statutes section 14.002 requires an agency that is developing rules to describe in the Statement of Need and Reasonableness how it considered ways it might afford flexibility in complying with the regulatory requirements being proposed while still meeting the agency's objectives. Here, what the EQB tried to do was to minimize the burden on what must be submitted as part of a permit application, yet ensure that environmental and energy considerations are addressed, and to expedite the process, yet provide ample opportunity for public input.

An example of how the EQB provided flexibility is in part 4401.0450, subpart 2, where the proposed language gives a permit applicant the right to go ahead with the permit application even if the applicant does not have a power purchase agreement for the power that will be generated. Another example is in subpart 5 of the same part, where an applicant's lack of wind rights will not hold up processing a permit application, even though without the wind rights the proposer will not be able to build the project.

In order to provide information to the public, and yet keep the process moving, the proposed rules provide that upon acceptance of an application, the chair of the board will make a preliminary decision on whether a permit may be issued and prepare a draft site permit if the decision is to approve a permit. This draft site permit will quickly identify for the public and the applicant any areas of contention. In the end, the existence of a draft site permit should provide for an expeditious final decision.

Throughout development of the proposed rules, the EQB was cognizant of the desire by applicants to minimize the burden of applying for a permit and to provide for an expeditious final decision. The EQB also considered that the public wants to be informed about proposed projects and to have an opportunity to participate in the decisionmaking process. The EQB believes that these rules will result in an open, informed, expeditious permitting process. The statute gives the EQB 180 days from the time an application is accepted to reach a final decision. Minnesota Statutes section 116C.694(c).

All interested persons are encouraged to submit comments on any parts of the rules. If there are other instances where additional flexibility is possible, the EQB will certainly consider such suggestions.

### **D. NOTICE TO COMMISSIONER OF THE DEPARTMENT OF AGRICULTURE**

Minnesota Statutes section 14.111 provides that before an agency may adopt rules that affect farming operations, the agency must provide a copy of the proposed rules to the Commissioner of the Department of Agriculture at least 30 days before publishing notice in the *State Register*. In this case, these proposed rules will not directly regulate farming operations, and this notice is probably not required. However, because the wind projects

to be permitted under these rules will likely be located on farm land, farming operations can be impacted when the wind turbines are constructed, and it is appropriate to notify the Commissioner.

Presently, the Commissioner of the Department of Agriculture, Gene Hugoson, is the chair of the Environmental Quality Board. Commissioner Hugoson has, of course, been advised of the possible adoption of these rules. This statutory requirement has been complied with.

#### **E. ADDITIONAL NOTICE GIVEN TO THE PUBLIC**

Minnesota Statutes section 14.23 requires an agency to describe in the Statement of Need and Reasonableness the efforts the agency made to notify persons or classes of persons who might be affected by the proposed rules about the proposed rulemaking. In addition to the statutory requirements to publish notice in the State Register and to mail notice to persons on the EQB rulemaking list, the EQB will also undertake other efforts to notify the public about these proposed rules.

The EQB will publish notice in the *EQB Monitor* of the proposed rulemaking. Each issue of the *EQB Monitor* is distributed to a lengthy list of persons and published on the EQB webpage. Many groups and individuals in Minnesota and elsewhere who are active and interested in environmental matters in the state are aware of the *EQB Monitor* and read it regularly.

In addition, the EQB will post a copy of the notice, the proposed rules, and this Statement of Need and Reasonableness directly on the internet. The EQB homepage contains an entry identifying the new items that have been recently posted by the EQB. When this material is first posted, the public will also see an entry highlighting the fact that this material is now available on the web.

The EQB has also over the past six years or so compiled a list of several hundred names of people who are known to the agency to be interested in wind development and new wind projects. The list includes names of wind developers, utility companies, local government officials, and the general public. The EQB will mail notice directly to the persons on this list, either by postal mail or by electronic mail.

Finally, the EQB will publish notice of the proposed rulemaking in local newspapers in southwestern Minnesota, where most of the wind development has occurred in the state. These will be the same newspapers that have been used in the past to provide notice about permit applications for specific projects.

#### **V. RULE-BY-RULE ANALYSIS**

This part of the SONAR is a rule-by-rule discussion of the reasons why the rule is being proposed. In a number of places, the EQB identifies documents that provide information that supports the proposed language

#### **4401.0100 PURPOSE.**

This part is simply a recitation of what chapter 4401 is intended to do and repeats the statutory policy regarding the orderly development of the wind resource in Minnesota. Minnesota Statutes section 116C.693. There are no substantive requirements in this part.

#### **4401.0200 Definitions.**

**Subpart 1. Scope.** This provision simply states that the terms defined in the rule are for purposes of chapter 4401.

**Subpart 2. Associated Facilities.** The term associated facilities is used in the statutory definition of “wind energy conversion system” but the Legislature did not define the term. It is helpful to provide a definition because an LWECS consists of not only the wind turbines, but also other associated facilities. Under the law even the associated facilities require a permit before construction is authorized.

The EQB proposes to define “associated facilities” as those “facilities, equipment, machinery, and other devices necessary to the proper operation and maintenance of a large wind energy conversion system, including access roads, collector and feeder lines, and substations.” This is simply a common sense definition. When permitting a LWECS, the EQB must not only identify the wind turbines to be included in the project, but also the other facilities and equipment that are necessary to make the wind turbines functional.

While it is not possible to identify specifically what facilities and equipment are included within the definition of “associated facilities” for every LWECS that might be proposed, there are some facilities that are certainly within the definition. The proposed definition lists access roads, collector and feeder lines, and substations as examples of “associated facilities.” These are the kind of facilities that have been included in other permitted projects as associated facilities. Surely, the electrical connections required to convey the electricity from the wind turbine to the transmission grid are associated facilities. Also, facilities necessary to transport the turbines and towers and other equipment to the site, like access roads, are the kind of activities that impact the environment and should be evaluated as part of the permit process. These roads are also necessary to maintain the turbines after they are up and running.

Other kinds of facilities and equipment and machinery that are necessary to the project will be determined during the permit process. The permittee can identify these facilities that are necessary to operation and maintenance of the LWECS. The reference to “necessary” facilities is specific enough to allow the applicant and the EQB to determine what is included within the definition.

**Subpart 3. Board.** The Minnesota Environmental Quality Board is sometimes simply referred to as the “board” in the rules for clarity and simplicity. The board is

comprised of the commissioners and directors of the state agencies that are members of the MEQB and the private citizens appointed by the Governor. Minnesota Statutes section 116C.03, subdivision 2. The board is the entity that makes the final decisions on permits and other matters.

**Subpart 4. Chair.** The “chair” is the person appointed by the Governor to serve as the chair of the board. There are several tasks identified in the rules for the chair of the Board to perform. As is explained below for specific rule language, it is reasonable to assign certain duties to the chair to ensure that the process moves expeditiously to a decision by the board. Since the board meets only once a month, it would slow down the process if every matter had to be brought to the board.

**Subpart 5. Construction.** The EQB does not want project proposers to begin construction of their proposed projects until after a permit has been issued. Part 4401.0300 provides that it is against the law to commence construction of an LWECS until the board has issued a site permit. The reason for prohibiting construction until the permit is issued is so that the applicant will not engage in conduct that irreversibly impairs the environment or make financial commitments that will make it difficult for the EQB to openly evaluate the project. It is common practice for permitting agencies to insist that projects not begin until a decision on the permit has been made. See, for example, the Minnesota Pollution Control Agency’s rules for water permits. Minnesota Rules part 7001.1020, subpart 8.

The question, of course, is what does it mean to commence construction. The kinds of commitments and activities described in the proposed rule – starting a continuous program of construction or site preparation - are the kinds of commitments and activities that would make it difficult for the EQB to deliberate to the extent it must on a permit request and to decide on the permit in accordance with the requirements of the law. These kind of efforts not only put pressure on the EQB to allow the conduct to go forward, but they can result in damage to the environment that could have and should have been avoided.

The proposed definition does not prohibit entering into power purchase agreements and obtaining wind rights from property owners and gathering wind data prior to obtaining a permit. Obviously, these kinds of tasks can be completed without impacting the permit process or the environment. Indeed, the EQB wants developers to negotiate and enter into power purchase agreements with utilities and negotiate and obtain wind rights from property owners. Certainly there is no objection to gathering wind data without applying for and obtaining a permit.

Nor does the rule make any mention of restricting the right to enter into contractual commitments related to the wind project. The EQB considered limiting the ability of a permit applicant to make binding contractual agreements to purchase facilities or equipment in advance of receiving a permit, but wind developers must be able to arrange for delivery of the turbines well in advance of applying for and receiving a permit from the EQB.

**Subpart 6. Draft site permit.** The draft site permit is a document that represents a preliminary decision by the chair that a site permit can be issued for the project. The draft site permit contains terms and conditions that the chair has determined might be appropriate to include in the final site permit. The draft site permit will assist the applicant and the public in understanding the issues associated with the proposed project

**Subpart 7. EQB.** This is the definition of the agency itself, including both the Board and the staff. Whenever it is the chair or the board that is responsible for performing a task or making a decision, the rules specify that. But in many instances it is the staff that will actually carry out certain tasks, and it is necessary to recognize that distinction. For example, it is the staff that will arrange for the publication of certain notices and maintain the accounting of the costs. In those instances in the rules where agency staff may perform the task, the rules spell out EQB, rather than the Board or the Chair.

**Subpart 8. EQB Monitor.** The *EQB Monitor* is a bulletin published by the EQB every other Monday. The *EQB Monitor* has been published by the EQB since 1977. The *EQB Monitor* is distributed widely to interested persons, and it is published on the web.

<http://www.mnplan.state.mn.us/eqb/monitor.html>

The public has come to expect notices of EQB matters to be published in the *EQB Monitor*, and there are several references in the rules to publication in the *EQB Monitor*.

**Subpart 9. Large wind energy conversion system or LWECS.** This definition is the statutory definition in Minnesota Statutes section 116C.691, subdivision 2.

**Subpart 10. Person.** Person needs to be defined broadly to include more than just individual human beings. The definition here is the same definition used in the Power Plant Siting Rules. Minnesota Rules part 4400.0200, subp. 12.

**Subpart 11. Power Purchase Agreement.** Individuals and corporations and other organizations that are not in the utility business are often the persons who propose large wind energy projects. These wind developers intend to sell the power generated to utilities like Xcel Energy and Great River Energy, who will then deliver the electricity to the ultimate consumers. Since the developers do not have their own transmission facilities, they need an agreement with the utilities to purchase the power to be generated. This definition defines power purchase agreement to be any kind of enforceable agreement between the developer and the utility for purchase of the wind power.

**Subpart 12. Site Permit.** The Site Permit is the document that the board issues at the completion of the process that authorizes the applicant to proceed with construction of the project under the terms and conditions contained in the permit.

**Subpart 13. Small Wind Energy Conversion System or SWECS.** This definition is identical to the statutory definition. Minnesota Statutes section 116C.691, subdivision 3. Every wind energy conversion system is either a SWECS or a LWECS but the EQB has jurisdiction only over the LWECS.

**Subpart 14. Wind Energy Conversion System or WECS.** This definition is identical to the statutory definition as well. Minnesota Statutes section 116C.691, subdivision 4. The Legislature intended in the statute and the EQB intends in the rule to promulgate a broad definition that will encompass any kind of device that captures the wind to use for the generation of electric energy.

#### **4401.0300 PERMIT REQUIREMENT**

**Subpart 1. LWECS.** This rule is simply a reiteration of the statutory mandate that a permit is required to construct a Large Wind Energy Conversion System. The rule also requires that the permit must be obtained before construction of the system can commence. Since the term “construction” is defined in part 4401.0200, subpart 5, there should be no confusion on the part of developers what is allowed to happen before the permit is issued. The explanation for the definition is included in the discussion for that subpart.

**Subpart 2. SWECS.** The Legislature provided that a Site Permit from the EQB is not required to construct a wind project of less than 5 megawatts and this rule recognizes that limitation. The EQB has no jurisdiction over SWECS, and the second sentence of this rule recognizes that local units of government are responsible for regulating the small wind projects. No state environmental review is required of an electric generating facility of less than five megawatts. Minnesota Rules part 4410.4600, subpart 3.

**Subpart 3. Expansion of Existing System.** The purpose of this provision is to require EQB review and approval before an existing LWECS is expanded by any amount or before an existing SWECS is expanded by an amount that allows the SWECS to generate more than 5 megawatts of electricity. Since the Legislature required any project over 5 megawatts to undergo state review, it makes sense to give the EQB an opportunity to analyze any expansion of an existing project when more than 5 megawatts of power are involved. The EQB wants to avoid the situation where several small projects are constructed without state review when in reality the projects are essentially one large project that requires an EQB permit.

The test proposed in the EQB rule for determining whether several small projects are really a large project is taken from the statutory language passed by the Legislature in the Energy Security and Reliability Act of 2001. Minnesota Session Laws 2001, chapter 212, article 5, section 2. In the 2001 legislative session, the Minnesota Legislature addressed this issue in terms of the incentive payment that is available to developers of small wind energy projects under two megawatts. Minnesota Statutes section 216C.41. The incentive payment is 1.5 cents per kilowatt-hour for qualifying facilities. The

Legislature was concerned that developers might attempt to skirt the limitations of the incentive payment provision by proposing several small wind projects, none of which exceeds two megawatts alone but which in total exceed that number, by proposing each project under a different name. In that way a developer might seek an incentive payment for several small projects that in reality are one large project in excess of the qualifying amount.

The language passed by the Legislature reads as follows:

(b) Beginning January 1, 2002, the total size of a wind energy conversion system under this section [216C.41] must be determined according to this paragraph. Unless the systems are interconnected with different distribution systems, the nameplate capacity of one wind energy conversion system must be combined with the nameplate capacity of any other wind energy conversion system that is:

- (1) located within five miles of the wind energy conversion system;
- (2) constructed within the same calendar year as the wind energy conversion system; and
- (3) under common ownership.

In the case of a dispute, the commissioner of commerce shall determine the total size of the system, and shall draw all reasonable inferences in favor of combining the system.

(c) In making a determination under paragraph (b), the commissioner of commerce may determine that two wind energy conversion systems are under common ownership when the underlying ownership structure contains similar persons or entities, even if the ownership shares differ between the two systems. Wind energy conversion systems are not under common ownership solely because the same person or entity provided equity financing for the systems.

Minnesota Statutes section 216C.41, subd. 5, as amended by Minnesota Laws 2001, ch. 212, art. 5, section 2.

The language in the proposed rule is essentially the same as the statutory language. The test applied by the Commissioner of the Department of Commerce for incentive payment purposes will be the same test applied by the EQB for permitting purposes. The Commissioner of Commerce is a member of the EQB Board and there will be cooperation between Commerce and the EQB in resolving whether two or more small projects are really one larger project.



#### **4001.0400. FILING OF APPLICATION FOR SITE PERMIT.**

**Subpart 1. Number of Copies.** The rule requires an applicant to file three copies of the application with the EQB. The reason three copies are required is so that the Chair can have a copy and the staff can have two. It is reasonable to require the applicant to provide enough copies to allow the staff and the Chair to conduct their review of the adequacy of the application. As is explained later, once the application is accepted the applicant will have to submit additional copies so the EQB can provide copies to all those persons who normally receive such documents.

**Subpart 2. Electronic Copy.** The EQB has been putting more and more information on its web page. The public has come to expect to find information about matters pending before all state agencies on the web. It is a convenient and inexpensive way to provide information to the public. In order to put the application on the web, the applicant must provide an electronic version of the document. The rule recognizes that an applicant can ask for a waiver of the requirement to provide an electronic copy, but it is hard to imagine in today's computer world that an electronic version is not available. Perhaps certain maps or photographs may not be available but even that situation should not arise often.

**Subpart 3. Proprietary information.** The purpose of this subpart is simply to recognize that on occasion an applicant may provide information as part of an application that is protected from public disclosure by Minnesota law. The most likely statute providing such protection is the Minnesota Government Data Practices Act, Minnesota Statutes chapter 13, and the most likely classification is trade secret information. Minnesota Statutes section 13.37(b). However, an applicant may have other reasons to protect certain information and may certainly rely on those.

The issue over public inspection of information in wind project applications has not been a problem in the past, but the rule nonetheless creates a mechanism for handling a request by an applicant to protect certain information from public disclosure. The request will be brought to the full Board for a determination of whether the information actually qualifies for the classification. If the Board disagrees with the applicant, and is of the view that the information is public information, the applicant can either allow the public to inspect the information, withdraw the application, or challenge the Board's decision in court. In any event, information that an applicant believes is not open for public review will not be made available to the public without affording the applicant an opportunity to establish that the information is protected.

#### **4401.0450 CONTENTS OF SITE PERMIT APPLICATION.**

**Subpart 1. Applicant.** This subpart requires the applicant to provide basic background information about the person or persons applying for the LWECS Site Permit. This same kind of information is required from applicants for other kinds of energy facilities permitted by the MEQB. See Minnesota Rules parts 4400.0600 (transmission lines), 4400.2600 (power plants), and 4415.0115 (pipelines). This kind of

information is necessary to ascertain who the permittee or permittees should be and also to provide contact persons for purposes of mailing notices and asking questions.

**Item A.** A letter of transmittal from an authorized representative or agent of the applicant is simply a means of submitting the application.

**Item B.** Providing the complete name, address, and telephone number of the applicant and authorized representatives ensures that the EQB staff can contact the right people if questions should arise. This is especially important when the application is first filed with the EQB if the staff has not had much prior contact with the applicant and learned the names of the appropriate people with knowledge about the project.

**Item C.** Asking for the signature of the preparer of the application is certainly a reasonable request. The preparer of the application is usually the person who is most knowledgeable about the project, or at least knows who to talk to about a particular matter. Applicants often use consultants to prepare and submit their applications. It is helpful to know who the consultant is so that questions may be directed to the consultant to clarify data or information in the application and to arrange for the transfer of an electronic version of the application.

**Item D.** The EQB wants to know whether the applicant is actually the person who will construct and operate the LWECS. It is important to determine the appropriate persons to name as permittees on the permit and to ensure that any conditions included in the permit will be complied with. The public usually wants to know the names of all persons involved with a proposed project. For example, in one application proceeding Northern States Power Company was the applicant, Zond, Inc. was the builder, and the permittee was Lake Benton Power Partners, LLC.

**Item E.** Asking the applicant to identify any other wind projects in which the applicant has an ownership or other financial interest will allow the EQB to determine whether a particular project is part of any other wind projects. It will also allow the EQB to consider the applicant's performance regarding these other projects and evaluate the applicant's ability to comply with permit conditions.

**Item F.** As with item D, the EQB wants to ensure that the proper persons are named as permittees. If the operator of the LWECS is required to ensure compliance with certain operating conditions, the EQB wants to know who that person is who will be performing certain operational tasks.

**Item G.** This last item simply asks the applicant to identify who should be named as permittees on the permit. It has been the EQB's experience that oftentimes a wind developer will incorporate a new organization for purposes of a particular project. The EQB needs to know the precise name of the applicants, and whether they are individuals, corporations, limited liability partnerships, or other organization. Asking the applicant to identify the precise names and structure of the permittees is the best way to ensure that the correct names are used.

**Subpart 2. Certificate of need or other commitment.**

**Item A.** A certificate of need is a document issued by the Minnesota Public Utilities Commission. Minnesota Statutes section 216B.243, as amended by Minnesota Laws 2001, chapter 212, art. 7, sec. 33. A certificate of need is required for any power plant over 50 megawatts. Minnesota Statutes section 216B.2421, subd. 2(a), as amended by chapter 212, art. 7, sec. 29.

If a certificate of need is required, the applicant should file that application with the PUC prior to filing a site permit application with the MEQB. See Minnesota Statutes section 216B.243, subd. 4, as amended by chapter 212, art. 7, sec. 32. The applicant can file a permit application with the EQB before the PUC makes a decision on the certificate of need, but the EQB cannot issue a permit until a certificate of need is issued. Minnesota Statutes section 216B.243, subd. 2. Because the siting process will take less time to complete than the certificate of need process, the board can process the site permit but not make a final decision on the site permit until a certificate of need has been granted. The need and siting decisions for other energy facilities are made in the same sequence.

**Item B.** This provision recognizes that the Board may ask the PUC to determine if a certificate of need is required for a particular project. Because wind turbines are modular in nature, additional turbines may be added to a project at almost anytime. If, for example, a 45 MW project is built (for which a certificate of need is not required because it is under 50 MW), and the developer later proposes to add another 10 MW, it may be appropriate for the PUC to determine if a certificate of need is required.

**Item C.** This provision addresses those wind projects for which a certificate of need is not required because the LWECS is under 50 megawatts. In the absence of a need decision, the board wants to know what the applicant intends to do with the power that is generated. The board does not want to issue a site permit for a project that may not be built.

The board explained the reasons for requiring a power purchase agreement in two recent wind permit proceedings. The EQB in May 2001 issued permits to two developers for projects for which they did not have a power purchase agreement. One permit was for Navitas Energy, LLC, and the other was for Chanarambie Power Partners, LLC. for projects in Murray and Pipestone Counties. In both cases, the permittee had not finalized a power purchase agreement, at least not for all the power it intended to generate. The EQB issued both permits but conditioned them on the requirement that the permittee obtain a power purchase agreement within a specified time. The EQB made a specific finding regarding this issue in those permit proceedings, which reads as follows: "The purpose of the requirement for a power purchase agreement was to ensure that a developer did not tie up a large area of land for wind generation when the project was not likely to go forward in a timely fashion." Finding No. 44, Navitas Energy, LLC.

The rule provides that the chair may request the applicant to submit a copy of the power purchase agreement or other document confirming the sale of the power. It is reasonable to recognize that the EQB can insist on confirmation that a power purchase agreement or other enforceable arrangement exists for sale of the power. However, the power purchase agreement is sometimes a confidential document, and the EQB has not in the past required the entire document to be submitted. The EQB may not need to know the terms of the sale, or the price, or other matters, for example, but only that an enforceable agreement exists. In such event, the EQB can request that only certain parts of the agreement be submitted.

While it is reasonable to expect a wind developer to tell the EQB what it intends to do with the power it plans to generate, the lack of a power purchase agreement does not necessarily mean that the permit will be delayed or denied. Both the Navitas permit and the Chanarambie permit were conditioned on the permittee obtaining a power purchase agreement within a relatively short period of time, and the permittees were not allowed to proceed with construction until they obtained a power purchase agreement. This is a reasonable solution to the situation where a developer wants to get a project approved but has not finalized the purchase arrangement yet, and this approach is continued in the rules.

**Subpart 3. State policy.** This part requires the applicant to describe in the application how the LWECS project will comport with a state policy that provides for environmental preservation, sustainable development and efficient use of resources. Minnesota Statutes section 116C.693. This part is significant in that it expresses the state policy and provides the applicant an opportunity to demonstrate how the LWECS project addresses these general policy areas. The applicant's discussion of this may also provide the Board with additional knowledge about development of the wind resource that may be helpful in the review and permitting of the LWECS project.

**Subpart 4. Proposed site.** This provision requires the applicant to submit basic information about the proposed site.

**Item A.** The boundaries of the project must be identified with some specificity so the EQB can determine whether the project interferes with any other existing or proposed wind projects. Applicants for existing projects have not had difficulty in the past in providing the EQB with United States Geological Survey (USGS) maps or other maps showing the boundaries of the project. The EQB will specifically identify the boundaries of the project in any permit that is issued, so the applicant must specify the area for which approval is being sought.

**Item B.** The EQB wants to know the characteristics of the wind within the proposed project boundaries. In order to ensure the orderly and efficient use of the wind resource, as directed to do by the Legislature, it is important to know the quality of the wind in the area to be developed.

The information required under this item is the kind of information developers have to gather to determine whether a proposed location has the kind of winds that are required for a successful wind project. The ten characteristics identified in this rule provide information on the speed of the wind, the seasonal variation in the wind, the frequency of the wind, wind direction, height of the wind above grade, and other criteria that are important in siting the location of wind turbines. Developers are not going to propose a project unless they have gathered this kind of information about the wind. It has not been a problem with past permits for applicants to provide the information requested here.

**Item C.** Since other meteorological conditions like rainfall and snowfall and temperature can affect the amount of electricity generated by wind turbines, it is reasonable to request an applicant to supply this kind of information. Again, any applicant for a wind project costing millions of dollars is going to have this kind of information available.

**Item D.** The reason for identifying the location of other wind turbines in the general area of the proposed LWECS is to ensure that one project does not interfere with another. If turbines are sited too close together, a downwind turbine can experience what's called wake loss. Wake loss results when the wind is sent into a turbulent state after encountering a turbine. If a turbine is located too close downwind, usually within ten rotor diameters of the upwind turbine, the wind will not have had a chance to recover to its normal state, and the turbulence will result in less efficient generation of electricity at the second turbine. Because the EQB wants to ensure efficient use of the wind resource, it is preferable to avoid wake loss to the extent possible. By taking into account existing turbines, the EQB can evaluate the potential for wake loss with a proposed project.

**Subpart 5. Wind rights.** In order to construct wind turbines in a particular location, the permittee must have the right to place the turbines on the land in the desired location. Wind developers have negotiated easements and other agreements with many landowners along Buffalo Ridge in southwest Minnesota and in other areas of the state with potential wind resources. It is reasonable and appropriate to expect a permit applicant to describe what wind rights the applicant holds within the proposed boundary of the project. The manner in which the EQB will address the issue of wind rights with particular projects is discussed under part 4401.0610, subpart 1.

**Subpart 6. Design of project.** This rule requires an applicant to provide some detail about the project being proposed. This information is required so the EQB can know specifically what is being proposed, evaluate the project and identify any problem areas, and determine necessary conditions for any permit that is issued.

**Item A.** The applicant must identify how many turbines the project will include and where the applicant intends to install those turbines. Identification of turbine location is necessary for all kinds of reasons, everything from environmental impacts to wake loss. The EQB understands, however, that at the time the application is submitted, the applicant can only estimate where the turbines will be located, because micro-siting

occurs after the permit is issued and construction is about to begin. The permit does not preclude the permittee from moving the location of particular turbines from what was anticipated, as long as other various restrictions of the permit are complied with, such as setback requirements and restrictions on placing turbines in areas like wetlands. Typically, a site permit for a wind project contains a condition requiring the permittee to inform the EQB of the precise locations of the turbines when the micro-siting is complete.

**Item B.** The EQB needs to know the specifics of the turbines that will be installed – the height, the structure, the blade diameter, and other data. This information is necessary to evaluate the possible impacts of the project on the environment and to consider the energy production expected.

**Items C and D.** The wind turbines are only a part of any LWECS. A wind project also involves all kinds of electrical equipment, like transformers and collection and feeder lines, and other equipment like maintenance and operational equipment. In order to evaluate the complete impact of a proposed project, these associated facilities must also be identified. It is appropriate to require the applicant to identify what additional facilities are associated with the particular project being proposed. In addition, this will ensure that any permit that is issued will be written to cover everything that is associated with the project.

**Subpart 7. Environmental impacts.** Of course, the EQB must investigate and review the environmental impacts associated with any proposed wind project. The applicant is the one that must provide the information about the potential impacts of the project. What this rule requires is the inclusion in the application of information on the potential impacts of the project, the mitigative measures that are possible, and adverse environmental effects that cannot be avoided. This is the typical analysis with any project undergoing environmental review by the EQB or other agencies.

The effects identified in items A – R in the rule should cover every potential impact of a LWECS. It is not necessary to discuss every single one of these in this Statement of Need and Reasonableness. Suffice it to say that an applicant must identify any and all potentially adverse impacts that may be caused by a proposed project and mitigative measures that might be implemented with regard to those impacts.

Wind projects have not been found to have significant environmental and human impacts. Wind projects along Buffalo Ridge have been generally well accepted by residents and others concerned about the environment. Permit conditions have been satisfactory to address specific concerns like wetlands and wildlife management areas with past permits. One area of concern that was raised initially was the possibility of avian fatalities caused by the turbines.

As part of the first wind permit issued by the EQB, the Board required Northern States Power Company to conduct an avian mortality study along Buffalo Ridge. This study was conducted between 1995 and 2000, and a report on the study was completed in 2000. The researchers found that the number of avian fatalities from the wind turbines at

Buffalo Ridge is essentially inconsequential, although there was some bat mortality found. The wind developers are presently conducting additional studies on bat mortality.

Because the environmental and human consequences of wind turbines are relatively minor and can be minimized by appropriate permit conditions, the EQB is not requiring in these rules that an Environmental Assessment Worksheet or an Environmental Impact Statement be prepared on a proposed LWECS. It is sufficient that the environmental impacts and mitigative measures be discussed in the application itself. If an issue of concern were to be raised specific to a particular wind project, the EQB could ask for additional examination of those impacts and could address the concern through permit conditions or by moving some of the turbines

**Subpart 8. Construction of project.** Construction itself can cause environmental impacts, so it is necessary for the applicant to address the manner in which the project will be constructed. It may be necessary to include conditions in the permit requiring mitigative measures during construction of the turbines.

**Subpart 9. Operation of project.** Once the wind turbines are up and running, they must be operated and maintained. The applicant must describe its operation and maintenance procedures so any impacts associated with those tasks can be identified and addressed.

**Subpart 10. Costs.** The EQB uses the cost information to evaluate whether the project is making efficient use of the wind resource. Also, cost information is important to place in perspective the costs of mitigating any environmental impacts that are identified.

**Subpart 11. Schedule.** The EQB wants to know at the time the application is submitted what the developer's proposed schedule is. The EQB understands that sometimes schedules slip, but at least the applicant can provide an anticipated schedule. The rule requires the applicant to describe the anticipated schedule for a number of tasks, including obtaining the permit, acquiring land, obtaining financing, procuring equipment, and completing construction. This information will give the EQB a good overall view of the tasks required to be completed to actually bring the project online, and help identify any constraints in the schedule. The expected date of commercial operation is helpful to the EQB and to other state agencies as well. The public, also, is interested in the anticipated schedule for construction of the project.

**Subpart 12. Energy projections.** The EQB has been collecting data on how well the wind turbines in the state have been performing. At the time the application is submitted, the applicant can only make projections on the energy to be generated, but it is helpful to know what the developer expects to receive from the turbines planned for installation.

**Subpart 13. Decommissioning and restoration.** Just like any other project, a LWECS will not last forever. At some point the wind turbines and other associated

facilities will have to be decommissioned. The EQB wants to know upfront how the developer plans to pay for removal of the turbines at the end of their useful life. Since the wind turbines may last for thirty years or more, and the ownership of the project may change over the years, some arrangements must be made from the start to provide funding for the ultimate decommissioning. In other cases wind developers have created funds specially set aside for this purpose, and the funding comes from payments made periodically from sale of the electricity. The EQB is not promulgating one specific requirement for ensuring funds are available for decommissioning, and the EQB will allow applicants to be creative provided the EQB can be assured the money will be there when needed.

**Subpart 14. Identification of other permits.** It is not unusual with any project requiring a permit that the applicant identify what other permits are required before the project can go ahead. These permits are normally such permits as a Department of Natural Resources water crossing permit or a wetland survey and a Pollution Control Agency surface water discharge permit. Sometimes federal approval may be required, depending on the location of the project. For example, approval from the Federal Aviation Administration (FAA) may be required if an airport is nearby, or approval from the Bureau of Land Management could be necessary if the project were to be located on federal lands. Local government is pre-empted from enforcing its zoning and land use ordinances when the EQB has jurisdiction over a project. Minnesota Statutes section 116C.697.

#### **4401.0460 ACCEPTANCE OF APPLICATION.**

Sections 4401.0460 through 4401.0550 establish the procedures the EQB will follow in acting on an application for a site permit for a LWECS. The Legislature specifically directed the EQB to adopt rules establishing such procedures. Minnesota Statutes section 116C.695(2).

**Subpart 1. Action by chair.** The chair has thirty days under this requirement to accept or reject an application once it is submitted to the EQB. The statute specifically provides that it is the chair who decides on the completeness of the application. Minnesota Statutes section 116C.694(c). Allowing the chair to make this decision, rather than the board, will help to speed the process along. Ultimately, of course, it is the full board that will decide whether to issue a permit and what conditions to include.

The chair has thirty days from the day the application is submitted to make a decision on the completeness of the application. Acceptance of the application also triggers the start of the 180 days the EQB has to act on the application. Minnesota Statutes section 116C.694(c). Normally, wind developers have been in contact with the staff prior to submission of an application and have allowed the staff to comment on draft applications. Thus, when the application is submitted in final form, it contains the information the staff believes is necessary and is quickly accepted. If the chair should reject an application, the rule requires the chair to identify in writing the deficiencies that exist and how the application can be corrected.



**Subpart 2. Notice of application acceptance.** It is important that notice be provided quickly to persons who are likely to be interested in the fact that a wind permit has been applied for. This subpart requires the applicant to notify local officials and to publish notice in a newspaper of general circulation in each county in which the project is proposed to be located within fifteen days after acceptance of the application. Fifteen days is a reasonable period of time. There is no reason notice can't be published in the newspaper within a few days or a week after acceptance of the application.

This subpart provides that failure to give this notice or a delay in giving the notice could result in the permit being denied or a decision being delayed. It is appropriate to provide that these kind of sanctions could be imposed because the EQB has only 180 days to act on a permit application once the application is accepted, and it is important to give the public ample opportunity to respond to the proposal.

However, it is unlikely that such sanctions would be imposed. In most instances, the public will have already been informed about the possibility of a wind project in their vicinity by the time the application is submitted to the EQB, since usually the word about a proposed project is in the news locally before a permit is even applied for. Also, the subpart provides that the chair may elect to relieve the applicant of giving this notice. The reason for this is oftentimes the EQB is prepared to give the notice specified in part 4401.0550, subpart 1, at the same time the applicant is required to give notice under this subpart. In such situations, it makes sense to combine the notice to provide all the information specified in 4401.0550. Further, the EQB will post the application on its web page as soon as possible after the application is accepted, and the use of the internet helps provide notice very quickly.

**Subpart 3. Additional copies.** The purpose of this subpart is to ensure that a hard copy of the application is available in the area where the project is proposed to be located. The rule requires the applicant to provide a copy to the cities, townships, and counties where the project is located. These local governmental offices are a convenient place for residents in the area to come to review a hard copy. The rule directs local officials to make the application available for public inspection. The EQB has found local officials more than willing to perform this task in the past.

The applicant also must provide a hard copy to the Minnesota Public Utilities Commission and the Minnesota Historical Society. The PUC is interested in all wind projects because the PUC may have evaluated the project as part of a certificate of need proceeding or may have to consider the project in a subsequent rate hearing. The Department of Commerce will also be interested in all wind projects, but since the Commissioner of the Department of Commerce is a member of the EQB board, that agency will always be provided with such applications.

The rule requires the applicant to provide a hard copy of the application to each landowner within the boundaries of the proposed LWECS site. These are the people who are most directly affected by the project and who are most likely to review the

application. The EQB experience with all kinds of energy facilities is that the landowners whose property is most directly affected want to be provided with a hard copy of the application.

Once an application has been accepted, the applicant must submit a number of additional copies to the EQB. The rule does not specify how many copies of the application the applicant must submit. The chair will inform the applicant of the number. The EQB would like to minimize the number of hard copies that are required, but the EQB has a fairly extensive mailing list of agencies and citizens who require a copy of such documents. It is likely that the EQB will require 40 or more copies.

**4401.0470 PUBLIC ADVISOR** The Power Plant Siting Act, Minnesota Statutes sections 116C.51 to 116C.69, which was passed in 1973, gives the EQB jurisdiction over power plants other than wind projects and over high voltage transmission lines. One of the requirements of the Power Plant Siting Act is that the EQB appoint a staff person to act as a public advisor when a permit application for a power plant or transmission line is submitted. Minnesota Statutes section 116C.59, subd. 3. There is no corresponding requirement in the wind power statutes, but the EQB believes that continuation of this practice is desirable. Therefore, the EQB is proposing to adopt this section to provide for the appointment of a staff person to assist the public in participating in LWECS permit proceedings. The EQB has appointed a public advisor in the other wind project permit proceedings and the public has appreciated having such a person to consult about the process.

The language in this section is based on the language in the existing power plant siting rules. Minnesota Rules part 4400.0900. It is important to emphasize in the rule that while this staff person can assist the public in understanding the process, the staff cannot act as a legal adviser or advocate for any member of the public.

#### **4401.0500 PRELIMINARY DETERMINATION AND DRAFT SITE PERMIT.**

**Subpart 1. Preliminary determination.** This rule provides that within 45 days after acceptance of an application, the Chair must make a preliminary determination whether a permit may be issued and prepare a draft site permit with proposed conditions if a permit may be issued. This is the process followed by other agencies in administering permit programs. See the Pollution Control Agency rules on permits. Minnesota Rules parts 7001.0100 and 7001.1080.

The existence of a draft site permit will help the public and the applicant focus on any issues that are associated with the project. It will convey a preliminary decision by the chair that a site permit may be issued, and the proposed conditions will identify any potential issues of concern. The EQB has issued seven site permits for LWECS over the last six years and these permits have been quite similar in content. The EQB believes that it can quickly make a preliminary decision on whether a permit is appropriate and can draft the document with conditions based on the other permits that have been issued.

**Subpart 2. Effect of draft site permit.** This provision is necessary to clarify that issuance of a draft site permit does not mean that a permit is guaranteed. The EQB could still deny the permit based on information that is collected during the permit process. The permit conditions can certainly be changed in any manner that is supported by the record. Also, this rule emphasizes that a draft site permit does not authorize anything. A permit applicant is not authorized to begin construction of a wind project simply because the chair has sent a draft site permit out for public comment.

**4401.0550 PUBLIC PARTICIPATION.** This rule is intended to ensure that the public has an opportunity to participate in the processing of a permit application for a proposed wind project. The statute requires the EQB to include in its rules procedures for notifying the public of an application and affording opportunities for a public information meeting and a public hearing on a proposed LWECS. Minnesota Statutes section 116C.695(3). Some of the provisions in these proposed rules intended to provide public notice, part 4401.0460, and to assist the public, part 4401.0470, have already been discussed. This rule addresses additional notice and opportunities for public participation in the process.

**Subpart 1. Public notice.** Part 4401.0460 specifies requirements for notifying the public that a permit application for a wind project has been accepted by the EQB. This rule, part 44001.0550, specifies the notice that must be given by the EQB, not the applicant, about how the EQB will actually process the application and how the public may participate.

The rule does not specify when the notice must be given, but since it is not given until after a draft site permit is prepared, it could be as long as 45 days after acceptance of the application. However, with the Navitas and Chanarambie permits issued in May 2001, the staff had a draft site permit prepared within days after the application was accepted, so this notice was provided shortly after the application was accepted. That is the reason part 4401.0460, subpart 2, recognizes that these two notices may be combined.

**Items A, B, and C.** Some of the information – the name of the applicant and the description of the project and the location of a hard copy of the application– are repetitious from information the applicant must provide under 4401.0460. But it is helpful for the EQB to include that information in its notice as well.

**Item D.** This item requires a statement in the notice that a draft site permit is available. The draft permit will focus the issues for the public so it is important that the public knows that such a document is available.

**Item E.** This provision requires the EQB to identify the name of the public advisor appointed by the Chair. The public needs the identity of this person so the public knows who to contact at the EQB staff with its questions.

**Item F.** The notice must contain the time and place of a public information meeting that the EQB will hold on every site permit application. As discussed below, the

public must be given notice that a public meeting will be held in the area of the proposed project before the EQB will make a decision on a permit.

**Item G.** The notice must notify the public that comments may be submitted on the draft permit within a specified time period. The time period is discussed under subpart 4 of this rule. Also, the notice must inform the public that any person can request a contested case hearing on the matter. This hearing option is discussed under subpart 5.

**Item H.** Item H. requires the EQB to explain the anticipated procedures for reaching a final decision on the permit application. This requirement is another example of how the EQB wants to ensure that the public is fully aware of its opportunities to participate in the permitting process.

A related issue that should be discussed here under this proposed rule is the authority of the EQB to appoint a citizen advisory task force. The Power Plant Siting Act, which applies to large electric power generating plants and high voltage transmission lines, provides that the EQB can create a citizen advisory task force to assist the agency in siting and routing these kind of projects. Minnesota Statutes section 116C.59, subd. 1, as amended by Minnesota Laws 2001, chapter 212, article 7, section 18. These wind rules on LWECS do not contain a specific provision for creating such a task force. The reason for that is unlike the traditional coal-fired and natural gas-fired power plants, where several sites can be considered for the location of the plant, the wind developer has one particular area in mind for the project. There is not a great deal a citizen advisory task force can do with regard to selecting a site for a wind project.

In 1995, with the Lake Benton I project, the EQB actually did appoint a citizen advisory task force. That project, however, was proposed under the old power plant siting provisions that required an applicant to propose at least two sites. The task force did have two sites to review and did make a recommendation on a preferred site. Today, however, under these newer wind siting statutes, there are not two sites to review, and there is no role for a citizen advisory task force to play in reviewing potential sites.

**Subpart 2. Distribution of public notice.** While subpart 1 specifies what has to be in the notice the EQB will give the public, this rule addresses how to give that notice. Newspaper ads have historically been an effective means of alerting the public to matters pending before the EQB, and this rule continues that practice. Also, the EQB usually compiles a list of names and addresses of people who are known to the EQB to be interested in certain matters or certain kinds of matters, and the EQB will assuredly contact directly any person who asks to be notified about wind permits generally or a certain project specifically. Finally, the EQB Monitor has been published by the EQB for about 25 years, and the public has come to expect information like notice of permit applications in the Monitor. The Monitor is also available electronically on the EQB webpage, and thousands of people often check the Monitor on their computers for information.

**Subpart 3. Public comments on draft permit.** The public must be given an opportunity to submit comments on a proposed project. This rule gives the public a minimum of 30 days after publication of the draft site permit in the EQB Monitor to submit comments. The EQB can allow more than 30 days if the Chair believes that more time is appropriate in the circumstances. Also, the rule allows the Chair to extend the comment period if necessary to accommodate members of the public who have a good reason for needing more time. Further, the public will actually have more than 30 days from the time the notice of the acceptance of the permit application was first given and the application made available in local governmental offices.

**Subpart 4. Public information meeting.** The rule requires that the EQB hold a public informational meeting on each permit application. The EQB has held public informational meetings on all previous wind projects that have been permitted, and the EQB, and the public presumably, has found these meetings to be helpful in gathering information on a particular project. It is worthwhile to continue this practice.

The rule specifies how the meeting should be noticed and scheduled. The time frames provided are designed to afford the public an opportunity to meet with the EQB staff and the applicant at the meeting, ask their questions and gather information, and then have time to submit written comments if desired. The rule provides that the Chair can extend the comment period upon request.

**Subpart 5. Contested case hearing.** The statute requires that the EQB rules must provide for the conduct of a public hearing. Minnesota Statutes section 116C.695(3). The EQB does not read the statute to require a contested case hearing presided over by an administrative law judge in every case, as is specified in the Power Plant Siting Act for large electric generating power plants and high voltage transmission lines. Minnesota Statutes section 116C.57, subd. 2d., as amended by chapter 212, article 7, sec. 10. Instead, the EQB believes it is in compliance with the statute to provide for public meetings and an opportunity to request a contested case hearing in an appropriate situation. With only 180 days to complete the permitting process, it is unlikely the Legislature intended the EQB to hold a contested case hearing on every permit application.

During the public comment period, any person may request a contested case hearing. The person requesting the hearing must put the request in writing and specify the issues to be addressed in the hearing and the reasons why a hearing is necessary. The request will be presented to the full board. There must be a good reason to go through the time and expense of a contested case hearing. Item B. provides that the board will hold a hearing if it finds that a material issue of fact is in dispute and the holding of a hearing would aid the EQB in making a final determination on the permit application. These are reasonable criteria to apply in determining whether a contested case hearing is appropriate.

It is reasonable to impose a time limit on when a person may ask for a contested case hearing. The proposed rule allows the public to ask for a hearing any time up to the day

the comment period on the draft site permit ends. This is a minimum of 30 days after the draft site permit becomes available.

If a hearing is ordered, it will be a contested case hearing, presided over by an administrative law judge from the Office of Administrative Hearings who will conduct the hearing and write a report making recommendations on the site permit. Item C of the subpart specifically recognizes the role of the Office of Administrative Hearings. It is likely that the board will have to extend the time to act on the permit if such a hearing is held.

The only contested case hearing the EQB has held on a LWECS project involved the Lake Benton I project in 1995, in which two developers were competing for the same project. The other six LWECS that have been built along Buffalo Ridge were permitted without any controversy. No members of the public requested hearings on any of those projects. The EQB expects that future projects will also be able to be permitted without a contested case hearing, but this rule will be available if the situation should arise where there is public objection.

#### **4401.0600 FINAL PERMIT DECISION.**

**Subpart 1. Board action.** This subpart recognizes that it is the full Board that will make the ultimate permit decision. The rule provides that the Board must follow the applicable contested case procedures in those situations where a hearing was held. Those requirements can be found in the EQB's own procedural rules, Minnesota Rules chapter 4405, and in the rules of the Office of Administrative Hearings, Minnesota Rules chapter 1405, and in the Administrative Procedure Act, Minnesota Statutes sections 14.57 to 14.62.

When a hearing has not been held, the Board must still act on the basis of the record that has been created and follow its own procedural requirements in Minnesota Rules chapter 4405, for bringing matters to the Board at a regular monthly meeting for action.

**Subpart 2. Time limit for decision.** This provision is merely a repeat of the statutory requirement that the EQB has 180 days after acceptance of the application to act on the request. Minnesota Statutes section 116C.694(3). However, the statute allows the EQB to extend this deadline for cause, and the rule recognizes that possibility. It is impossible to identify in the rule all the reasons for extending a deadline, and the EQB has not even attempted to list any acceptable reasons. It is reasonable to address this question on an ad hoc basis as the situation arises. Of course, if the applicant agrees to the extension, it is reasonable to extend the time. In all cases, the EQB will not unreasonably delay reaching a decision on a permit.

In the past, for projects that were not contested, the EQB has been able to issue a site permit within just a month or two from the date the application was submitted. Under these rules, requiring certain notices to be given and affording time for public comment,

the EQB should be able to make a final decision on an uncontested permit request within three or four months from the day the application is accepted.

**Subpart 3. Determination by board.** This rule sets forth the standard for issuance of a permit. The requirements are taken from the statute setting forth state policy to site LWECS in an orderly manner that is compatible with environmental preservation, sustainable development, and the efficient use of resources. Minnesota Statutes section 116C.693. These criteria are admittedly subjective, but they are the standards established by the Legislature, and in the seven wind permits the EQB has issued to date, application of these criteria has not been a problem. It is reasonable for the EQB to attempt to minimize the environmental impacts of the project, ensure the continued development of the wind resource, and utilize the wind resource in an efficient manner that keeps the costs of wind power as low as possible.

**Subpart 4. Conditions.** The EQB is authorized by statute to include conditions in any wind permit it issues. Minnesota Statutes section 116C.694(d). The EQB has not attempted to establish by rule any conditions that go into all wind permits. Appropriate conditions are determined during the permitting process. The information required to be included with the permit application is intended to allow the EQB to establish appropriate conditions reflecting the specifics of the project.

The seven wind permits that the EQB has issued generally contain the same permit conditions, and it is likely that permits issued in the future will contain identical or similar conditions. The last two wind permits issued by the Board - the Navitas permit and the Chanarambie Power Partners permit – are essentially identical. Nonetheless, the EQB is not attempting in this rulemaking to establish any conditions by rule.

There are a couple of rule requirements in part 4401.0610 that will be included in the permits that are issued, so in a sense these rule requirements are permit conditions. These requirements are discussed below.

**Subpart 5. Term.** The statute does not establish any definitive term for a wind permit. The EQB proposes to adopt by rule a term of 30 years for an LWECS permit. The EQB has included this 30-year term in its existing permits without objection. The 30 years is based on the generally accepted fact that 30 years is about how long a wind turbine is expected to last. However, the rule does provide that the permit can be extended so the EQB has no intention of requiring the removal of turbines that have a useful life. Requiring a renewal after 30 years, however, will afford the EQB an opportunity to take a fresh look at an old project and determine whether there is useful life left.

#### **4401.0610 EFFECT OF PERMIT.**

**Subpart 1. Wind rights.** This rule provides that even if a person obtains a wind permit from the EQB, the permit itself does not convey the right to install any wind turbines if the permittee does not hold the wind rights in the area where the permittee

wants to construct the turbine. Many wind developers are private organizations without the authority of eminent domain that would allow the permittee to condemn land. A wind developer cannot simply march onto private property and begin installing wind turbines.

This issue came to light in May 2001 when both Navitas Energy and Chanarambie Power Partners wanted a wind permit to construct turbines in the same area. Neither one held the wind rights in the area contested. In order to proceed with issuance of a permit to both developers, the EQB included language in their permits that provided that they could not go ahead in the contested area until the wind rights were obtained, and then the developer that failed to get the wind rights was precluded from building in that area. See the Navitas and Chanarambie permits. This seemed like a reasonable solution to the issue, one that allowed the developers to proceed with their projects in other areas, and the EQB has determined to incorporate this approach into the rule.

Several years ago, when the first wind projects were being developed along Buffalo Ridge by Northern States Power Company, NSP solicited bids from wind developers with the condition that NSP would provide the wind rights. Now, the developers are responsible for obtaining their own wind rights

While wind rights are required in order to construct a wind project, the EQB has not necessarily held up the issuance of a permit when a developer is still negotiating for certain wind rights. With the two permits issued in May 2001 to Navitas Energy and Chanarambie Power Partners, the Board included in both permits a particular area for which neither permittee held the wind rights, but provided that only that developer that obtained the wind rights could develop in the area. This was a reasonable solution in May 2001 and may continue to be a reasonable method to deal with situations where a wind developer has not obtained the wind rights. However, a developer with wind rights in a particular area may also apply for a permit and pre-empt another developer with a permit from developing in a particular area.

**Subpart 2. Other LWECS construction.** This subpart is a corollary to subpart 1. While Navitas and Chanarambie sought their permits simultaneously, in the future two wind developers may seek a permit to place turbines in same area at different times. This rule recognizes that just because the first developer obtains a permit for a certain area, that a second developer cannot seek a permit for the same area if the first developer does not hold the wind rights in the area permitted. The EQB believes that this kind of rule will allow developers to continue with their development plans and result in expeditious development of the wind resource in Minnesota.

**Subpart 3. Power purchase contract.** This is another related issue. A wind developer is not going to be able to obtain financing of a proposed project if the developer has nobody to buy the wind power that is to be generated. However, a developer may seek a permit from the EQB while it is negotiating a power purchase agreement or other enforceable mechanism for sale of the power. This provision will allow the EQB to proceed with issuance of the permit even though the details on a power purchase agreement have not been worked out. This was the situation with the Navitas



and Chanarambie permits. In that case, the EQB gave both developers a permit but conditioned the permits on the obtaining of a power purchase agreement or other mechanism for selling the power. If the permittee was not able to finalize a power purchase agreement within a finite time, less than one year in Chanarambie's case and about a year with Navitas, the permit was null and void. Again, this kind of approach allows the EQB to issue the permit and keep the developer moving with its plans, and yet not jeopardize the use of the wind resource by another developer with wind rights or a power purchase agreement.

It was discussed above in section 4401.0600, subpart 4 (Conditions) that the EQB had not attempted to establish conditions in the rule. In effect, however, the requirements in this part 4401.0610 do establish conditions that will be placed in wind permits.

**4401.0620 DELAY IN CONSTRUCTION.** Because the Legislature wants to see an efficient and orderly development of the wind resources in this state, the EQB has proposed this condition to require a permittee to begin construction of the project within two years, and if construction has not begun within that timeframe, the permittee must advise the Board of the reason for the delay. The Board may then consider whether to revoke the permit. No permit would be revoked without notice and opportunity to be heard and compliance with all of the permittee's rights.

The EQB has required in its Power Plant Siting rules for years, Minnesota Rules part 4400.4000, that if a large power plant or high voltage transmission line permitted by the Board is not placed under construction within four years, the Board shall suspend the permit and the permittee cannot proceed without a reinstatement of the permit by the Board. This same concept is continued in this rule, although the timeframe is shorter and the suspension or revocation of the permit is not automatic. The reason for the rule is that at least for the larger projects (over 50 megawatts), the Public Utilities Commission will have determined that the project is needed. If the project is needed, the EQB, and perhaps the PUC and other agencies as well, want to know what is holding up construction, and whether another developer or another project should be permitted.

**4401.0700 PERMIT AMENDMENT OR REVOCATION.**

**Subpart 1. New boundary.** When a wind permit is issued for a proposed project, the boundaries of the project are specifically defined in the permit. Once the permittee completes its micrositing process and determines the specific locations for the turbines, however, the size of the project may shrink in size. The EQB then redefines the boundaries of the project to be the minimum area required so that the areas not used are available for other projects.

In the past this amendment of the permit to redefine the boundaries has been done by the board. But because it is a rather routine matter, the proposed rule would delegate that authority to the chair. This delegation allows this task to be completed with a minimum of administrative delay. However, the rule does provide that if there is a dispute over the precise boundaries of the project, any person can bring the matter to the full board. This

could be the permittee, who thinks the project area has shrunk too much, or another developer who wants the boundaries even smaller. The EQB has not experienced any complaints over the redefining of the boundaries, but the rule provides a process in case an objection is raised.

**Subpart 2. Permit amendment.** The statute recognizes that the Board may “deny, modify, suspend, or revoke a permit.” Minnesota Statutes section 116C.694(d). This subpart simply repeats that authority.

**Subpart 3. Permit revocation.** This subpart recognizes that the Board may revoke a permit in certain situations and the rule specifies the situations under which the permit may be revoked. The first condition in Item A is when the applicant has knowingly made a false statement as part of the application. Obviously, a permitting agency has the authority to revoke a permit that was obtained falsely, and that is what this provision says.

Item B allows the Board to revoke a permit if the permittee has failed to comply with the terms and conditions of the permit. Again, this is a situation where any permitting agency could choose to revoke a permit. However, violation of a permit condition is not an automatic revocation. The Board has discretion in how to respond to a permit violation. Not every permit violation is of such consequence that revocation or other sanction is appropriate. This will be a case-by-case decision.

Item C allows the Board to revoke a permit if human health or the environment is endangered. Here, too, the Board has discretion and it will be an ad hoc decision.

Item D covers the situation where the permittee has violated other laws that reflect on the ability of the permittee to comply with the permit.

The EQB has never revoked a wind permit, or any other permit, that it has issued. It is unlikely that a permittee will ever engage in the kind of conduct specified here. Nonetheless, it is reasonable to provide in the rules for revocation of a permit if the situation should arise.

**Subpart 4. Procedure.** Because the EQB has discretion whether to revoke a permit even if certain conduct has been engaged in, and because a permittee is entitled to certain due process rights before a permit can be taken away, this subpart establishes that the EQB must afford the permittee the right to notice and opportunity to be heard before a permit can be amended or revoked. The rule also recognizes that the Board may act on its own volition, or any person may bring an alleged misconduct situation to the Board’s attention.

#### **4401.0800 FEES.**

Minnesota Statutes section 116C.695(7) provides that the board shall adopt rules governing “payment of fees for the necessary and reasonable costs of the board in acting

on a permit application and carrying out the requirements of sections 116C.691 to 116C.697. The EQB is not establishing in this rule that applicants must pay fees; that was established by the Legislature in the statute. Instead, this rule only addresses the manner in which the fees are paid.

Minnesota Statutes section 16A.1283 is a new statute that was passed in 1999 that provides that a state agency may not impose a new fee or increase an existing fee without the approval of the Legislature. In this case, the EQB is not imposing a new fee or increasing an existing fee. The fee remains exactly as the Legislature created it in 1995. Therefore, it is not necessary to obtain legislative approval to adopt this subpart of the rules.

**Subpart 1. Fee requirement.** The first sentence of this rule merely recognizes the requirement that a permit applicant must pay a fee. The second sentence attempts to identify some of the necessary and reasonable costs that must be paid in processing a permit application. Obviously, staff time is a significant part of the necessary expenses. In addition, there are costs the EQB must pay to other persons, such as newspapers and postage and travel expenses, that must be covered. Often the EQB must seek legal advice in processing a particular application, and this is certainly true if any litigation should result. There are times when the EQB's permit decisions are challenged in court. In fact, the first LWECS permit the EQB issued, to Northern States Power Company for the Lake Benton Phase I project, was challenged in court.

**Subpart 2. Determination of board budget.** The applicant must pay the necessary and reasonable expenses of the EQB in processing the application. When the permit is applied for, nobody knows exactly how much it will cost to process, so the chair, working with the EQB staff, will prepare an estimate of the expected costs. The estimate will be based on past experiences in processing LWECS applications and on the staff's expectations of what will be involved in processing the pending application. The expenses incurred by the EQB in issuing the last two wind permits issued by the Board – the Navitas and Chanarambie Power Partners permits issued in May 2001 and referenced throughout this document – were approximately \$10,000. This is a reasonable fee and the applicants have not complained about the amount.

If an applicant should disagree with the chair's estimate, the rule allows the applicant to bring the complaint to the attention of the board. The EQB does not expect this to happen, because the staff will be able to make a fairly accurate estimate, and because in the end, the applicant will not be required to pay more than the actual costs. In any event, the rule recognizes that an applicant could ask the board to review the estimated budget.

**Subpart 3. Initial payment.** The EQB will begin incurring costs from the time the application is submitted so it is necessary for the applicant to make a payment to the agency essentially at the same time the application is submitted. The rule recognizes that the EQB will not begin to process the application until the first payment is made. If the applicant is late in making the payment, the EQB's timeframe for completing the permit process will not commence. The EQB's experience has been that applicants will discuss

the budget with the staff before the application is even submitted, so that when the applicant does submit the application, a check for the initial amount can be included.

The rule requires that the first payment be at least 50% of the total estimated budget. Because the staff must complete a great deal of work in a relatively short time after the application is accepted, it is reasonable to require one-half of the total payment be made upfront. Also, since the timeframe allowed for the entire process is only 180 days, it is preferable to not spend a lot of time sending invoices out to the applicant for additional payments. Some applicants might simply choose to submit the entire estimated fee upfront with the application and wait until the final accounting to determine the actual expenses.

Minnesota Statutes section 116C.69, subd. 2 and 3, which apply to permitting of power plants and transmission lines, requires that permit fees be deposited in a separate account for the specific project. Section 116C.695 does not include that requirement, but the EQB has always in the past maintained separate accounts for LWECS applications, and it makes sense to continue that practice. Maintaining a separate account helps ensure that only the necessary and reasonable costs attributable to the project are charged to the applicant.

**Subpart 4. Periodic payments.** If the applicant only pays one-half of the estimated budget, or if the estimated budget turns out to be insufficient, the EQB will send an invoice to the applicant and request additional payments. The EQB expects the applicant to make the payments before the EQB incurs expenditures beyond what is available in the account, and the EQB usually requests payment within 30 days of receipt of the invoice. It is reasonable to require that the applicant maintain a positive balance in the account to pay EQB expenses as they are incurred.

The rule provides that if the applicant has an outstanding balance due at the time the EQB is prepared to make a final decision on the permit, the applicant must pay that amount before a final decision is made. It makes good sense to ensure that the applicant pays what is owed for processing the permit before the final decision is made.

**Subpart 5. Final accounting.** Since the applicant pays only what is necessary and reasonable, a final accounting is required once all the expenses have been incurred. The final accounting will indicate exactly what costs and expenses were paid as part of the application. The EQB's accounting people will prepare the final accounting. If the applicant believes that the figures are unnecessary or unreasonable, the applicant can request that the board review the numbers and make a final decision on the amount due.

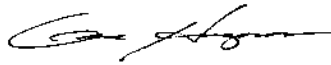
The final accounting cannot occur until the EQB has determined all its expenses in processing the permit application. It is possible that an aggrieved person may challenge the Board's final decision by bringing a lawsuit, so the final accounting cannot occur until the time for judicial review has expired.

It is reasonable to provide only a short period of time for either the applicant to make an additional payment, or the EQB to refund an overpayment, once the final accounting is determined. The rule provides for a thirty-day period for the final payment. Both the applicant and the EQB should be able to make the requisite payment within thirty days of the determination of the amount.

## **VI. Conclusion**

As explained in this document, the proposed rules will help ensure that the EQB can carry out its legislative mandate to ensure the orderly development of the wind resources in this state while protecting the environment. The permit program established by these rules for Large Wind Energy Conversion Systems should operate in an effective and expeditious fashion to accommodate applicants who seek a prompt resolution of their permit application and the public who seek an opportunity to be informed and to be heard.

DATED: September 20, 2001



GENE HUGOSON  
Chair  
Minnesota Environmental Quality Board

EXHIBIT LIST

1. 25 State Register 1382 (February 12, 2001) (Notice of Intent to Solicit Outside Opinion)
2. EQB Monitor (March 5, 2001)
3. List of Persons Interested in Rules on Wind Projects
4. List of Wind Permits Issued by the EQB
5. Interim Site Permit Procedures
6. Lake Benton I Permit
7. Navitas Energy, LLC
  - a. Application
  - b. Permit
  - c. Findings of Fact
8. Chanarambie Power Partners, LLC
  - a. Application
  - b. Permit
  - c. Findings of Fact
9. Avian Study
10. Energy Security and Reliability Act of 2001

**ADDENDUM TO  
STATEMENT OF NEED AND REASONABLENESS**

At the Environmental Quality Board meeting on September 20, 2001, when the Board approved the Statement of Need and Reasonableness and authorized the Chair to go forward with formal rulemaking on the proposed rules, the Board made one change in the proposed rules as they were presented to the Board. The Board in its authorizing resolution directed the staff to add a short Addendum to the SONAR explaining this one change, and that is the purpose of this Addendum.

The one change the Board made in the proposed rules was to change the word “electricity” in part 4401.0610, subpart 3 to the word “power.” The changed language now reads as follows:

Subp. 3. Power purchase agreement. A site permit does not authorize construction of the project until the permittee has obtained a power purchase agreement or some other enforceable mechanism for sale of the power to be generated by the project. If the permittee does not have a power purchase agreement or other enforceable mechanism at the time the permit is issued, the board shall provide in the permit that the permittee shall advise the board when it obtains a commitment for purchase of the power. The board may establish as a condition in the permit a date by which the permittee must obtain a power purchase agreement or other enforceable mechanism or the site permit is null and void.

The reason for the change is to recognize that the energy generated by wind turbines could be in a form other than electricity. For example, the electricity generated by the turbines could be used to produce hydrogen, which could then be stored and sold to a purchaser for use in generating electricity at a later time, or even sold for other purposes. By using a broader term in this subpart, the EQB is recognizing that it may be possible to utilize wind turbines for purposes other than the immediate sale of electricity.

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On September 24, 2001, amendments to the rules of the Office of Administrative Hearings regarding rulemaking became effective. The amendments were published in the State Register on September 17, 2001 (26 State Register 391).

One of the changes made to the rules relates to information in the Statement of Need and Reasonableness. The new rule now requires the SONAR to include the date the statement is made available for public review. Minnesota Rules part 1400.2070, subpart 1.E. This rule change became effective after the EQB Board approved the Statement of Need and Reasonableness in this case but this Addendum is added to provide this information.

The Statement of Need and Reasonableness first became available to the public on September 13, 2001, the day the information for the EQB’s September 20 monthly Board

## AFCL Exhibit D - Statement of Need and Reasonableness (SONAR)

meeting was mailed to Board members and to persons on the agency's mailing list. The SONAR has been available for the asking since that date. The SONAR was discussed at the Board meeting on September 20, 2001.





**CHAPTER 7854**  
**PUBLIC UTILITIES COMMISSION**  
**SITE PERMIT; LARGE WIND ENERGY SYSTEM**

7854.0100	DEFINITIONS.
7854.0200	PURPOSE.
7854.0300	PERMIT REQUIREMENT.
7854.0400	FILING APPLICATION FOR SITE PERMIT; PROTECTING DATA.
7854.0500	SITE PERMIT APPLICATION CONTENTS.
7854.0600	APPLICATION ACCEPTANCE.
7854.0700	PUBLIC ADVISOR.
7854.0800	PRELIMINARY DETERMINATION AND DRAFT SITE PERMIT.
7854.0900	PUBLIC PARTICIPATION.
7854.1000	FINAL SITE PERMIT DECISION.
7854.1100	PERMIT AUTHORITY LIMITED.
7854.1200	DELAY IN CONSTRUCTION.
7854.1300	SITE PERMIT AMENDMENT OR REVOCATION.
7854.1400	PERMIT TRANSFER.
7854.1500	FEES.

**7854.0100 DEFINITIONS.**

Subpart 1. **Scope.** As used in this chapter, the following terms have the meanings given them.

Subp. 2. **Associated facilities.** "Associated facilities" means facilities, equipment, machinery, and other devices necessary to the operation and maintenance of a large wind energy conversion system, including access roads, collector and feeder lines, and substations.

Subp. 3. **Commission.** "Commission" means the Minnesota Public Utilities Commission.

Subp. 4. **Construction.** "Construction" means to begin or cause to begin as part of a continuous program the placement, assembly, or installation of facilities or equipment or to conduct significant site preparation work for installation of facilities or equipment. Entering into binding power purchase contracts or obtaining wind easements from property owners or gathering wind data is not construction.

Subp. 5. **Draft site permit.** "Draft site permit" means a document prepared by the chair that indicates a preliminary decision to issue a site permit with particular terms and conditions.

Subp. 6. **EQB Monitor.** "EQB Monitor" means the biweekly bulletin published by the Environmental Quality Board.

Subp. 7. **Large wind energy conversion system or LWECS.** "Large wind energy conversion system" or "LWECS" means a combination of wind energy conversion systems with a combined nameplate capacity of 5,000 kilowatts or more.

Subp. 8. **Person.** "Person" means an individual, partnership, joint venture, private or public corporation, association, firm, public service company, cooperative, political subdivision, municipal corporation, government agency, public utility district, or any other entity, public or private, however organized.

Subp. 9. **Power purchase agreement.** "Power purchase agreement" means a legally enforceable agreement between two or more persons where one or more of the signatories agrees to provide electrical power and one or more of the signatories agrees to purchase the power.

Subp. 10. **PUC.** "PUC" means the commission and the commission's staff.

Subp. 11. **Site permit.** "Site permit" means a document issued by the commission authorizing a person or persons to construct a large wind energy conversion system under the terms and conditions specified in the document.

Subp. 12. **Small wind energy conversion system or SWECS.** "Small wind energy conversion system" or "SWECS" means a combination of wind energy conversion systems with a combined nameplate capacity of less than 5,000 kilowatts.

Subp. 13. **Wind energy conversion system or WECS.** "Wind energy conversion system" or "WECS" means a device such as a wind charger, windmill, or wind turbine and associated facilities that converts wind energy to electric energy.

**Statutory Authority:** *MS s 116C.695; 216F.05*

**History:** *26 SR 1394; L 2005 c 97 art 3 s 19*

**Published Electronically:** *September 18, 2009*

## **7854.0200 PURPOSE.**

This chapter provides for the consideration of applications for site permits for large wind energy conversion systems by the Minnesota Public Utilities Commission. This chapter is intended to provide for the siting of large wind energy conversion systems in an orderly manner compatible with environmental preservation, sustainable development, and the efficient use of resources.

**Statutory Authority:** *MS s 116C.695; 216F.05*

**History:** *26 SR 1394; L 2005 c 97 art 3 s 19*

**Published Electronically:** *September 18, 2009*

## **7854.0300 PERMIT REQUIREMENT.**

Subpart 1. **LWECS.** No person may construct an LWECS without a site permit from the commission. No person may commence construction of an LWECS until the commission has issued a site permit for the LWECS.

Subp. 2. **SWECS.** A site permit from the commission is not required to construct an SWECS. Nothing in this chapter precludes a local governmental unit from establishing requirements for the siting and construction of an SWECS.

Subp. 3. **Expansion of existing system.** No person may expand an existing LWECS by any amount or expand an SWECS to exceed 5,000 kilowatts without a site permit from the commission. A new project is considered an expansion of an existing WECS if the new WECS is within five miles of any turbine in the existing WECS, both projects are under common ownership, and a permit application for the new WECS is submitted to the PUC less than three years after the existing WECS commenced operation. Two WECS are under common ownership if the proposer of the new project, or a principal of the proposer, has an ownership or other financial interest in the existing WECS, although two projects are not under common ownership solely because the same person provided equity financing for both projects. The requirements of this subpart do not apply to any proposed SWECS for which the necessary local approvals were obtained prior to October 1, 2002, and for which construction started prior to December 31, 2002.

**Statutory Authority:** *MS s 116C.695; 216F.05*

**History:** *26 SR 1394; L 2005 c 97 art 3 s 19*

**Published Electronically:** *September 18, 2009*

#### **7854.0400 FILING APPLICATION FOR SITE PERMIT; PROTECTING DATA.**

Subpart 1. **Number of copies.** A person seeking a site permit for an LWECS shall file three copies of the application for the site permit with the PUC for review prior to acceptance of the application.

Subp. 2. **Electronic copy.** A person filing an application for a site permit for an LWECS shall provide the PUC with an electronic version of the application suitable for posting on the PUC web page. An applicant may request that the commission waive this requirement, completely or in part, if an electronic version of the application is difficult or expensive for the applicant to obtain.

Subp. 3. **Not public data.** An applicant for a site permit for an LWECS may certify, according to the Minnesota Government Data Practices Act or other applicable law, that certain information in the application is trade secret information or other protected data or information that is not available to the public. The commission shall determine if the certified data or information satisfies the requirements for the protected classification and shall advise the applicant of the commission's determination before releasing any certified data or information. An applicant may withdraw its application if the commission determines that the data or information is not entitled to the protected classification. Any person aggrieved by the decision of the commission regarding the status of certain data may request the commission to reconsider its decision. The PUC shall ensure that data or information that is entitled to a protected classification is used and disclosed only according to applicable law.

**Statutory Authority:** *MS s 116C.695; 216F.05*

**History:** *26 SR 1394; L 2005 c 97 art 3 s 19*

**Published Electronically:** *September 10, 2018*

**7854.0500 SITE PERMIT APPLICATION CONTENTS.**

Subpart 1. **Applicant.** An applicant for a site permit must provide the following background information regarding the applicant:

- A. a letter of transmittal signed by an authorized representative or agent of the applicant;
- B. the complete name, address, and telephone number of the applicant and any authorized representative;
- C. the signature of the preparer of the application if prepared by an agent or consultant of the applicant;
- D. the role of the permit applicant in the construction and operation of the LWECS;
- E. the identity of any other LWECS located in Minnesota in which the applicant, or a principal of the applicant, has an ownership or other financial interest;
- F. the operator of the LWECS if different from the applicant; and
- G. the name of the person or persons to be the permittees if a site permit is issued.

Subp. 2. **Certificate of need or other commitment.**

A. The applicant shall state in the application whether a certificate of need for the system is required from the commission and, if so, the anticipated schedule for obtaining the certificate of need. The commission shall not issue a site permit for an LWECS for which a certificate of need is required until the applicant obtains the certificate, although the commission may process the application while the certificate of need request is pending before the commission.

B. The commission may determine if a certificate of need is required for a particular LWECS for which the commission has received a site permit application.

C. If a certificate of need is not required from the commission, the applicant shall include with the application a discussion of what the applicant intends to do with the power that is generated. If the applicant has a power purchase agreement or some other enforceable mechanism for sale of the power to be generated by the LWECS, the applicant shall, upon the request of the commission, provide the commission with a copy of the document.

Subp. 3. **State policy.** The applicant shall describe in the application how the proposed LWECS project furthers state policy to site such projects in an orderly manner compatible with environmental preservation, sustainable development, and the efficient use of resources.

Subp. 4. **Proposed site.** The applicant shall include the following information about the site proposed for the LWECS and any associated facilities:

- A. the boundaries of the site proposed for the LWECS, which must be delineated on a United States Geological Survey Map or other map as appropriate;
- B. the following characteristics of the wind at the proposed site:

- (1) interannual variation;
- (2) seasonal variation;
- (3) diurnal conditions;
- (4) atmospheric stability, to the extent available;
- (5) turbulence, to the extent available;
- (6) extreme conditions;
- (7) speed frequency distribution;
- (8) variation with height;
- (9) spatial variations; and
- (10) wind rose, in eight or more directions;

C. other meteorological conditions at the proposed site, including the temperature, rainfall, snowfall, and extreme weather conditions; and

D. the location of other wind turbines in the general area of the proposed LWECS.

Subp. 5. **Wind rights.** The applicant shall include in the application information describing the applicant's wind rights within the boundaries of the proposed site.

Subp. 6. **Design of project.** The applicant shall provide the following information regarding the design of the proposed project:

- A. a project layout, including a map showing a proposed array spacing of the turbines;
- B. a description of the turbines and towers and other equipment to be used in the project, including the name of the manufacturers of the equipment;
- C. a description of the LWECS electrical system, including transformers at both low voltage and medium voltage; and
- D. a description and location of associated facilities.

Subp. 7. **Environmental impacts.** An applicant for a site permit shall include with the application an analysis of the potential impacts of the project, proposed mitigative measures, and any adverse environmental effects that cannot be avoided, in the following areas:

- A. demographics, including people, homes, and businesses;
- B. noise;
- C. visual impacts;
- D. public services and infrastructure;
- E. cultural and archaeological impacts;

- F. recreational resources;
- G. public health and safety, including air traffic, electromagnetic fields, and security and traffic;
- H. hazardous materials;
- I. land-based economics, including agriculture, forestry, and mining;
- J. tourism and community benefits;
- K. topography;
- L. soils;
- M. geologic and groundwater resources;
- N. surface water and floodplain resources;
- O. wetlands;
- P. vegetation;
- Q. wildlife; and
- R. rare and unique natural resources.

The analysis of the environmental impacts required by this subpart satisfies the environmental review requirements of chapter 4410, parts 7849.1000 to 7849.2100, and Minnesota Statutes, chapter 116D. No environmental assessment worksheet or environmental impact statement shall be required on a proposed LWECs project.

Subp. 8. **Construction of project.** The applicant shall describe the manner in which the project, including associated facilities, will be constructed.

Subp. 9. **Operation of project.** The applicant shall describe how the project will be operated and maintained after construction, including a maintenance schedule.

Subp. 10. **Costs.** The applicant shall describe the estimated costs of design and construction of the project and the expected operating costs.

Subp. 11. **Schedule.** The applicant shall include an anticipated schedule for completion of the project, including the time periods for land acquisition, obtaining a site permit, obtaining financing, procuring equipment, and completing construction. The applicant shall identify the expected date of commercial operation.

Subp. 12. **Energy projections.** The applicant shall identify the energy expected to be generated by the project.

Subp. 13. **Decommissioning and restoration.** The applicant shall include the following information regarding decommissioning of the project and restoring the site:

- A. the anticipated life of the project;
  - B. the estimated decommissioning costs in current dollars;
  - C. the method and schedule for updating the costs of decommissioning and restoration;
  - D. the method of ensuring that funds will be available for decommissioning and restoration;
- and
- E. the anticipated manner in which the project will be decommissioned and the site restored.

Subp. 14. **Identification of other permits.** The applicant shall include in the application a list of all known federal, state, and local agencies or authorities, and titles of the permits they issue that are required for the proposed LWECS.

**Statutory Authority:** *MS s 116C.695; 216F.05*

**History:** *26 SR 1394; L 2005 c 97 art 3 s 19*

**Published Electronically:** *October 13, 2009*

#### **7854.0600 APPLICATION ACCEPTANCE.**

Subpart 1. **Action by commission.** Within 30 days after receipt of an application for a site permit, the commission shall accept, conditionally accept, or reject the application. If the commission conditionally accepts or rejects an application, the commission shall advise the applicant in writing of the deficiencies in the application and the manner in which the deficiencies can be addressed. Upon refile of a revised application, the commission shall again act on the application within 30 days after receipt.

Subp. 2. **Notice of application acceptance.** Within 15 days after commission acceptance of an application, the applicant shall provide notice of the application to the county board, each city council, and each township board in each county where the LWECS is proposed to be located and shall publish notice of the application in a newspaper of general circulation in each county. Failure to give this notice or a delay in providing this notice constitutes cause to reject an application or delay a decision by the commission. The commission may elect to give this notice in lieu of requiring the applicant to provide the notice.

Subp. 3. **Additional copies.** Upon acceptance of the application by the commission, the commission shall advise the applicant of how many additional copies of the application to submit to the PUC. The applicant shall also provide a copy of the accepted application to the Minnesota Historical Society and to each landowner within the boundaries of the proposed LWECS site. The applicant shall also provide a copy to the office of each regional development commission of a development region, the auditor of each county, and the clerk of each city and township in which the LWECS is to be located. Each county auditor, city clerk, and township clerk shall retain the application and make it available for public inspection upon request. The applicant shall maintain a list of all persons to whom copies of the application are provided.

**Statutory Authority:** *MS s 116C.695; 216F.05*



7854.0600

MINNESOTA RULES

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**History:** 26 SR 1394; L 2005 c 97 art 3 s 19**Published Electronically:** September 18, 2009**7854.0700 PUBLIC ADVISOR.**

Upon acceptance of an application for a site permit, the commission shall designate a staff person to act as the public advisor on the project. The public advisor shall be available to answer questions from the public about the permitting process. The public advisor shall not give legal advice or other advice that may affect the legal rights of the person being advised, and the public advisor shall not act as an advocate on behalf of any person.

**Statutory Authority:** MS s 116C.695; 216F.05**History:** 26 SR 1394; L 2005 c 97 art 3 s 19**Published Electronically:** September 18, 2009**7854.0800 PRELIMINARY DETERMINATION AND DRAFT SITE PERMIT.**

Subpart 1. **Preliminary determination.** Within 45 days after acceptance of the application by the commission, the commission shall make a preliminary determination whether a permit may be issued or should be denied. If the preliminary determination is to issue a permit, the commission shall prepare a draft site permit for the project. The draft site permit must identify the person or persons who will be the permittee, describe the proposed LWECS, and include proposed permit conditions.

Subp. 2. **Effect of draft site permit.** A draft site permit does not authorize a person to construct an LWECS. The commission may change the draft site permit in any respect before final issuance or may deny the site permit.

**Statutory Authority:** MS s 116C.695; 216F.05**History:** 26 SR 1394; L 2005 c 97 art 3 s 19**Published Electronically:** September 18, 2009**7854.0900 PUBLIC PARTICIPATION.**

Subpart 1. **Public notice.** Upon preparation of a draft site permit, the PUC shall provide public notice of the draft site permit. The public notice must include the following:

- A. the name and address of the applicant for the site permit;
- B. a concise description of the proposed LWECS project;
- C. the location where a copy of the site permit application may be reviewed and how a copy of the application may be obtained;
- D. a statement of the availability of the draft site permit;
- E. the name of the public advisor and how the public advisor may be contacted to obtain more information;

F. the time and place of a public information meeting;

G. a statement that during the comment period any person may submit comments to the commission on the draft site permit, a statement of the dates on which the comment period commences and terminates, and a statement that any person may request a contested case hearing on the matter; and

H. a brief description of the anticipated procedures for reaching a final decision on the permit application.

Subp. 2. **Distribution of public notice.** The PUC shall publish the notice in a newspaper in each county in which the proposed LWECS is to be located. The PUC shall also mail the public notice to those persons known to the PUC to be interested in the proposed LWECS project, including governmental officials in each county in which the LWECS is proposed to be located. The PUC shall also publish notice in the EQB Monitor.

Subp. 3. **Public comments on draft site permit.** The PUC shall afford the public a minimum of 30 days after publication of the draft site permit notice in the EQB Monitor to submit written comments to the PUC. The commission may extend the public comment period if necessary to afford the public adequate time to review the application and other pertinent information in order to formulate complete comments on the draft site permit and the project.

Subp. 4. **Public information meeting.** The PUC shall hold at least one public information meeting in a convenient location in the vicinity of the proposed LWECS project. The PUC shall give the public at least ten days' notice of the public information meeting. The public information meeting must be held more than ten days prior to the end of the public comment period on the draft site permit. The commission shall extend the comment period if necessary to meet this requirement.

Subp. 5. **Contested case hearing.**

A. Any person may request in writing that a contested case hearing be held on an application for a site permit for a proposed LWECS project. The contested case hearing request must be filed within the time period established for submitting comments on the draft site permit. The person requesting the public hearing shall include, as part of the request, the issues to be addressed in the hearing and the reasons a hearing is required to resolve those issues.

B. The commission shall order a contested case hearing if the commission finds that the person requesting the contested case hearing has raised a material issue of fact and that holding a hearing would aid the PUC in making a final determination on the permit application.

C. The hearing must be conducted according to the rules of the Office of Administrative Hearings.

D. For a contested case hearing, the commission shall identify the issues to be resolved and limit the scope and conduct of the hearing according to applicable law, due process, and fundamental fairness. Alternatively, the commission may request the administrative law judge to identify the issues and determine the appropriate scope and conduct of the hearing according to applicable law, due process, and fundamental fairness.

**Statutory Authority:** *MS s 116C.695; 216F.05*

**History:** *26 SR 1394; L 2005 c 97 art 3 s 19*

**Published Electronically:** *September 18, 2009*

#### **7854.1000 FINAL SITE PERMIT DECISION.**

Subpart 1. **Commission action.** Upon completion of the procedures and requirements of this chapter, the matter must be brought to the commission for a final decision. If a contested case hearing has been held, the commission shall act according to applicable requirements for action in a contested case proceeding. If no contested case hearing has been held, the commission shall compile the record that has been created and make a decision on the basis of that record.

Subp. 2. **Time limit for decision.** The commission shall take final action on the application for a site permit for an LWECS within 180 days after acceptance of an application by the commission, unless the applicant agrees to an extension or the commission extends this deadline for cause.

Subp. 3. **Determination by commission.** The commission shall not issue a site permit for an LWECS unless the commission determines that the project is compatible with environmental preservation, sustainable development, and the efficient use of resources, and the applicant has complied with this chapter.

Subp. 4. **Conditions.** The commission may include in a site permit conditions for turbine type and designs, site layout and construction, and operation and maintenance of the LWECS, including the requirement to restore, to the extent possible, the area affected by construction of the LWECS to the natural conditions that existed immediately before construction of the LWECS and other conditions that the commission determines are reasonable to protect the environment, enhance sustainable development, and promote the efficient use of resources.

Subp. 5. **Term.** The term of a site permit for an LWECS is 30 years. The commission may renew the permit for an appropriate period of time upon request of the permit holder.

**Statutory Authority:** *MS s 116C.695; 216F.05*

**History:** *26 SR 1394; L 2005 c 97 art 3 s 19*

**Published Electronically:** *September 18, 2009*

#### **7854.1100 PERMIT AUTHORITY LIMITED.**

Subpart 1. **Wind rights.** Nothing in a site permit for an LWECS shall be construed to convey the right to install a wind turbine in an area within the boundaries of the project for which the permittee does not hold the wind rights.

Subp. 2. **Other LWECS construction.** Nothing in a site permit for an LWECS shall be construed to preclude another person from seeking a site permit to construct an LWECS in an area within the boundaries of the project covered by the permit if the permittee does not hold exclusive wind rights for the areas.

Subp. 3. **Power purchase agreement.** A site permit does not authorize construction of the project until the permittee has obtained a power purchase agreement or some other enforceable mechanism for sale of the power to be generated by the project. If the permittee does not have a power purchase agreement or other enforceable mechanism at the time the permit is issued, the commission shall provide in the permit that the permittee shall advise the commission when it obtains a commitment for purchase of the power. The commission may establish as a condition in the permit a date by which the permittee must obtain a power purchase agreement or other enforceable mechanism or the site permit is null and void.

**Statutory Authority:** *MS s 116C.695; 216F.05*

**History:** *26 SR 1394; L 2005 c 97 art 3 s 19*

**Published Electronically:** *September 18, 2009*

#### **7854.1200 DELAY IN CONSTRUCTION.**

If the permittee has not commenced construction of the project within two years after issuance of the site permit, the permittee must advise the commission of the reasons construction has not commenced. In such event, the commission may determine whether the permit should be revoked. No revocation of a permit for failure to commence construction may be undertaken except in accordance with part 7854.1300, subpart 4.

**Statutory Authority:** *MS s 116C.695; 216F.05*

**History:** *26 SR 1394; L 2005 c 97 art 3 s 19*

**Published Electronically:** *September 18, 2009*

#### **7854.1300 SITE PERMIT AMENDMENT OR REVOCATION.**

Subpart 1. **New boundary.** Once construction of an LWECS is completed, the permittee shall advise the commission of the completion of the project and the commission shall amend the site permit to specifically define the area authorized for the LWECS. The boundary must be no larger than necessary to allow for efficient operation of the LWECS. If any person objects to the amendment of the permit to reflect the actual boundaries of the project, the commission shall bring the matter for decision in accordance with applicable procedural requirements.

Subp. 2. **Permit amendment.** The commission may amend a site permit for an LWECS at any time if the commission has good cause to do so.

Subp. 3. **Permit revocation.** The commission may revoke a site permit for an LWECS at any time if the commission determines that any of the following has occurred:

A. the applicant knowingly made a false statement in the application or in accompanying statements or studies required of the applicant, if a true statement would have warranted a change in the commission's findings;

B. the applicant has failed to comply with a material condition or term of the permit;

C. the permitted LWECS endangers human health or the environment and the danger cannot be resolved by modification of the permit or LWECS; or

D. the permittee has violated other laws that reflect an inability of the permittee to comply with the permit.

Subp. 4. **Procedure.** The commission may initiate action to consider amendment or revocation of a site permit for an LWECS on its own initiative or upon the request of any person. No site permit may be amended or revoked without first providing notice and affording due process to the permit holder.

**Statutory Authority:** *MS s 116C.695; 216F.05*

**History:** *26 SR 1394; L 2005 c 97 art 3 s 19*

**Published Electronically:** *September 18, 2009*

#### **7854.1400 PERMIT TRANSFER.**

Subpart 1. **Request for transfer.** A permittee of a site permit for an LWECS may apply to the PUC for the transfer of its permit. The permittee must provide the name of the existing permittee, the name and description of the person to whom the permit is to be transferred, the reasons for the transfer, a description of the facilities affected, and the requested date of the transfer. The person to whom the permit is to be transferred shall provide the PUC with information required by the PUC to determine whether the new permittee can comply with the conditions of the permit. The permittee shall provide notice of the request to those persons identified by the PUC as persons interested in the matter.

Subp. 2. **Approval of transfer.** The commission shall approve the transfer if the commission determines that the new permittee will comply with the conditions of the permit. The commission, in approving the transfer of a permit, may impose reasonable additional conditions in the permit as part of the approval. The commission may hold a public meeting to provide the public with an opportunity to comment on the request for the transfer prior to making a decision.

**Statutory Authority:** *MS s 116C.695; 216F.05*

**History:** *26 SR 1394; L 2005 c 97 art 3 s 19*

**Published Electronically:** *September 18, 2009*

#### **7854.1500 FEES.**

Subpart 1. **Fee requirement.** An applicant for a site permit under Minnesota Statutes, section 216F.04, shall pay an application fee to the PUC. The purpose of the application fee is to cover actual costs necessarily and reasonably incurred in processing an application for a site permit, including, but not limited to, staff time, expenses for public notice and meetings, environmental review, administrative overhead, and legal expenses.

Subp. 2. **Determination of PUC budget.** Upon receipt of an application for a site permit, the commission shall estimate the costs the PUC expects to incur in processing the application and establish an estimated budget. If the applicant disagrees with the amount of the estimated budget,

the applicant may request that the Public Utilities Commission determine the appropriate estimated budget.

Subp. 3. **Initial payment.** Upon determination of the estimated budget, the applicant shall pay at least 50 percent of the estimated budget to the PUC. The commission shall not process a permit application until the first portion of the fee is submitted. The PUC shall deposit all money received from an applicant for permit fees in a special account.

Subp. 4. **Periodic payments.** The remaining costs incurred by the PUC must be paid in periodic payments upon receipt of an invoice from the PUC. The PUC shall not make a final decision on a site permit application if any assessed fees are unpaid.

Subp. 5. **Final accounting.** At the end of the permitting process, including any judicial review of the commission's final decision, the PUC shall provide a final accounting to the applicant of the total cost of processing the permit application. The applicant may review all actual costs associated with processing an application and present objections to the commission. The applicant shall make the final payment within 30 days of notification, or the PUC shall refund any excess payments within 30 days of the final accounting.

**Statutory Authority:** *MS s 116C.695; 216F.05*

**History:** *26 SR 1394; L 2005 c 97 art 3 s 19*

**Published Electronically:** *September 18, 2009*





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Bradley A. Kulka  
Director, Operations

April 2, 2018

Mr. Daniel Wolf, Executive Secretary  
Minnesota Public Utilities Commission  
121 Seventh Place East Suite 350  
St. Paul, MN 55101-2147

**RE: Wisconsin Power and Light Company  
Docket No. ET6657/WS-08-573**

Dear Mr. Wolf:

This follow-up report is submitted to the Minnesota Public Utilities Commission (Commission) by Wisconsin Power & Light Company (WPL) regarding a complaint received by the Minnesota Highway Patrol alleging that turbine ice had contacted a semi-trailer truck traveling south along MN HWY 13 at approximately 4:30 PM on February 22, 2018 (the Ice Event). WPL previously provided an initial report of the Ice Event to the Commission on February 23, 2018, noting that it was unclear whether the Ice Event would meet the definition of an Extraordinary Event under Condition III.H.3 of the Large Wind Energy Conversion System Site Permit (Permit) for Bent Tree. On March 31, 2018, Commission staff requested that WPL file the follow-up report set forth in Condition III.H.3 of the Permit. Accordingly, WPL provides the requested information below.

WPL's investigation since February 22 determined that it was possible that turbine ice was responsible for the Ice Event, notwithstanding the distance between Bent Tree turbines and MN HWY 13 and the fact the Bent Tree turbines along that highway were sited in accordance with the road setback requirements of Condition III.C.3 of the Permit. As noted in WPL's initial report filed on February 23, 2018, immediately following the Ice Event, WPL took 15 turbines along HWY 13 and secondary roads offline while WPL further investigated the matter and did not restart those turbines until after they were confirmed to be free of ice.



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WPL has been unable to conclusively determine that the Ice Event was the result of ice from a Bent Tree turbine (as opposed to other sources). However, WPL has resolved the matter with the owner of the semi-trailer truck.

In addition, and as a precaution, WPL has developed and is implementing a procedure designed to minimize the risk that any such ice events may occur in the future (the Turbine Ice Procedure). The Turbine Ice Procedure is currently being finalized in written form by Alliant Energy and, in substance, has been in place since March 2, 2018. The Turbine Ice Procedure applies to all Alliant Energy wind generation facilities, including Bent Tree.

The Turbine Ice Procedure requires Alliant Energy site personnel at wind generation facilities to actively monitor turbines along state and federal highways for blade ice formation. Specifically, site personnel will monitor those turbines near state and federal highways at a distance equal to the sum of the rotor diameter and hub height multiplied by 1.5. At Bent Tree, the distance for determining which turbines are near state and federal highways is calculated to be 243 meters (V82 Turbine with a 82 meter rotor diameter plus 80 meter hub height, multiplied by 1.5, equals 243 meters). The following Bent Tree turbines are within that distance of MN HWY 13: T151, T163, T186, T189, T190, T283, T381, T427, and T456. This distance being used for purposes of the Turbine Ice Procedure is more conservative than the Permit's setback distance of 250 feet from the nearest public road right of way. See Permit Condition III.C.3.

Site personnel will shut down turbines within 243 meters of state and federal highways when site personnel confirm the presence, or likely presence, of ice on the turbine blades. That confirmation can occur in at least three ways:

1. In their monitoring efforts, site personnel may visually confirm the presence of ice on turbine blades on turbines within the 243 meter distance from state and federal highways.
2. Site personnel may determine that, based on current or forecasted weather conditions (e.g., rain sleet, snow, and/or temperature fluctuations), ice is likely to be present on turbines within the 243 meter distance of state and federal highways.
3. As a back-up measure, the facility data system will automatically notify site personnel when turbine operations and weather indicate the likelihood of ice formation on turbine blades, specifically, when a turbine exhibits four or more hours of 15% derate on at least 50% of the site turbines and temperatures are less than 4 degrees Celsius. When site personnel receive such a notification, site personnel will confirm that weather conditions are conducive to ice formation on the turbine blades.

Upon confirmation of any of these three techniques, site personnel will immediately shut down those turbines within 243 meters of state and federal highways (e.g., MN HWY

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13), and will not restart those turbines until site personnel can visually confirm that the turbines blades are free of ice.

In addition to monitoring turbines near state and federal highways, site personnel will also monitor turbines near secondary roads such as county, township, or limited access or low maintenance roadways. Site personnel will immediately shut down turbines within 243 meters of secondary roads and structures when those turbines are visually observed to be shedding ice that would present a possible risk (e.g., in the general direction of a secondary road or structure). Site personnel will not restart any turbines near secondary roads or structures that have been shut down due to ice issues until site personnel visually confirm those turbines are no longer shedding ice.

WPL has developed the Turbine Ice Procedure based, in part, on current best practices recommended by General Electric Company, which can be found at <https://www.gepower.com/content/dam/gepower-pgdp/global/enUS/documents/technical/ger/ger-4262-ice-shedding-ice-throw-risk-mitigation.pdf>.

To be clear, WPL has been implementing the substance of the temporary Turbine Ice Procedure as described above since March 2, 2018 to ensure that, to the extent turbine blade ice may have been responsible for the Ice Event, WPL can minimize the risk of any future events. WPL apologizes for any inconvenience to the Commission or the Minnesota Department of Commerce to the extent this report was to be filed sooner.

Please contact the undersigned if any further information is needed.

Sincerely,

/s/ Brad A. Kulka

Brad A. Kulka, Director  
Wind Operations

CC:

Trisha DeBleekere  
Minnesota Public Utilities Commission  
Louise Miltich  
Minnesota Department of Commerce