

Staff Briefing Papers

Meeting Date September 20, 2018 Agenda Item 3**

Company Freeborn Wind Energy LLC

Docket No. **IP6946/WS-17-410**

In the Matter of the Application of Freeborn Wind Energy LLC for a Large Wind Energy Conversion System Site Permit for the 84 Megawatt Freeborn Wind Farm in Freeborn County

- Issues
1. Should the Commission adopt the administrative law judge's Findings of Fact, Conclusions of Law, and Recommendations?
 2. Should the Commission grant a site permit for the up to 84 megawatt Freeborn Wind Farm in Freeborn County?

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Relevant Documents

Date

Site Permit Application (10 parts)	June 15, 2017
Revised Site Permit Application	August 2, 2017
Order Finding Application Complete, and Varying Time Limits – Notice and Order for Hearing	August 31, 2017
Order Issuing Draft Site Permit	January 30, 2018
Office of Administrative Hearings Order including Findings of Fact, Conclusions of Law, and Recommendations	May 14, 2018
Notice to Parties of Exceptions Period for Administrative Law Judge Report	May 15, 2018

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The attached materials are work papers of the Commission Staff. They are intended for use by the Public Utilities Commission and are based upon information already in the record unless noted otherwise.



Relevant Documents

Date

Notice of Extension/Variance of Exceptions Period	May 30, 2018
Freeborn Wind LLC Exceptions	June 8, 2018
Association of Freeborn County Landowners Exceptions	June 8, 2018
KAAL-TV Exceptions	June 8, 2018
DOC EERA Exceptions	June 8, 2018

Attachments

- A. Minnesota Noise Standards – Minnesota Rules 7030.0010 -.0080
- B. Staff Exceptions Table
- C. Proposed Route Permit

I. Statement of the Issues

1. Should the Commission adopt the administrative law judge's Findings of Fact, Conclusions of Law, and Recommendations?
2. Should the Commission grant a site permit for the up to 84 megawatt Freeborn Wind Farm in Freeborn County?

II. Background

Freeborn Wind Energy LLC (Freeborn Wind, or applicant), an affiliate of Invenergy LLC, plans to develop and operate an up to 200 megawatt (MW) Large Wind Energy Conversion System (LWECS) in Freeborn County in Minnesota and Worth County in Iowa. Freeborn Wind filed its site permit application with the Commission for the Minnesota portion of the Freeborn Wind Farm (project), which is comprised of an up to 84 MW LWECS in Freeborn County. The project would be located in Hayward, London, Oakland, and Shell Rock Townships.

The project would include construction and operation of up to 42 2.0-MW wind turbines. The project would also include an electrical and fiber optic communication system, associated equipment, gravel access roads, buried electric collection lines, an operations and maintenance facility, a project substation, a permanent meteorological tower, and an overhead transmission line.¹

Freeborn Wind has proposed using two turbine types for the Project: the Vestas V116 and V110, both of which are rated at 2.0 MW of nameplate capacity. The turbines are 443 and 453 feet tall, respectively. The turbine hub heights are 80 meters with rotor diameters of 110 and 116 meters. The project layout proposed by Freeborn Wind would be constructed with a combination of the two turbine types, with thirty-three V116 turbines and nine V110 turbines. Freeborn Wind selected these turbines due to wind resource analysis, siting, setbacks, and availability for use in the Project. Some V110 locations were selected due to siting constraints, but the majority of the V110 locations were chosen because the turbine's two A-weighted decibel (dBA or dB) sound advantage and resulting reductions in predicted dBA levels at adjacent, non-participating homes.²

The project boundary in Minnesota encompasses approximately 26,273 acres, of which 17,435 acres are currently under lease to Freeborn Wind. Freeborn Wind has indicated additional lands may be secured under lease and/or easement as necessary to complete the project.

Freeborn Wind has entered into a Purchase and Sale Agreement (PSA) with Xcel Energy and Invenergy Wind Development North America LLC. Under this PSA, Xcel Energy would purchase

¹ Freeborn Wind, LLC has filed its high-voltage transmission line route permit application with the Commission, Docket No. IP6946/TL-17-322.

² Finding Number 74, *Findings of Fact, Conclusions of Law, and Recommendations*, May 8, 2018

Freeborn Wind, who will develop, own, and operate the project. The Commission approved the PSA on September 1, 2017.³

III. Statutes and Rules

Certificate of Need. Pursuant to Minn. Stat. §216B.2422, subd. 5, the project is exempt from the certificate of need requirements because it was selected through a Commission-approved bidding process.

Large Wind Energy Conversion System. The proposed project is defined as an LWECS under Minn. Stat. § 216F.01, subd. 2, because it is a wind energy conversion system with nameplate capacity of 5 megawatts or more.

Site Permit. Under Minn. Stat. § 216F.04, no person may construct an LWECS without the issuance of a site permit by the Commission.

Site Permit Issuance. In deciding whether to issue a site permit for an LWECS, the Commission must determine that the project is compatible with environmental preservation, sustainable development, and the efficient use of resources.⁴

Procedural Treatment of Application. Review of LWECS site permit applications generally follow the procedural requirements of Minnesota Rules Chapter 7854.

Exceptions. Minnesota Rule 7829.2700 provides that, in cases subject to statutory deadlines, parties may file and serve on other parties any exceptions to an administrative law judge's report within 15 days of its filing.⁵ In such cases, replies are not permitted. Parties will be granted an opportunity for oral argument before the Commission prior to its decision.

Timing. Under 7854.1000, subp. 2, the Commission shall approve or deny a site permit for an LWECS within 180 days after acceptance of the application, unless the applicant agrees to an extension or the Commission extends the deadline for cause.

Minnesota Noise Standards. The Minnesota Pollution Control Agency (MPCA) noise standards for the project are found in Minnesota Rules 7030.0010-0080. The primary statutes directing the MPCA to adopt noise standard are provided in Minnesota Statute 116.07, Subdivisions 2(c) and 4(e). The operative statute and rules are enclosed as Attachment A.

³ *Order Approving Petition, Granting Variance, and Requiring Compliance Filing*, Docket No. E-002/M-16-777, Document No. [20179-135201-01](#), September 1, 2017.

⁴ Minn. Stat. § 216F.03, and Minn. R. 7854.1000, subp. 3.

⁵ A party is defined as a person by or against whom a proceeding before the commission is commenced, or a person permitted to intervene in a proceeding, Minnesota Rules, 7829.0100, Subp. 14.

IV. Procedural History

On June 15, 2017, Freeborn Wind filed a site permit application for an up to 84 MW LWECS in Freeborn County.

On August 31, 2017, the Commission issued an *Order Finding Application Complete, Varying Time Limits; and Notice and Order for Hearing*.⁶ In its order, the Commission requested the ALJ to identify the issues and determine the appropriate scope and conduct of the hearing according to applicable law, due process, and fundamental fairness.

On January 30, 2018, after having established a public comment period and conducting a public information meeting in the project area, the Commission issued a Draft Site Permit (DSP) for the project.

On February 2, 2018, the Commission issued a *Notice of Public Hearing and Draft Site Permit Availability*.

On February 20 -22, 2018, Administrative Law Judge (ALJ) LauraSue Schlatter of the Office of Administrative Hearings conducted public and evidentiary hearings in the City of Albert Lea.

On May 14, 2018, ALJ Schlatter issued an *Order - Findings of Fact, Conclusions of Law, and Recommendations* (ALJ Report) for the project.

On May 30, 2018, the Commission issued a notice extending the comment period for exceptions to the ALJ Report through June 8, 2018.

On June 8, 2018, the Commission received exceptions to the ALJ Report from the Department of Commerce Energy Environmental Review and Analysis staff (DOC EERA or Department), Freeborn Wind, the Association of Freeborn County Landowners (AFCL), and KAAL-TV (KAAL).

V. Report of the Administrative Law Judge

ALJ Schlatter filed the ALJ Report for the project on May 8, 2018.⁷ The ALJ Report included 553 findings of fact (findings), 11 conclusions of law and a recommendation. The ALJ Report included a summary of public comments received, information about the proposed project, a procedural history of the matter, and an analysis of the siting criteria as applied to the proposed project. The ALJ report stated that the Draft Site Permit contains a number of mitigation measures and other reasonable conditions that adequately address potential impacts of the project on human and natural environments and that it is reasonable to amend the DSP to incorporate additional permit conditions.

⁶ On September 6, 2017, the Commission issued an Erratum Notice clarifying the statutory framework for the public hearing procedures, e-Dockets [20179-135278-01](#).

⁷ The ALJ Report was filed along with a ruling on a motion from the proceeding. For clarity, the ALJ Report was re-filed separately on May 31, 2018 as Document Number [20185-143479-02](#).

The ALJ concluded that Freeborn Wind failed to demonstrate the proposed project will meet the requirements of the applicable Minnesota noise standards ([Minn. R. 7030.0040](#)). The ALJ recommended that the Commission either deny Freeborn Wind's application for a site permit, or provide Freeborn Wind with a period of time to submit a plan demonstrating how it will comply with the noise standards at all times throughout the footprint of the project.

Specifically, the ALJ Report stated the project would satisfy the LWECS site permit criteria and all other applicable legal requirements provided:

- A. Freeborn Wind demonstrates that it can meet the requirements of Minnesota Statutes Chapter 216F, and Minnesota Rule 7030.0040, and
- B. Should the Commission ultimately approve the project upon a showing that the applicant's project could comply with Minnesota Rule 7030.0040, the following permit conditions should be incorporated into the site permit.
 - 1. Amend Section 5.2 (Construction and Operation Practices) to require Freeborn Wind to provide notice of the project and its potential to interfere with over the air (OTA) television service to all "at risk" areas identified in Appendix D of the application and to each household in the communities of Albert Lea, Northwood, Silver Lake, Gordonsville, Glenville, Hayward, and Moscow. (Finding 544);
 - 2. Amend Section 5.2.16 (Interference) to establish an OTA TV interference complaint tracking, investigation and reporting procedure. (Finding 545);
 - 3. Amend Section 7.2 (Shadow Flicker) as requested by DOC EERA to require shadow flicker detection system utilization at reception locations, with a modification to require monitoring at those households expected to receive 27 or more hours of shadow flicker per year during operation of the project. (Finding 546);
 - 4. Replace Special Condition 7.4 (Noise Studies) with a requirement for a post-construction noise study to be conducted during the first 12 months of operation. An independent engineer selected by DOC EERA would be charged with developing the scope and conducting the study. In addition to incorporating the Department's Noise Study Protocol⁸, the study would require determining the extent to which turbine-only noise contributes to the overall decibel level, with emphasis on receptor locations expected to experience the highest turbine noise levels. The consultant would be charged with ensuring that there are no receptors where ambient noise plus turbine noise exceed a level of L50 of 50 dBA. Any exceedances would be required to be reported to the Commission within five working days and completed post-construction noise study filed with the Commission within 14 months after operations begin. (Finding 547);

⁸ [Guidance for Large Wind Energy Conversion System Noise Study and Report](#), DOC EERA, October 5, 2013.

5. Amend Section 4.2 (Setbacks and Site Layout Restrictions – Residences) to require a 1500-foot setback to all non-participating landowners. (Finding 548);
6. Amend Section 5.2.25 (Public Safety) to require the permittee to inspect all turbines located within 1,200 feet of structures, roads and trails during periods when ice accumulation is likely to occur. Turbines found with ice accumulation would be required to be deactivated until they are free from ice. (Finding 549);
7. Amend Section 11.1 (Special Conditions) with a requirement that any successors or assigns to the project be obligated to bear the costs of decommissioning the project. (Finding 550); and
8. Amend Section 11.1 (Special Conditions) with a requirement that the permittee demonstrate that it can guarantee resources sufficient for decommissioning and restoration at least 45 days prior to beginning construction of the project. (Finding 551)

VI. Agency Comments⁹

Minnesota Department of Natural Resources

The record includes correspondence between the applicant and the Minnesota Department of Natural Resources (DNR) dated March 18, 2015, March 26, 2015, January 18, 2017 and February 21, 2017 advising Freeborn Wind of various requirements including avoidance areas, rare features and avian and bat protection. DNR filed comments on October 6, 2017 requesting a change to the Avian and Bat Protection Section. On March 15, 2018, DNR filed comments noting that the applicant should contact the U.S. Fish and Wildlife Service to discuss the occurrence of bald eagle fatalities in Minnesota. Upon review of the Avian and Bat Protection Plan and draft site permit conditions, the DNR declined to issue recommendations concerning the proposed turbine locations.

Minnesota Department of Transportation

The Minnesota Department of Transportation (MnDOT) filed comments on the application on October 6, 2017. MnDOT stated that the DSP should incorporate language specifying that the permittee may need to obtain permits or authorization from road authorities if electric cables or feed lines would be placed in a public road right of way. MnDOT noted that setbacks must be applied to MnDOT trunk highway right of way. MnDOT also noted that the applicant would need to consult with its Office of Statewide Radio Communications to ensure that the ARMER microwave paths are not affected. MnDOT noted that Freeborn Wind would need to coordinate with MnDOT to obtain any permits of road authorities when planning to haul oversize/overweight turbine and equipment.

⁹ Agency positions are sometimes included as part of exhibits to testimony and are referenced separately.

Minnesota Department of Health

The Minnesota Department of Health (MDH) provided comments to the applicant in a letter date May 2, 2017. MDH noted that wind turbine noise and shadow flicker are two public health concerns regarding the project. MDH recommended that shadow flicker, low frequency noise and total noise from turbines be evaluated. MDH recommended that direct health effects and indirect stress impacts such as annoyance should be considered when siting projects.

Minnesota Pollution Control Agency

The Minnesota Pollution Control Agency did not file any comments for the record.¹⁰

VII. Exceptions to the Administrative Law Judge Report

Timely exceptions were filed by Freeborn Wind, the Association of Freeborn County Landowners, KAAL-TV, and the Department. Several filings were received from non-parties generally supporting the applicant's position on noise.¹¹ Because the filing of exceptions by non-parties is not provided in the Commission's rules of practice and procedure they are not analyzed in this paper.¹²

A general overview of each parties' positions is provided below. After this, specific issues are addressed by topic including setbacks, infrasound and low frequency noise, audible noise, shadow flicker, over the air television (OTA TV) interference, decommissioning, property values, and ice throw.

Staff Review of Exception Filings

Because of the large number of exceptions received from parties, staff compiled an exceptions table which analyzes each of the hundreds of requested changes (enclosed as Attachment B).

¹⁰ After the close of the record, the MPCA filed a letter with the Commission addressing its interpretation of the noise standards, eDockets-Number [20189-146351-01](#), September 12, 2018.

¹¹ *Exceptions to ALJ – Noise*, EDF Renewables, e-Dockets No. [20186-143638-01](#), June 7, 2018, *Exceptions to ALJ*, Laborers District Council of MN and ND, e-Dockets No. [20186-143688-01](#), June 8, 2018, *Exceptions to ALJ*, Minnesota Conservative Energy Forum, e-Dockets No. [20186-143687-01](#), June 8, 2018, *Letter*, Xcel Energy, e-Dockets No. [20186-143685-01](#), June 8, 2018, *Exceptions to ALJ*, Minnesota Center for Environmental Advocacy, e-Dockets No. [20186-143684-01](#), June 8, 2018, *Exceptions to ALJ*, Beth Soholt on behalf of Wind on the Wires, e-Dockets No. [20186-143683-01](#), June 8, 2018, *Exceptions to ALJ*, American Wind Energy Association, e-Dockets No. [20186-143675-01](#), June 8, 2018, *Exceptions to ALJ*, Vestas – American Wind technology, Inc. e-Dockets No. [20186-143670-01](#), June 8, 2018, *Comments*, Renewable Energy Systems, e-Dockets No. [20186-143669-01](#), June 8, 2018, and *Comments*, Apex Clean Energy e-Dockets No. [20186-143690-01](#), June 8, 2018.

¹² Minn. R. 7829.2700, subpart 1.

The Staff Exceptions Table provides a recommendation addressing each exception along with justification for accepting or rejecting the change.

Staff sometimes supports modifications to findings in the ALJ Report where there are factual errors, but does not do so in cases where modifications would result in different conclusions being drawn. In several instances, additional language improves the report only after further modification by staff to provide additional context or more accurately reflect the record. Proposed changes which would substantively modify the topic or nature of a finding are typically rejected. In evaluating individual exceptions, staff focused on exceptions to findings that contain conclusions and relate to the operative decision criteria in Minnesota law.

The reader should note that the Commission's goal in adopting an ALJ report is to establish a complete record to aid its decision-making process and support its decision, not to necessarily arrive at a singular truth. As a result, staff's recommendations do not endeavor to resolve every dispute, or even to correct every misstatement.

Freeborn Wind Exceptions

Freeborn Wind filed a narrative summary of its positions along with a redlined version of the ALJ Report reflecting its requested changes. In its exceptions, the applicant recommended approximately 162 separate modifications to the ALJ Report.

The applicant raised two major issues with the ALJ Report. First, the applicant stated that the ALJ misinterpreted the noise standards in a manner inconsistent with the statute, rule and past agency practice, and the record developed during the proceedings demonstrate that the project complies with the operative noise standards. Second, the applicant stated the ALJ Report relied on anecdotal and unsubstantiated, non-expert assertions, rather than sworn expert testimony to support the report's findings. The applicant asserted this resulted in recommendations inconsistent with the record of the proceeding, especially in those sections related to noise, infrasound, shadow flicker, health concerns, communication interference and winter weather conditions.

Freeborn Wind noted that its contributions to the record of the proceedings contain reliable evidence submitted through its sworn testimony of qualified, credible experts; and that accepting the best evidence would lead to a more reasoned, fact- and science-based approach for evaluation of the site permit application. The applicant stated that, in contrast, the many of the claims of the AFCL and members of the public did not constitute expert testimony, and the Commission should rely on the best evidence available in the record.

Association of Freeborn County Landowners Exceptions

In its exceptions, the Association of Freeborn County Landowners agreed with the ALJ that Freeborn Wind's application should be denied. AFCL also noted that it endorsed KAAL's exceptions. AFCL provided proposed changes to the ALJ Report, especially in sections focusing on aerial spraying, noise, shadow flicker, wildlife, air quality and decommissioning. AFCL requested oral argument before the Commission decision on this matter.

Much of AFCL's exceptions filing discussed what it considers flaws with the Commission's siting program. AFCL asserted that essential and required information, review, and procedures are missing from the record. AFCL recommended that no permit should be granted unless the applicant can sufficiently demonstrate that it can meet the noise and shadow flicker rules; decommissioning information has been provided, the complaint process has been revised; and both decommissioning and the complaint process opened for comment and reviewed by Commerce, the public, and the Commission.

KAAL Television Exceptions

KAAL intervened in the docket to address its concerns about the project's potential to interfere with its microwave communication system and potential disruption to its over-the-air television broadcast services.

KAAL questioned the accuracy of communication studies contained in the application. KAAL asserted that there was a more appropriate study methodology than the one used by the applicant in its TV Coverage Impact Study.¹³ KAAL asserted, that the area of OTA potential impacts is larger than the "at risk area" evaluated by the applicant; resulting in increased impacts to KAAL's commercial interests, and upon its viewership's ability to receive its services including those that affect public safety.

KAAL requested the ALJ to direct the use of pre- and post-construction surveys to establish the patterns of OTA usage within an expanded project area and determine the actual areas where signal interference occurs. KAAL also requested that the ALJ direct that mitigation efforts be directed towards maintaining OTA service in the area rather than by providing other forms of service such as cable or satellite.

KAAL asserted that, because OTA signal interference will be a project impact, Freeborn Wind should provide compensation to KAAL to offset costs of applying for a frequency allocation and installation of a translator antenna. KAAL indicated that the potential impacts of the project may require the installation of an additional translator to ensure OTA coverage to its viewers.

DOC EERA Exceptions

DOC EERA indicated that the ALJ Report provides a comprehensive summary and analysis of the record. DOC EERA did not support the ALJ's recommendation to deny a site permit for the project. The Department disagreed with the proposed amendments made by the ALJ to sections 4.2 (Residences), 5.2 (Construction and Operation Practices), 5.2.25 (Public Safety), 7.2 (Shadow Flicker), 7.4 (Noise Studies), and 11.1 (Decommissioning Plan) of the DSP. The Department proposed specific amended language for Section 7.2 (Shadow Flicker) and Section 7.4 (Noise Studies) the DSP and Section 11.1 as identified in ALJ FOF 521. DOC EERA also identified potential items for the Commissions consideration in Sections 5.2 and 5.2.25 of the DSP. DOC EERA recommended the Commission approve an LWECS Site Permit for the project

¹³ Application, Appendix D.

incorporating the Department's modifications. DOC EERA emphasized that the Commission should not construe or infer DOC EERA's agreement with areas of the report where it did not provide comments or suggestions.

VIII. Specific Contested Issues

Setbacks

Setbacks are considered in findings 132 -145, 301, 302 and 548, and conclusions 8 and 9 of the ALJ Report. The ALJ noted that Freeborn County updated its Zoning Ordinance in April 2017. The ordinance established several requirements for wind turbines including the requirement for conditional use permits, turbine setbacks, environmental mitigation, shadow flicker and decommissioning plans. The ALJ noted that Freeborn County also passed a resolution requesting the Commission adopt a 1,500 foot setback for the project.¹⁴

Finding 301 cited the Commission's *2008 Order Establishing General Wind Permit Standards*¹⁵ noting the Commission's standard setback is 750-1500 feet, with an additional required setback for homes of "at least 500 feet plus the distance required to meet the state noise standard". In finding 548 the ALJ recommended that Section 4.2 of the site permit require a residential setback of 1500 feet for all nonparticipating landowners because of revised total noise predictions. Given the lack of evidence provided by the applicant, the Commission should consider requiring an additional 500 feet in establishing residential setbacks.

Freeborn Wind on Setbacks

Freeborn Wind has noted that, although the county's ordinance and other zoning requirements do not apply to systems subject to siting and oversight by the Commission, the project as proposed meets all the requirements of the county with one exception (an unoccupied house whose owners have indicated they do not intend to have it occupied in the future).

Freeborn Wind stated that, with one exception, it is in compliance with the requirements of the Freeborn County Ordinance 26-51 which establishes a 3 rotor diameter (RD) setback from U.S. Fish and Wildlife Type II, IV and V wetlands. Freeborn Wind maintained that the proposed setback at that location (Turbine 31) of approximately 2.9 RDs or 1,086 feet, which it considers a sufficient setback since the subject wetlands are "stock ponds" that have not been used since 1985. The ALJ concluded that Freeborn Wind has demonstrated good cause for the

¹⁴ Freeborn County Board of Commissioners *Resolution*, e-Dockets No. 20177-133824-01, July 13, 2017.

¹⁵ The Commission adopted general standards for projects under 25 megawatts in its *Order Establishing General Standards*, PUC Docket No. E,G-999/M-07-1102, e-Dockets Filing No. 4897855 January, 15, 2008.

Commission not to apply Freeborn County's Wetland Setback to the proposed location of Turbine 31.

AFCL on Setbacks

AFCL asserted that the Commission should adopt the 1500 feet setback set out in the Freeborn County resolution.

DOC EERA Exceptions on Setbacks¹⁶

The Department stated that the ALJ appears to have misinterpreted the Commission's 2008 order establishing General Wind Permit Standards as indicating in finding 301 that the Noise Standard and Home setbacks are additive. Instead, an applicant for an LWECS should calculate the turbine setback distance necessary to meet the state noise standard and ensure that the setback is at least 500 feet from a given residence.

The Department also took exception to Finding 548 and the subsequent recommended modification to Section 4.2 of the Draft Site Permit for the same reasons as finding 301. The Department recommended that the Commission utilize the language on setbacks from Section 4.2 of the Draft Site Permit.

Staff Analysis on Setbacks

Staff agrees with the applicant and DOC EERA that individual setbacks are to be applied sequentially and not simultaneously. Staff notes that the recommendations from the Department on setbacks language can be interpreted as being applied sequentially.¹⁷

Infrasound and Low Frequency Noise

The ALJ Report addressed infrasound and Low-Frequency Noise (LFN) as part of the discussion on noise findings 177-247, 547, and 548; in Conclusions of Law 5, 8 and 9; and the Recommendation, specifically in findings 181-184, 189-192, and 207-219, and 243-247. The ALJ also assessed the potential for the project to cause adverse health effects more generally in Section XI.H (Findings 280-300) of the report.

The ALJ determined that existing noise standards fail to regulate certain kinds of noise that are important to the well-being of people in or near the project area. The ALJ noted that the current noise standards are limited in terms of being protective of human well-being and

¹⁶ Findings of Fact 548 and 301, DSP Section 4.2

¹⁷ The Department's recommended that the setbacks in the Commission's order on general permit conditions establishes setbacks from houses that must be "at least 500 feet and sufficient distance to meet state noise standard", Order on General Standards, at Attachment A.

recommended modifications to permit section 7.4 that require evaluation of infrasound in pre- and post-construction noise studies for the project. Finding 245 prohibits operation of turbines if operation results in total noise at any receptor to be in excess of the Minn. R. 7030.0400 requirements.

Freeborn Wind on Infrasound and Low Frequency Noise

Freeborn Wind argued that the ALJ erred in providing inappropriate weight to non-expert, non-testifying hearsay evidence, and the report ignores the best available scientific evidence in favor of unsubstantiated and unqualified materials. The applicant noted the lack of expert testimony regarding infrasound in the record, and identified its witnesses, testimony and scientific information in support of its position that there is no peer-reviewed scientific data to support a claim that wind turbines are causing diseases or specific health conditions. The applicant recommended the Commission reject or significantly modify numerous findings and conclusions within the ALJ report as included in Attachment B.

AFCL on Infrasound and Low-Frequency Noise

AFCL argued that community concerns have not been appropriately considered by the applicant, particularly in regard to noise and site design. AFCL argued the site design should reflect the priorities and attitudes of the community, and the project should be designed so that noise exposure to residents is minimized.

DOC EERA on Infrasound and Low Frequency Noise

DOC EERA did not recommend any additional conditions for mitigating infrasound and low-frequency noise. DOC EERA recommended the Commission delete the last sentence of finding 243 requiring Freeborn Wind to incorporate low-frequency noise measurements after consultation with the MDH in future noise monitoring. Additionally, DOC EERA recommended deletion of findings 245, 246, and 247 related to modifications to sections on noise as reflected in the draft site permit.

Staff Analysis on Infrasound and Low Frequency Noise

Staff generally agrees with DOC EERA and the applicant that much of the record suggesting that infrasound from wind turbines is harmful to human health is not well-supported within the scientific community. Several of the articles submitted into the record were not published in academic or peer-reviewed journals and appeared to be based upon anecdotal evidence.

Because some of the low-frequency noise spectrum is audible, staff comments on LFN are incorporated into the following section on noise. Staff notes the record includes information provided by numerous members of the public who are annoyed by wind turbines. The record in this proceeding and current scientific consensus do not support additional permit conditions given that the proposed setbacks provide some measure of precautionary avoidance of noise.

Audible Noise

The noise standards are addressed in the ALJ Report in Section XI.D (Findings 177 -247, 547, and 548); in Conclusions of Law 5, 8 and 9; and the Recommendation. The ALJ also assessed the potential for the project to cause adverse health effects more generally in Section XI.H (Findings 280-300) of the report.

The ALJ stated that the noise standard regulates certain noise sources such as wind turbines that contribute to total ambient sound level at a receptor properties. The ALJ interpreted the rules as applying to the total level of sound required to protect public health and welfare from noise pollution.

The ALJ noted several areas of uncertainty in the applicant's noise analyses. The ALJ also noted that the application, as filed, did not provide an analysis of nighttime noise that combined both the ambient sounds and wind turbine noise, and that such an analysis was provided only after the public hearing.¹⁸ The ALJ also noted that the total background noise, including ambient noise, often exceeds the state noise standards.

As noted above, the ALJ recommended that Commission not issue a site permit for the project because the applicant has not demonstrated the project will comply with the state noise standards. The ALJ recommended that, alternatively, the Commission could provide the applicant an opportunity to submit a plan to demonstrate how the project will comply with the noise standards at all times throughout the footprint of the project.

Freeborn Wind on Noise Standards

Freeborn Wind asserted that the ALJ Report incorrectly interpreted the noise standards as placing limit on total noise without distinguishing between project noise and background noise. The applicant noted that the Legislature authorized the MPCA to regulate man-made noise sources and that the report ignores the agency's guidance. Freeborn Wind cited two previous Commission decisions on noise standards to assert that the ALJ Report's new interpretation is contrary to the MPCA and Commission's application of the noise standards.

The applicant's primary expert witness on noise (Mr. Hankard) testified that the assumptions included in its modeling for its preconstruction analysis for noise were very conservative, including zero ground¹⁹ as the ground effect variable, atmospheric absorption at maximum, and that all turbines are running at full capacity. Additionally, the model was run assuming a temperature inversion was present and/or that all receivers were down wind of every turbine. The applicant asserted that, based on the record, including the analysis supplied after the hearing, combined with the conservative assumptions of the turbine-only noise modeled for

¹⁸ On March 30, 2018, Freeborn Wind filed Exhibit FR-18 which calculates total predicted noise levels using the L50 and L10 dBA noise metrics used in Minnesota's noise rules. The filing also provides a sensitivity analysis predicting total noise levels under various levels of ambient noise.

¹⁹ Ground factor is a measure of how much sound is absorbed as it propagates along the ground. "Zero ground" implies that the ground is perfectly reflective of sound.

the project, it can confidently conclude that the project will comply with the noise standards once operational.

AFCL on Noise Standards

AFCL stated that the Commission should deny the permit because the applicant has not demonstrated that it can meet existing noise standards.

DOC EERA on Noise Standards²⁰

The Department noted that the MPCA's state noise standards limit total sound (project noise and background noise) at a receptor for the preservation of public health and welfare. The DOC EERA cited a comment received from the MPCA on the Department's Guidance for Large Wind Energy Conversion System Noise Study Protocol and Report where the agency stated: "Developers should not propose projects where the total noise is estimated to exceed the noise standards at receptor property".²¹

The Department noted the ALJ concluded that, because some locations have already measured sound levels that are above the nighttime L50 limit of 50 dBA, no measurable contribution from the project should be allowed. The Department recommended a "middle ground" approach for determining an allowable contribution that is consistent with the preservation of public health and welfare while avoiding unreasonable restrictions to development. This approach would allow a project to contribute an amount of indiscernible (one decibel) noise to the total sound when background sound is at or above state noise standards because of measurement tolerances and the ability of a human ear to distinguish a difference in the sound level. Allowing a one decibel increase when background nighttime noise levels are at or above 50 dBA translates into a project-only contribution of no more than 45 dBA. The Department recommended the Commission limit the project's total turbine noise contribution to no more than 45 dBA at nearby residential receptors during times when background sound levels are less than the state noise standard at nearby receptors.

The Department recommended the permittee propose a methodology for a post-construction noise study at least 14 days prior to the pre-construction meeting. The methodology should be developed through consultation with the Department and follow the current Noise Study Protocol in order to determine total sound levels and turbine-only contributions at different frequencies at various distances from the turbines at various wind speeds and directions. The Department recommended the permittee be required to complete the study within 12 months of the commencement of commercial operation.

²⁰ ALJ Report Findings of Fact 243, 245, 246 and 247.

²¹ October 8, 2012 *MPCA Comments on the Draft DOC EFP Guidance for LWECS Noise Study Protocol*, Appendix A to *Minnesota Department of Commerce LWECS Guidance for Noise Study Protocol and Report*, Exhibit EERA-9, e-Dockets No. 20183-140949-02, March 12, 2018.

Staff Analysis on Noise Standards

About the Minnesota Noise Standard

The Minnesota Pollution Control Agency is authorized by the Legislature to regulate man-made sources of noise²². MPCA has variance authority in applying its noise standards.²³

The noise standards are not simple “point source” standards, but rather establish time-weighted noise limits based upon land use categories (Noise Area Classifications, or NACs) and times of day. The noise standards provide that the measurement of sound must be made at or within the applicable NAC at the point of human activity closest to the source. The importance of time-weighting is that the standard provides for variation of sound intensities over time, as opposed to setting a single “not to exceed” limit.²⁴

Application of the Minnesota Noise Standards and Ambient/Background Noise

The applicant asserts that the ALJ Report incorrectly interpreted Minnesota’s noise standards as placing a limit on total noise without distinguishing between project noise and background noise. Freeborn Wind’s argument relies on an assumption that the ALJ misunderstood the statutory *definition* of noise, noting that the Legislature intended to regulate man-made sources of noise and not “total noise”. Staff believes the ALJ correctly understood that Minn. R. 7030.0600 distinguishes between project noise from ambient and background noise only for purposes of noise measurement of a given source at a receptor.²⁵

Freeborn Wind stated that the ALJ incorrectly assumes the Legislature, intended to exclude consideration of additional ambient or background noise in applying the noise standards. For purposes of the noise standard, the applicant then asserts that all ambient noise at receptors must be determined solely for the purposes of excluding it from consideration when applying the standard. Staff is unconvinced with this argument for the following reasons.

Freeborn Wind cites the Minnesota Rule 7030.0600 as the justification for excluding ambient noise entirely when considering noise at a receptor. However, a plain reading of the entire cited

²² The Legislature charged the Minnesota Pollution Control Agency to develop and promulgate noise standard rules in Minnesota Statutes, Chapter 116D, in particular subdivisions 2(C) and 4(E).

²³ Minnesota Rule 7030.0080 VARIANCE. *If, upon written application of the responsible person, the agency finds that by reason of exceptional circumstances strict conformity with any provisions of any noise rule would cause undue hardship, would be unreasonable, impractical, or not feasible under the circumstances, the agency may permit a variance upon the conditions and within the time limitations as it may prescribe for the prevention, control, or abatement of noise pollution in harmony with the intent of the state and any applicable federal laws.*

²⁴ It should be noted that, while impulsive noises are regulated, such noise levels are not typically encountered during wind turbine operation.

²⁵ See Finding 202, ALJ Report.

rule shows that the isolation of a source noise applies to *measurement* of noise²⁶, and not the application of a limit within a subject NACs. Similarly, Freeborn Wind's reference citing the MPCA 2015 Noise Guide in support of its interpretation refers only to noise measurement methodologies, not their application as a noise standards themselves.²⁷

Freeborn Wind argues that to regulate total noise at a receptor is not consistent with the definition of Noise in Minnesota Statute 116.06, subd. 15 which (in essence) states that anything other than manmade sources of sound cannot be considered noise. Although definitions themselves have no force of law, the statute defines noise in terms of non-natural sounds. However, the noise rules themselves regulate "sound pressure levels", not noise per se.

It is especially instructive to consider that the portion of Minnesota Rules Chapter 7030 regulating Motor Vehicle Noise²⁸, uses the following words "noise limits", "noise emitted", "total noise from a vehicle", and "exhaust noise" while the portion applied to LWECs (Noise Pollution Control – Generally)²⁹ uses the terms "**sound**", "**levels of sound**" and "**sound pressure levels**" instead of using the word "noise" itself.³⁰ Since a plain reading of this language is explicitly different than "noise", one must assume that the words were chosen not to reflect the meaning applied to the word noise in Minnesota Statute.

Application of noise standards at receptors

There is disagreement between the applicant and the ALJ regarding whether the state noise standards limit total noise at a receptor. DOC EERA notes that the MPCA 2015 Guidance document addresses this question in their exceptions³¹. The MPCA also addressed this by stating: "The question of whether to subtract or not subtract background noise depends on the situation. The treatment of background noise measurement depends on the application of the

²⁶ In particular, the cited rule provides a methodology to determine a given source's noise contribution when ambient/background noise is present at a receptor location.

²⁷ It is also worth noting that the cited Minnesota Noise Guide defines noise as: "any undesirable sound"; see Page 1 of *A Guide to Noise Control in Minnesota –Acoustic Properties, Measurement, Analysis and Regulation*, Minnesota Pollution Control Agency, March 2015.

²⁸ Minn. R. 7030-0100-1060.

²⁹ Minn. R. 7030-0010-0080.

³⁰ Although the word "noise" is used in headnotes throughout the chapter, they are merely catchwords and have no force of law, see Minnesota Statute 3C.08, subdivision 3.

³¹ The MPCA interprets Minnesota Rules Chapter 7030 to limit total sound for the preservation of public health and welfare. The MPCA October 8, 2012 comment letter on the Department's Guidance for Large Wind Energy Conversion System Noise Study Protocol and Report, for example, states: "Developers should not propose projects where total noise is estimated to exceed the noise standards at receptor property." Moreover, the next paragraph of the MPCA letter goes on to state, that regarding compliance, "Although the noise rules apply to total noise measured at a wind farm, the culpability of the wind turbines depends on attribution. If noise exceedances are recorded, it is necessary to determine the increment due to the turbine noise." See Exhibit EERA-9 at page 12, e-Dockets Filing No. 20183-140949-02, March 12, 2012.

data.³² The record does not support the premise that Minnesota noise standards entirely disregard consideration of ambient noise since it must be considering in measurements applying the limit, otherwise it would not have contemplated measurements that are intended to identify the contributions from a source relative to ambient noise (otherwise, one could measure the noise at its source and apply a model to determine the noise from the source at the receptor).

Minnesota noise standards are administered by the Minnesota Pollution Control Agency. All permit-holders are required to comply with the permit conditions, including those for noise. Permit holders assume the risk of having to undertake any necessary mitigation measures, including curtailment, to ensure compliance with the applicable standards. The MPCA may also grant variances to its noise standards if warranted. The Commission may amend conditions in its permits with cause, should it become necessary to do so.

The applicant's pre-construction studies should be given due consideration. The applicant's analyses indicates that, under extremely conservative assumptions, it is possible that there may be violations of the state noise standard. Using more realistic assumptions, it may be shown that the project does comply with the noise standards.

Should the Commission adopt DOC EERA's recommendations, it should consider requiring the permittee to address how the project will comply with the revised noise permit conditions prior to beginning construction.

Regarding post-construction noise monitoring, staff recommends changes to Section 7.4.2 (Post Construction Noise Monitoring) to synthesize portions of the draft site permit along with the recommendations from DOC EERA and the ALJ as discussed above.

Over-the-Air Television Interference

The ALJ Report addressed OTA TV interference in Findings 349-413, 544, 545, and Conclusions 8 and 9. The ALJ noted the potential of wind farms to interfere with transmitted OTA TV signals, especially in those areas where there is no line of sight to a television transmitter.

However, the ALJ concluded KAAL did not provide support for its proposed expanded "at risk area". The number of households at risk for signal interference could be significantly higher or lower than the applicant had estimated because the actual "at risk" areas remain uncertain.

The ALJ determined the applicant's proposal for an expanded "at risk area" did not sufficiently address the concerns raised by KAAL and the notice area should be expanding to provide notice to every household in the communities of Albert Lea, Northwood, Silver Lake, Gordonsville, Glenville, Hayward and Moscow. The ALJ further recommended that Freeborn Wind be directed

³² Ibid.

to investigate and document any non-frivolous claims of OTA TV interference and make such reports available publicly on a monthly basis.

The ALJ concluded that the need for translator mitigation measures is highly speculative based on the record but did not rule out the possibility that a translator could be proven necessary to meet Freeborn Wind's obligations to ensure continued availability of television transmission in the project area.

KAAL TV on OTA TV Interference

KAAL expressed general concurrence with the ALJ Report with the exception of Finding 386. KAAL noted that the record conflicts with the third and fourth sentence of this finding because a member of the public who testified in support of their use of OTA television during bad weather and not relying on AM or FM radio. Additionally, KAAL asserted that requiring members of the public to rely upon AM or FM signals does not restore the "natural conditions" as required by Minnesota law.

Freeborn Wind on OTA TV Interference

Freeborn Wind asserted that the "complexity of identifying the exact antenna location at hundreds of potential private residents makes it impossible to avoid this impact upfront. However, the applicant agreed to diligently implement a program to promptly respond and mitigate any problems observed upon commencement of operations.

The applicant disputed the likelihood of the signal interference outside of its "at risk" area by noting that its study methodology suggested an expanded investigation area was unlikely to be necessary based on its technical guidance and the proximity of the disputed areas to wind turbines.

DOC EERA on OTA TV Interference

DOC EERA does not support Finding 544 and its corresponding modifications to DSP Section 5.2 (Construction and Operation Practices) which would result in an increase in the number of households that would receive a copy of the Site Permit and Complaint Procedure because of the significant costs to the applicant and the lack of support in the record. The Department does not support Finding 545 including the recommended modifications to Section 5.2.16 (Interference) of the permit which would establish a separate procedure for OTA television interference complaints based on a lack of record evidence and the fact that there is an existing complaint procedure proscribed in the draft site permit.

Staff Analysis on OTA Interference

Staff agrees with the ALJ that the "at risk" area may be larger than identified in the applicant's original study, but questions whether requiring an additional study, a new complaint process and additional distribution of the entire permit package is supported. Staff recommends the

Commission accept the expanded “at risk area” offered by the applicant for initial distribution. Should the number of OTA TV complaints be significantly larger than expected the Commission may require additional notification as appropriate. Staff recommends that Section 5.2.16 changes are not required because the existing permit language requires that the Permittee take timely measures to alleviate interference from the project or its operations.

The ALJ correctly concluded that the need for translator mitigation measures is highly speculative based on the record but does not rule out the possibility that a translator could be proven necessary to meet Freeborn Wind’s obligations under the site permit.

Shadow Flicker

The ALJ Report addresses shadow flicker in Findings 146, 147, 150, 248–262, 282, and 283. The ALJ recommended modifications to Section 7.2 of the site permit in Finding 544 – 545 and Conclusion Number 8. The ALJ noted that the Commission has not adopted a shadow flicker standard and that Freeborn County has adopted an ordinance limiting shadow flicker exposure to 30 hours per year. The ALJ recommended shadow flicker detection systems be installed to monitor exposure at those receptor locations expected to receive between 27 and 30 hours of shadow flicker per year. The ALJ further recommended that mitigation measures, including curtailment are appropriate to reduce shadow flicker as necessary to comply with the County’s requirements.

Freeborn Wind on Shadow Flicker

Freeborn Wind noted it has voluntarily agreed to comply with Freeborn County’s 30 hour year standard, despite the lack of peer-reviewed scientific evidence supporting any adverse health effects from shadow flicker. Freeborn asserted there is no basis in the record for an arbitrary 27 hour per year threshold; and that the conservative assumptions under which shadow flicker was studied suggests the actual shadow flicker of the few impacted residences within the threshold can expect to experience less exposure than predicted in modeling. Freeborn stated the Commission has not previously imposed mitigation for a 30-hour per year limit on shadow flicker and that it is unreasonable to further extend this limit.

AFCL on Shadow Flicker

AFCL noted the applicant’s analysis demonstrates more than 30 hours per year will be experienced by several homes. Additionally, AFCL noted the applicant has the burden to demonstrate why it cannot comply with the County Ordinance.

DOC EERA on Shadow Flicker

DOC EERA supported a 30 hour per year exposure standard but noted the data supporting its position did not suggest there are negative human health impacts at greater exposure levels. DOC EERA cited the lack of evidence in the record supporting a 27 hour per year monitoring

threshold and does not support the changes to Section 7.2 of the site permit. As an alternative to the ALJ's recommendations, DOC EERA offered alternative language to Section 7.2 for the Commission's consideration. DOC EERA recommended that Freeborn develop a Shadow Flicker Management Plan documenting the results of its monitoring along with the study assumptions and pre-mitigation shadow flicker levels.

Staff Analysis on Shadow Flicker

Staff does not support lowering the maximum allowable shadow flicker limit below 30 hours per year because it is not supported by scientific evidence. Shadow flicker analysis utilizes readily measureable data and its predictive value is relatively large. The assumptions underlying the analysis provide a worse-case scenario, meaning homes can reasonably expect to experience lower levels of shadow flicker. The site permit includes a complaint procedure to investigate and implement mitigation measures as appropriate

Property Values

The Administrative Law Judge concluded that the project will not adversely affect agricultural land values. The ALJ noted there was no expert testimony rebutting the applicant's expert on other property values, or evidence contrary to the applicant's testimony. The ALJ did not find the evidence supplied by the applicant's expert witnesses individually compelling, but concluded based on the preponderance of the evidence that proximity to a wind turbine does not negatively affect property values. The ALJ concluded the evidence presented does not warrant a property value guarantee to compensate nearby landowners for assumed negative impacts to property values.

Freeborn Wind on Property Values

According to Freeborn Wind, because landowners will be compensated through leases, participating landowners will not experience any unmitigated impacts. The applicant provided an expert witness who, after completing a market analysis on potential impacts to property values, concluded that their analysis of agricultural land values in the area and in other areas of the state with wind farms did not support any finding that the agricultural land values are negatively impacted by the proximity to wind turbines.

AFCL on Property Values

AFCL asserted the validity of the applicant's property value analysis was limited in part because it was conducted during a time of rising property values, and the homes considered by the applicant were further away from turbines than those in the project area. AFCL did not supply testimony on impacts of wind turbines on neighboring agricultural land values.

Staff Analysis on Property Values

Staff agrees with the ALJ that the evidence in the record suggests the project will not negatively affect property values.

Decommissioning

The ALJ's findings regarding decommissioning and restoration are found at paragraphs 507 to 532, with additional permit conditions recommended as findings 550 and 551. The ALJ noted the owner of the project is responsible for compliance with the decommissioning requirements. The ALJ concluded that decommissioning has been appropriately addressed by the applicant and the draft site permit, with modifications by the ALJ to Section XI.W (Decommissioning).

AFCL on Decommissioning

AFCL argued that DOC EERA did not bring the omission of decommissioning information in the site permit application to the Commission's attention. AFCL urged the Commission to require compliance at this time and require that the information be filed for review and a hearing; or in the alternative, provide the information for agency and public review and comment. AFCL stated that no permit should be issued without the opportunity for the public to address the decommissioning plan.

Freeborn Wind on Decommissioning

The applicant acknowledged its responsibilities for decommissioning and has agreed to develop a decommissioning and restoration plan prior to the pre-operation meeting with DOC EERA.

DOC EERA on Decommissioning and Restoration³³

The Department stated that requiring the applicant to demonstrate its capacity to guarantee funding for eventual decommissioning of the project prior to beginning its construction is not justified. The Department also does not agree with finding 528 and the ALJ's DSP Section 11.1 amendment.

The Department does not agree with finding 551 and the subsequent amendment to Section 11.1 of the DSP which requires the permittee to provide a resource guarantee for decommissioning at least 45 days prior to commencement of construction. The Department recommended the Commission utilize the existing language in Section 11.1 of the DSP. If the Commission determines a guarantee of resource should occur prior to construction, DOC EERA recommended that it be required to be filed 14 days prior to the preconstruction meeting.

Staff analysis on Decommissioning and Restoration

³³ Findings of Fact 527, 528, 529, 551 and DSP Section 11.1.

Staff agrees with DOC EERA regarding pre-construction guarantee requirements. The draft site permit conditions establish a reasonable timeframe to develop and submit a detailed plan. Staff does not support requiring notice and comments on a decommissioning filing itself.

Ice Throw

Finding 309 of the ALJ Report cites a reported incident of ice thrown from a wind turbine in the area of the Bent Tree Wind Farm, which purportedly struck a semi-truck traveling on Highway 13. The ALJ recommended amendments to Section 5.2.25 of the site permit that would require that any turbines located closer than 1,200 feet of any structure, road, or trail be inspected for ice when conditions exist that make ice accumulation likely.

Freeborn Wind on Ice Throw

The reported incident of ice throw and strike at the Bent Tree Wind Farm was investigated by Bent Tree Wind Farm staff, and the vehicle strike occurrence was never confirmed to have occurred due to turbine ice throw. The reported ice throw and strike occurrence should not be used as evidence of turbine ice throw, and it should not be used to establish turbine setback distances or the need to establish turbine ice accumulation monitoring protocols.

DOC EERA on Ice Throw

The Department also questioned whether the incident in question was related to a wind turbine. According to DOC EERA, the reported ice throw and strike occurrence has not been demonstrated as turbine ice throw, and it should not be used to establish turbine setback distances or the need to establish turbine ice accumulation monitoring protocols. DOC EERA noted that a 250-foot setback from roads has demonstrated to significantly reduce the potential for wind turbine ice throw danger.

DOC EERA disagrees with finding 549 and the recommended amendments to Section 5.2.25 (Public Safety). The Department recommended using the existing language of Section 5.2.25 of the draft site permit.

IX. Staff Analysis

Staff has reviewed the full record including all comments and filings made to the docket. Staff agrees with DOC EERA's conclusion that the ALJ Report provides a comprehensive analysis of the record evidence.

In evaluating the record, staff recommends that the Commission first address the legal standard applied to the applicant's burden of proof. If the Commission determines that the application is

fatally flawed, then the Commission could deny the permit and provide the applicant an opportunity to demonstrate that they meet the noise standards per the ALJ Report.

Staff notes that a requirement to demonstrate compliance “at all times, across the footprint” is technically difficult, if not infeasible, especially in light of the complexities associated with noise measurement. Because of this, staff does not agree with the ALJ’s Conclusion Number 5 and Recommendation to deny the permit. The permit confers responsibility for compliance with the noise standards to the permittee, and they in turn are responsible for demonstrating post-construction compliance with those standards.

Staff agrees with the applicant and Department that a permit should be granted with the appropriate conditions.

If a permit is to be issued for the project, staff requests that the Commission review the staff’s proposal for post-construction noise monitoring and determine whether it is appropriate to incorporate changes to section 7.4.2 directing consultation with MDH and MPCA for development of the protocol of the monitoring in response to the ALJ’s recommendations, and the use of an independent monitor to conduct analysis and reporting.

IX. Decision Options

A. Administrative Law Judge’s Summary of Public Testimony, Findings of Fact, Conclusions of Law, and Recommendation

1. Adopt the Administrative Law Judge’s Report.
2. Adopt the Administrative Law Judge’s Report with staff’s modifications.
3. Take some other action deemed appropriate.

B. Site Permit for the Freeborn Wind Large Wind Energy Conversion System.

1. Provide Freeborn Wind up to 6 months to submit a plan demonstrating how it will comply with Minnesota Noise Standards at all times throughout the footprint of the project. The plan must also be responsive to the uncertainties regarding noise measurement in findings 235 to 245 of the ALJ Report.
2. Require Freeborn Wind to provide an updated preconstruction noise analysis which demonstrates the project will comply with the noise permit conditions recommended by DOC EERA.

3. Issue the Draft Site Permit authorized by the Commission in its January 30, 2018 Order permit for the Freeborn Wind Large Wind Energy Conversion System.
4. Issue the Draft Site Permit authorized by the Commission in its January 30, 2018 Order with the permit amendments recommended by Commission staff incorporated as the site permit for the Freeborn Wind Large Wind Energy Conversion System in Freeborn County, Minnesota.
5. Decline to issue a site permit for the Freeborn Wind Large Wind Energy Conversion System and provide the applicant up to 6 months to submit a plan demonstrating how it will comply with Minnesota Noise Standards at all times throughout the footprint of the project.
6. Do not issue a site permit for the Freeborn Wind Large Wind Energy Conversion System in Freeborn County.
7. Take some other action deemed appropriate.

C. Administrative Consistency

1. Authorize Commission staff to make further refinements to the ALJ Report as necessary to ensure consistency with the record, the language of recently issued permits, and the Commission's decision on this matter.

Staff Recommendation: **A2, B2, B4, and C1**

Minnesota Noise Standards – Excerpts from 2017 Minnesota Statutes

116.07 POWERS AND DUTIES.**Subd. 2. Adopting standards**

(c) The Pollution Control Agency shall also adopt standards describing the maximum levels of noise in terms of sound pressure level which may occur in the outdoor atmosphere, recognizing that due to variable factors no single standard of sound pressure is applicable to all areas of the state. Such standards shall give due consideration to such factors as the intensity of noises, the types of noises, the frequency with which noises recur, the time period for which noises continue, the times of day during which noises occur, and such other factors as could affect the extent to which noises may be injurious to human health or welfare, animal or plant life, or property, or could interfere unreasonably with the enjoyment of life or property. In adopting standards, the Pollution Control Agency shall give due recognition to the fact that the quantity or characteristics of noise or the duration of its presence in the outdoor atmosphere, which may cause noise pollution in one area of the state, may cause less or not cause any noise pollution in another area of the state, and it shall take into consideration in this connection such factors, including others which it may deem proper, as existing physical conditions, zoning classifications, topography, meteorological conditions and the fact that a standard which may be proper in an essentially residential area of the state, may not be proper as to a highly developed industrial area of the state. Such noise standards shall be premised upon scientific knowledge as well as effects based on technically substantiated criteria and commonly accepted practices. No local governing unit shall set standards describing the maximum levels of sound pressure which are more stringent than those set by the Pollution Control Agency.

Subd. 4. Rules and standards. ...

(e) Pursuant and subject to the provisions of chapter 14, and the provisions hereof, the Pollution Control Agency may adopt, amend and rescind rules and standards having the force of law relating to any purpose within the provisions of [Laws 1971, chapter 727](#), for the prevention, abatement, or control of noise pollution. Any such rule or standard may be of general application throughout the state, or may be limited as to times, places, circumstances or conditions in order to make due allowances for variations therein. Without limitation, rules or standards may relate to sources or emissions of noise or noise pollution, to the quality or composition of noises in the natural environment, or to any other matter relevant to the prevention, abatement, or control of noise pollution.

<https://www.revisor.mn.gov/statutes/cite/116.07>

Minnesota Noise Standards – Excerpts from 2017 Minnesota Rules

7030.0020 DEFINITIONS.

Subp. 1. **Application.** The terms used in this chapter have the meanings given them in this part.

Subp. 2. **A-weighted.** "A-weighted" means a specific weighting of the sound pressure level for the purpose of determining the human response to sound. The specific weighting characteristics and tolerances are those given in American National Standards Institute S1.4-1983, section 5.1.

Subp. 3. **Daytime.** "Daytime" means those hours from 7:00 a.m. to 10:00 p.m.

Subp. 4. **dB(A).** "dB(A)" means a unit of sound level expressed in decibels (dB) and A-weighted.

Subp. 5. **Decibel.** "Decibel" means a unit of sound pressure level, abbreviated as dB.

Subp. 6. **Impulsive noise.** "Impulsive noise" means either a single sound pressure peak (with either a rise time less than 200 milliseconds or total duration less than 200 milliseconds) or multiple sound pressure peaks (with either rise times less than 200 milliseconds or total duration less than 200 milliseconds) spaced at least by 200 millisecond pauses.

Subp. 7. **L₁₀.** "L₁₀" means the sound level, expressed in dB(A), which is exceeded ten percent of the time for a one hour survey, as measured by test procedures approved by the commissioner.

Subp. 8. **L₅₀.** "L₅₀" means the sound level, expressed in dB(A), which is exceeded 50 percent of the time for a one hour survey, as measured by test procedures approved by the commissioner.

Subp. 9. **Municipality.** "Municipality" means a county; a city; a town; a regional planning and development commission established under Minnesota Statutes, chapter 473; the metropolitan council; or other governmental subdivision of the state responsible by law for controlling or restricting land use within its jurisdiction.

Subp. 10. **Nighttime.** "Nighttime" means those hours from 10:00 p.m. to 7:00 a.m.

Subp. 11. **Person.** "Person" means any human being, any municipality or other governmental or political subdivision or other public department or agency, any public or private corporation, any partnership, firm, association, or other organization, any receiver, trustee, assignee, agency, legal entity, other than a court of law, or any legal representative of any of the foregoing, but does not include the agency.

Subp. 12. **Sound pressure level.** "Sound pressure level", in decibels, means 20 times the logarithm to the base 10 of the ratio of the pressure to the reference pressure. The reference pressure shall be 20 micronewtons per square meter.

Statutory Authority: *MS s 116.07*

History: *11 SR 43; L 1987 c 186 s 15; 18 SR 614*

Published Electronically: *December 12, 2003*

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.

Subp. 2. **Noise standards.**

Noise Area Classification	Daytime		Nighttime	
	L ₅₀	L ₁₀	L ₅₀	L ₁₀
1	60	65	50	55
2	65	70	65	70
3	75	80	75	80

Statutory Authority: *MS s 116.07*

History: *11 SR 43; 18 SR 614*

Published Electronically: *December 12, 2003*

7030.0060 MEASUREMENT METHODOLOGY.

Subpart 1. **Measurement location.** Measurement of sound must be made at or within the applicable NAC at the point of human activity which is nearest to the noise source. All measurements shall be made outdoors.

Subp. 2. **Equipment specifications.** All sound level measuring devices must meet Type O, I, II, or S specifications under American National Standards Institute S1.4-1983.

Subp. 3. **Calibration.** All sound level measuring devices must, at a minimum, be externally field calibrated before and after monitoring using a calibration device of known frequency and sound pressure level.

Subp. 4. **Measurement procedures.** The following procedures must be used to obtain representative sound level measurements:

A. Measurements must be made at least three feet off the ground or surface and away from natural or artificial structures which would prevent an accurate measurement.

B. Measurements must be made using the A-weighting and fast response characteristics of the sound measuring device as specified in American National Standards Institute S1.4-1983.

C. Measurements must not be made in sustained winds or in precipitation which results in a difference of less than ten decibels between the background noise level and the noise source being measured.

D. Measurements must be made using a microphone which is protected from ambient conditions which would prevent an accurate measurement.

Subp. 5. **Data documentation.** A summary sheet for all sound level measurements shall be completed and signed by the person making the measurements. At a minimum, the summary sheet shall include:

- A. date;
- B. time;
- C. location;
- D. noise source;
- E. wind speed and direction;
- F. temperature;
- G. humidity;
- H. make, model, and serial number of measuring equipment;
- I. field calibration results;
- J. monitored levels; and
- K. site sketch indicating noise source, measurement location, directions, distances, and obstructions.

Statutory Authority: *MS s 116.07*

History: *11 SR 43; 17 SR 1279; 18 SR 614*

Published Electronically: *December 12, 2003*

7030.0080 VARIANCE.

If, upon written application of the responsible person, the agency finds that by reason of exceptional circumstances strict conformity with any provisions of any noise rule would cause undue hardship, would be unreasonable, impractical, or not feasible under the circumstances, the agency may permit a variance upon the conditions and within the time limitations as it may prescribe for the prevention, control, or abatement of noise pollution in harmony with the intent of the state and any applicable federal laws.

Statutory Authority: *MS s 116.07*

History: *11 SR 43; 18 SR 614*

Published Electronically: *December 12, 2003*

Finding Number	Party	Topic	Y/N	Rationale/Notes
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Summary	FW	Site Permit Approval	No	2, 3
5	FW	Freeborn Wind	No	2, 3
60	AFCL	Public Hearing - oaths	No	2
93	AFCL	Construction Schedule	No	2
114	AFCL	Agreement Agent	No	2
116	AFCL	Land Rights	No	1, 2, 3, 6
145	FW	Freeborn County Setback Request	No	2, 3, 6
147	FW	Shadow Flicker, Section 7.2 modifications	No	2, 3
150	FW	Zoning and Comprehensive Plans	No	2, 3
151	AFCL	Property Values	No	2, 5
152	AFCL	Property Values, MaRous	No	5
154	AFCL	Aerial Spraying	Yes, in part	The first sentence is supported in the record, the second may be deleted.
154	FW	Aerial Spraying	Yes	Change is supported and improves the accuracy and/or precision of the record.
158	FW	Follmuth Property Assessment	No	2, 4
159	FW	Expert Witness MaRous	No	2,3
160	FW	Matched Pair Analysis	Yes	Change is supported and improves the accuracy and/or precision of the report.
161	FW	Matched Pair Analysis, accuracy	No	2, 3
163	FW	Matched Pair Analysis, results	No	1, 2, 3

1. No rationale or citation to record provided
2. Inclusion, deletion or modification does not necessary improve report, or is otherwise unnecessary
3. Substantially changes, or is contrary to ALJ
4. De Minimis editing
5. Found elsewhere in record
6. Not Supported in record

Finding Number	Party	Topic	Y/N	Rationale/Notes
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164	FW	Property Values, LWECS proximity	Yes	Change is supported and improves the accuracy and/or precision of the report.
165	FW	Property Values, conclusions	No	2, 3
166	FW	Property Values, studies	No	2, 5
166 (New)	FW	Raw LBNL study data does not support conclusion(s)	No	2, 3
167	FW	Property Values, 2009 LBNL Study	No	2, 3
168	FW	Property Values, 2013 LBNL Study	No	2, 3
169	FW	Property Values, conclusions from studies	No	2, 3
171	FW	Property Values, Stearns County	No	2, 4
173	FW	Property Values, public disagreement	No	2, 3
174	FW	Property Values, ALJ conclusion	No	1, 2, 3
175	FW	Property Values, PV Guarantee	Yes	Change is supported and improves the accuracy and/or precision of the report.
177	FW	Noise, generally	No	2, 3 – Staff notes that the word “ill” in the heading of Section D.1 and in the table of contents should read “will”.
181	FW	Noise, infrasound	Yes, in part	2, 3 – Instead of deletion, the words “by some” should be inserted after the word “believe”.

1. No rationale or citation to record provided
2. Inclusion, deletion or modification does not necessary improve report, or is otherwise unnecessary
3. Substantially changes, or is contrary to ALJ
4. De Minimis editing
5. Found elsewhere in record
6. Not Supported in record

Finding Number	Party	Topic	Y/N	Rationale/Notes
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182	FW	Noise, complaints	Yes, in part	1, 2, 3, 6 – The last sentence is incomplete and not well-supported.
183	FW	Noise, MDH 2017 recommendations	No	1, 2, 5
184	AFCL	Noise, concerns and reference	No	1, 2, 3 – The scope of the proceeding is determined by the ALJ.
185	FW	Noise, perception	Yes, in part	Sentences 3, 4 and 5 should be deleted as they are not well supported by the citation.
186	FW	Noise, physics	Yes	The change improves accuracy and/or precision of the report.
187	FW	Noise, sound power	No	1, 2, 3
189	FW	Noise, sensitivity to specific frequencies	Yes, in part	1, 6 – The change is generally correct, but more precisely should read “... up to about...” not “...at about...” 1,000 Hz.
190	FW	Noise, hearing acuity	No	2, 3
191 (deletion)	FW	Noise, threshold of human hearing	No	1, 2 - Cited materials support the finding (also see Ellingbogen Direct, Schedule 2 at page 9).
191, added as 185.	FW	Noise, infrasound	Yes	Change is supported and improves the accuracy and/or precision of the report.
192	FW	Noise, health effects are related to low frequency noise	Yes, in part	To avoid semantic ambiguity, the word “most available” should be stricken from the first sentence.
193	FW	Noise, decibels defined	Yes	The 2 nd and 3 rd sentences are not found in the citation and can be deleted.
194	FW	Noise, A-weighting defined	No	2, 3

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2. Inclusion, deletion or modification does not necessary improve report, or is otherwise unnecessary
3. Substantially changes, or is contrary to ALJ
4. De Minimis editing
5. Found elsewhere in record
6. Not Supported in record

Finding Number	Party	Topic	Y/N	Rationale/Notes
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195	FW	Noise, C-weighting defined	Yes, in part	2, 3 – The 1 st sentence is correct and should remain. The last sentence is not in the cited reference and should be deleted.
196	FW	Noise, A-weighting	No	2, 3
197	FW	Noise, measurement and perception	Yes, in part	Change is supported and improves the accuracy and/or precision of the report.
198	FW	Noise, adding sources	Yes	Change is supported and improves the accuracy and/or precision of the report.
202	AFCL	Noise, definition and limits	No	1, 2, 3 - The citations do not support statements about enforcement of noise standards.
202	FW	Noise, definition and limits	No	2, 3
205	FW	Noise, purpose of DOC EERA's Guidance document	Yes	Change is supported and improves the accuracy and/or precision of the report.
206	FW	Noise, ALJ concurs w/ DOC on MR Ch. 7030 interpretation	No	2, 3, 6
207 deletion	FW	Noise, standards fail to regulate all peoples' concerns	No	2, 3
207 (added as 199)	FW	Noise, standards fail to regulate all peoples' concerns	Yes, in part	2, 3 - Additional provides additional information regarding isolation of ambient noise from project noise for measurement purposes. The last additional sentence is not correct and should not be included.

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Finding Number	Party	Topic	Y/N	Rationale/Notes
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207 (added as 200)	FW	Noise, standards fail to regulate all peoples' concerns	Yes, in part	1, 2, 3, 6 – The noise standards (Minn. R. 7030.0010-0080) enforce non-impulsive in terms of <i>sound levels at receptor(s)</i> , not noise as defined in statute. The last sentence is incorrect and should not be included.
207	FW	Header, low frequency noise and infrasound	No	1, 2, 4, 5 – Low Frequency Noise and Infrasound are discussed elsewhere.
209 deletion	FW	Noise, LFN and infrasound	Yes, in part	The first sentence is ambiguous and not necessarily supported by the record. The second sentence is technically correct and should remain.
209 (added as 203)	FW	Noise, LFN and infrasound	Yes	Addition improves accuracy and/or precision of report.
210 (added as 204)	FW	Noise, LFN levels	No	2, 3
211	FW	Noise, LFN levels and wind noise	Yes, in part	2, 3 -The first addition is ambiguous and should not be included.
211 (added as 206)	FW	Noise, MDH and 40-50 dBA cumulative noise isopleths	Yes	Change is supported and improves the accuracy and/or precision of the record.
212	FW	Noise, MDH on LFN components of isopleths	No, in part	2, 3
213	AFCL	Noise, following guidance	Yes	Change is supported and improves the accuracy and/or precision of the record.
213 (deleted)	FW	Noise, following guidance	No	2, 3

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Finding Number	Party	Topic	Y/N	Rationale/Notes
213 (added as 208)	FW	Noise, infrasound magnitude	No	2, 5
213 (added as 209)	FW	Noise- studies on the effects of infrasound	No	2, 5
214	AFCL	Noise, public concerns	Yes, in part	2, 5 - The second sentence improves the report.
214	FW	Noise, public concerns	Yes, in part	2, 3
214 (added as 211)	FW	Noise, A-weighting addresses infrasound	No	2, 3
215 (deletion)	FW	Noise, Noise standards and wind farms	No	1, 2, 3, 6
216	AFCL	Noise, General Permit Standards	No	2, 3
217	FW	Noise, Rosenquist comments	No	2, 3
218 (modified)	FW	Noise, Rosenquist comments II	No	2, 3
219 (merged with 218)	FW	Noise, Overland	No	2
219 (added as 215)	FW	Noise, indirect regulation of infrasound	Yes, in part	The addition improves the record, provided the word "some" is inserted before "experts".
220	FW	Noise, preconstruction analysis	Yes	Change is supported and improves the accuracy and/or precision of the record.

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Finding Number	Party	Topic	Y/N	Rationale/Notes
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222	FW	Noise, purpose of preconstruction analysis	Yes	Change is supported and improves the accuracy and/or precision of the record.
223	FW	Noise, date of preconstruction analysis	Yes	The modification more accurately reflects the record.
224	FW	Noise, Study assumptions	Yes	Change is supported and improves the accuracy and/or precision of the record.
224 (added as 222)	FW	Noise, background noise during study	No	2, 5
226	FW	Noise, study methodology	No	2
227	FW	Noise, results of ambient noise measurement	Yes, in part	2, 3 – The addition of the last five sentences improve the record.
229	FW	Noise, modeling methodology and results	No	2, 3
231	FW	Noise, ambient noise	No	2, 3
232	FW	Noise, study results	No	2
233	AFCL	Noise, study	No	1, 2
232 (added as 230)	FW	Noise, study	No	2
233	FW	Noise, study	No	2, 3
234	FW	Noise, study results	No	2
235	FW	Noise, compliance with noise standards	No	2, 3
236	AFCL	Noise, margin of error	No	1, 2

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Finding Number	Party	Topic	Y/N	Rationale/Notes
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236	FW	Noise, margin of error	Yes, in part	2, 3 - The inclusion of the relevant ISO standard is appropriate
237	FW	Noise, margin of error in a not-to-exceed standard	Yes	The language of this finding is ambiguous. It is unclear from the citation whether the expert incorporated the applicant's "conservative assumptions" as a 'facility design margin'. In either case, the noise standards are not written as a "not to exceed under all conditions" regulation.
238	AFCL	Noise, measurement uncertainty	No	1, 2
238	FW	Noise, measurement uncertainty	Yes, in part	2, 3 – The first sentence should remain, the other changes improve the finding.
239	FW	Noise, sampling locations	No	1, 2, 3
240	FW	Noise, potential siting changes	Yes	Change is supported and improves the accuracy and/or precision of the record.
241	FW	Noise, exceedances at residences	Yes, in part	2, 3 – The word "could" should be placed before the word exceed in the first sentence. The second sentence should remain. The additional language improves the finding with the exception of the conclusion ("and that the project will comply....") that should not be included.
241 (New 237)	FW	Noise, exceedances at residences	Yes in part	2, 3 – The deletion is unnecessary. The first two additional sentences improve the finding.

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242	FW	Noise, project compliance	No	2, 3
243	EERA	Noise, Compliance Plan	Yes	Deletion of the last sentence is supported by the record.
243	FW	Noise, Compliance Plan	No	2, 3
244	AFCL	Noise, Compliance Plan review	Yes, in part	1, 2, 3, 6
244	FW	Noise, Compliance Plan review	No	2,3
245	AFCL	Noise, compliance required	No	1, 2, 6
245	EERA	Noise, compliance required	Yes, in part	2, 3 - Staff agrees that the first sentence should be modified as requested by the applicant. Staff also supports EERA's proposed amendments to Section 7.4.
245	FW	Noise, compliance required	Yes, in part	2, 3 - Staff supports the change to the first sentence because it more closely reflects the record.
245 Merging 246	EERA	Noise, operation exceedances	Yes, in part	2, 3 – The finding is improved by adding the sentence from 245 (“Condition 4.3 requires....”). Staff does not support deletion of the remaining language in this finding.
246	Staff	Post-construction Noise Study required	Yes	Staff supports deletion of the finding as the noise standards do not specifically regulate infrasound.
247	EERA	Noise, showing of compliance required	Yes, in part	2, 3 – Staff does not support deletion of the finding itself but does recommend deletion of the last sentence and

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				recommends the Commission alter Section 7.4 as requested by DOC EERA.
247	FW	Noise, showing of compliance required	No	2, 3 – See above
252	FW	Shadow Flicker, public concern	No	2, 3
254	FW	Shadow Flicker, data source	Yes	Change is supported and improves the accuracy and/or precision of the record.
256	AFCL	Shadow Flicker, applicability	No	2, 5
260	FW	Shadow Flicker, mitigation by applicant	Yes,	2, 3 – The cited reference does not fully support the language in this finding.
261	FW	Shadow Flicker, study results	Yes, in part	Staff agrees with DOC EERA's recommendations including modifications to Section 7.2 (with one typo correction).
262	FW	Shadow Flicker, DSP conditions	No	2, 3 – See above.
267	AFCL	Jobs, temporary	No	2, 5
271	AFCL	Economic Benefits to Community	No	1, 2, 5 See Litchfield Direct, Schedules 3-6
272	AFCL	Environmental Benefits	No	2
275	AFCL	Public Health Benefits	No	2, 3
280	FW	Public Health Risks, concerns	Yes	The change improves the accuracy and/or precision of the report.
282	FW	Public Health Risks, 2009 MDH Report on shadow flicker	No	1, 2, 3 -A recommendation for a 10 diameter rotor setbacks is not included as a recommendation in the report.

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Finding Number	Party	Topic	Y/N	Rationale/Notes
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283	FW	Public Health Risks, noise or shadow flicker induced illness	No	2, 3
284	FW	Public Health Risks, Generally	Yes, in part	2, 3, 5 - Staff agrees that applicant's responses in bullets 1, 2, 5 and 8 improve the record, but not 3, 4, 6, 7 because of vague and contextual language.
286 (added as 280)	FW	Public Health Risks, adequate minimization of impacts	No	2, 3
286 (added as 281)	FW	Health Effects, AFCL testimony	No	2, 3
290	FW	MDH Concerns, adequacy of FW response	No	2
291	AFCL	Health Effects, causation	No	1, 2
292	AFCL	Health Effects, Burden of Proof	No	1, 2, 3
295	FW	Public Health Risks, annoyance demonstrated	No	1, 2, 3,
296	FW	Public Health Risks, association	No	2, 3,
297	FW	Public Health Risks, annoyance	No	2 3
298	AFCL	Public Health Risks, community opposition	Yes	Annoyance of some community members is reflected in the record.

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298	FW	Public Health Risks, community opposition	No	2, 3
298 (added as 292)	FW	Public Health Risks, association of LWECS	Yes	2, 3 – The first and third sentences are reflected in the record. The second sentence is contextual and vague; additionally Roberts Direct cites the lack of available epidemiological data in relation to determining they are “closely tied”.
299	FW	Shadow flicker, supports change to Section 7.2	Yes	Staff agrees that a 30-hour per year standard, in conjunction with monitoring and migration strategies, adequately mitigates shadow flicker from the project.
300	AFCL	Draft Site Permit, noise analysis	No	2
300	FW	Draft Site Permit, noise analysis	No	2, 3
301	EERA	Setback Requirements	Yes	The changes improve the accuracy and/or precision of the report.
301	FW	Setback Requirements	No	2, 3 –The amount of setback required by the general permit standards order is ambiguous.
302	AFCL	Setbacks, appropriate distance	No	2, 3 - Staff does not support imposing a 1,500-foot setback on non-participating landowners, but the Commission may wish to consider the four homes which are closer than 1,500 feet to turbine(s) and/or are in proximity to multiple turbines individually.
302	FW	Setbacks, appropriate distance	Yes	The changes improve the accuracy and/or precision of the report.

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Finding Number	Party	Topic	Y/N	Rationale/Notes
303	FW	Impacts, ALJ supports DSP conditions	No	2, 3
304	FW	Impacts, amended conditions will provide protections, mitigate potential impacts	Yes, in part	2, 3 – Staff supports the deletion if the words “once amended as supported by the record” are inserted after the words “site permit conditions”.
306	AFCL	Emergency Response, coordination w/ local public safety officials	No	1, 2
308	FW	Ice Throw, public comments	No	2, 3
309	EERA	Ice Throw, siting considerations	Yes, in part	Staff does not support further modifications to Section 4.4 or 5.2.25 as they are not supported in the record.
309	FW	Ice Throw, siting considerations	Yes, in part	2, 3 – Staff supports the changes through footnote 573 and the exclusion of the proposed additions prior to footnote 574 until the words “Modern Vestas....”
310	AFCL	Setbacks, Public Road and Trails	No	1, 2, 6 – The additional setback from roads is not supported in the record.
310	FW	Setbacks, Public Road and Trails	Yes	The changes improve the accuracy and/or precision of the report.
311	FW	Setbacks, Public Road and Trails	Yes	The additional inspection requirement is not supported in the record given that the turbines will have ice detection capability.
312	FW	Public Safety, mitigation of impacts	Yes, in part	2, 3 – The addendum language improves the finding.
316	AFCL	Construction, local roads	No	2, 5, 6 – A requirement for road agreements is not justified because the

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				DSP provides adequate road protections (see DSP Sections 4.4, 5.2.12, 5.2.13, 5.2.14, 5.2.21, 5.2.24 and 5.5.2).
317	AFCL	Construction, DSP provisions for local roads	No	2, 5, 6 - See above
324	FW	Communications, project impacts on telephone cables	Yes	The fact that an issue was raised in a previous Commission docket does not lend weight to the evaluation here. The subject concern is addressed adequately in Section 5.2.16.
338	FW	Impacts, AM/FM mitigation	Yes	Staff recommends using the existing language from the Draft Site Permit.
348	FW	Impacts, ALJ on microwave interference	No	2, 3
379	FW	Proposed Mitigation Measures, typo	Yes	Changing the word "projected" to "project" improves the finding.
384	FW	OTA TV, disruptions	No	2, 3
385	FW	OTA TV, potential for interference	Yes, in part	2, 3 - Staff addresses distribution of notice on OTA in Findings 544 and 545. The last additional sentence (beginning with "Freeborn Wind....") improves the report.
386	KAAL	OTA TV, adequacy of mitigation program	Yes, in part	2, 3 – Staff agrees to the deletion of the second sentence because of its subjective nature. The third sentence is a clarification that AM/FM radio service is likely available should OTA TV and satellite services be disrupted.

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Finding Number	Party	Topic	Y/N	Rationale/Notes
388	FW	OTA TV Mitigation Program, adequacy of mitigation program	No	1, 2, 3
389	FW	OTA TV Mitigation Program, estimates not based on address-level data	No	2, 3, 5
390	FW	OTA TV Mitigation Program, Comsearch Study estimation of OTA viewers	No	2, 3
391	FW	OTA TV Mitigation Program, limitation of survey's predictive accuracy	No	2, 3
392	FW	OTA TV Mitigation Program, GfK Study	No	2, 3
393	FW	OTA TV Mitigation Program, ALJ on Comsearch study estimations	No	2, 3
394	FW	OTA 10-km Limit, likelihood of interference outside	No	2, 3
395	FW	OTA 10-km Limit, multiple turbines	No	2, 3
396	FW	OTA 10-km Limit, potential for interference > 10 km	No	2, 3
397	FW	OTA 10-km Limit, special circumstances not in record	No	2, 3

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398	FW	OTA 10-km Limit, IUT-R-BT.1983-1 and project data	No	2, 3
399	FW	OTA 10-km Limit, estimations of “at risk” in study areas	No	2, 3
400	FW	OTA 10-km Limit, shaded study areas	No	2, 3
401	FW	OTA 10-km Limit, uncertainty in determination of “at risk” areas	No	2, 3
402	FW	OTA TV Notice, additional notice	No	2, 3
403	FW	OTA TV Notice, viewers other than KAAL	No	2, 3
404	FW	OTA TV Notice, proposal inadequate	No	2, 3
405	FW	OTA TV Notice, DSP Section 5.2 modifications	No	2, 3
406	FW	OTA TV Notice, complaint investigation	No	2, 3
409	FW	OTA TV and DSP, for “at risk” areas outside of 10-km	No	2, 3
410	FW	OTA TV and DSP, determination of interference	No	2, 3

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411	FW	OTA TV and DSP, areas over 10 km cannot be dismissed	Yes	Changes reflect the record and improve accuracy and/or precision of the report.
412	FW	OTA TV and DSP, special permit conditions	No	2, 3 – Staff does not fully support the ALJ's recommended changes to Sections 5.2 and 5.2.16 (see findings 544 and 545).
413	FW	OTA TV and DSP, studies made public		2, 3 – Staff does not fully support the ALJ's recommended changes to Sections 5.2 and 5.2.16 (see findings 544 and 545).
415	AFCL	Wildlife Areas	No	2, 5
417	AFCL	Wildlife Areas, viewsheds from	No	1, 2
418	AFCL	Recreational Resources	No	1, 2, 3, 6
422	AFCL	Drainage Tiles	No	2, 4, 5
429	FW	Section 5.2.15	No	2, 3
434	FW	Aerial Spraying, commenters	Yes	Changes reflect the record and improve accuracy and/or precision of the report.
435	AFCL	Aerial Spraying, Thisus	Yes	Changes reflect the record and improve accuracy and/or precision of the report.
435	FW	Aerial Spraying, Thisus	No	4
436	AFCL	Aerial Spraying, Rauenhorst	No	1, 2, 3
436	FW	Aerial Spraying, Rauenhorst	No	4
436 (added as 405)	FW	Aerial Spraying, hazard mitigation	Yes	The changes reflect the record and improve accuracy and/or precision of the report.

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Finding Number	Party	Topic	Y/N	Rationale/Notes
437	FW	Aerial Spraying, Litchfield testimony	Yes	The changes reflect the record and improve accuracy and/or precision of the report.
438	AFCL	Aerial Spraying, AFCL testimony	Yes	The changes reflect the record and improve accuracy and/or precision of the report.
439	AFCL	Aerial Spraying, conclusion	No	1, 2, 3, 6
439	FW	Aerial Spraying, affected landowners not identified	No	2, 3
442	FW	Wildlife	Yes	Changes reflect the record and improve accuracy and/or precision of the report.
452	AFCL	Eagle Nests, USFWS	No	2, 4
453	AFCL	ABPP, compliance	No	2, 4
455	AFCL	Avian Fatality Rates	No	2, 4
491	FW	Impacted Waters	Yes	Changes reflect the record and improve accuracy and/or precision of the report.
494	AFCL	Air Quality	No	1, 2
496	AFCL	Air Quality, emission reductions	No	1, 2, 3, 4
497	AFCL	Air Quality, avoided emissions	No	4
499	AFCL	Project Impacts on Air & Water Quality	No	1, 2, 3, 4
512	AFCL	Restoration Upon Decommissioning	Yes	Changes reflect the record and improve accuracy and/or precision of the report.
513	AFCL	Freeborn County Decommissioning Ordinance	No	2, 3
513	FW	Decommissioning, applicant compliant	No	2, 5

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Finding Number	Party	Topic	Y/N	Rationale/Notes
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514	AFCL	Decommissioning, plan required	No	2, 4
515	AFCL	Decommissioning Plan, timing	Yes	Changes reflect the record and improve accuracy and/or precision of the report.
516	AFCL	Minn. R. 7854.0500	Yes, in part	2 – The last item should be labeled “E.”.
516 (added as 517)	AFCL	General Wind Permit Standards	No	2, 5
518	AFCL	Order on application completeness, issue development	Yes, in part	2, 3, 5 - Staff supports adoption of the second and third sentences quoting the acceptance order, but not the proposed deletions
519	AFCL	Order on application completeness and variances	No	2, 5 , 6
520	AFCL	Order on application completeness - EERA	No	2, 5
522 (added as 523)	AFCL	Decommissioning Plan, public review	No	1, 2, 3, 6 – Provisions for decommissioning planning were included in the draft site permit. Comments on decommissioning requirements were accepted through the public comment period.
523 (added as 524)	AFCL	Order referring matter to OAH, decommission and restoration planning	No	2, 3, 6
523 (added as 525)	AFCL	Site Permit Section 11.1	No	2, 3, 6

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Finding Number	Party	Topic	Y/N	Rationale/Notes
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524	AFCL	Order referring matter to OAH, scope	No	2, 3, 6
525	AFCL	Decommissioning Plan, Site Permit Section 11.1	No	2, 3, 6
526	AFCL	Decommissioning, Litchfield Testimony	No	2, 5
527	AFCL	Decommissioning Plan, ALJ conclusion	No	1, 3, 6
527	FW	Decommissioning Plan, ALJ conclusion	Yes	Changes reflect the record and improve accuracy and/or precision of the report.
528	EERA	Decommissioning, obligation not severable	Yes	Staff agrees with the deletion because Section 11.1 establishes successive liability for permit holders.
528	FW	Decommissioning, obligation not severable	Yes	Staff agrees with the deletion because Section 11.1 establishes successive liability for permit holders.
529	FW	Decommissioning, demonstration at pre-construction meeting	Yes, in part	Changes reflect the record and improve accuracy and/or precision of the report. The applicant has no objections to filing a pre-construction submittal documenting the resources and staff has included this in the permit. The notice required by Minn. R. 7854.0900 was issued on June 21, 2017 as e-Dockets filing 20176-132986-01.
532	FW	Decommissioning, plan adequate with modifications	No	2, 3, 4
536	FW	Complaint Process, other LWECS	No	2, 3

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537	FW	Complaint Process, Big Blue LWECS	No	2, 3
538	AFCL	Complaint Procedures	No	2, 3
539	AFCL	Complaint Process, DSP provisions or revisions appropriate	No	1, 2, 3
539	FW	Complaint Process, DSP provisions or revisions appropriate	No	1, 2, 3
542	FW	Site Permit Conditions, amendments and additions appropriate	No	2, 3
544	EERA	Site Permit Conditions, Section 5.2	Yes, in part	2, 3 – Staff agrees that distribution of the site permit itself is unnecessary but that the ALJ correctly identified the need for an expanded at-risk area.
544	FW	Site Permit Conditions, Section 5.2	Yes, in part	2, 3 – Staff agrees that it is not necessary to distribute copies of the Site Permit provided the contents are included in the notice and distributed to local governments.
545	EERA	Site Permit Conditions, Section 5.2.16	Yes, in part	2, 3 – Staff agrees with the ALJ on an expanded area with modified distribution requirements (see 544). Staff agrees to include local OTA TV stations in distribution of the site permit and notice.
545	FW	Site Permit Conditions, Section 5.2.16	Yes, in part	Staff agrees with the requirements, but recommends incorporating them into the monthly reporting requirement in the permit.

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Finding Number	Party	Topic	Y/N	Rationale/Notes
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546	EERA	Site Permit Conditions, Section 7.2	Yes	Staff agrees with FW and DOC EERA that turbine control software, the 30 hours/year limit and annual reporting requirements provide sufficient capacity for mitigation of shadow flicker.
546	FW	Site Permit Conditions, Section 7.2	Yes	See above.
547	EERA	Site Permit Conditions, Section 7.4	Yes, in part	2, 3 - Staff supports the Department's recommended Section 7.4.1 language. Staff agrees with the ALJ on utilizing an independent monitor but not delegating enforcement authority. Staff recommends that DNR and MPCA be consulted in study scoping, and recommends that the proposed scope for the study be brought before the Commission for review. Staff agrees with the ALJ that the study should be completed within 14 months of beginning operation.
547	FW	Site Permit Conditions, Section 7.4	Yes, in part	2, 3, 6 – See above.
548	AFCL	Site Permit Conditions, Setbacks	No	2, 3, 6
548	EERA	Site Permit Conditions, Setbacks	Yes	Staff agrees with FW and DOC EERA that a 1,500 setback should not be utilized because the DSP setbacks incorporate the Freeborn County Ordinance setbacks and the proposed distances provide mitigation.

1. No rationale or citation to record provided
2. Inclusion, deletion or modification does not necessary improve report, or is otherwise unnecessary
3. Substantially changes, or is contrary to ALJ
4. De Minimis editing
5. Found elsewhere in record
6. Not Supported in record

Finding Number	Party	Topic	Y/N	Rationale/Notes
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548	FW	Site Permit Conditions, Setbacks	Yes	See above.
549	EERA	Site Permit Conditions, Section 5.2.25	Yes	The ice throw incident in the record has not been substantiated and therefore additional permit measures are not warranted.
549	FW	Site Permit Conditions, Section 5.2.25	Yes, in part	2, 3 - The use of turbine ice accumulation software in conjunction with monthly reporting requirements should be incorporated into the site permit.
550	FW	Site Permit Conditions, Section 11.1 - Successors	Yes	Staff agrees with FW and DOC EERA that the existing permit language would apply to any successive permit holders.
551	FW	Site Permit Conditions, Section 11.1 – Resource Guarantee	Yes	The modification improves the accuracy and/or precision of the report.
552	FW	Site Permit Conditions, legal requirements otherwise met	No	2, 3
Attach. B. 11	FW	Public Comment - Parzyck	Yes	Changes reflect the record and improve accuracy and/or precision of the report.
Attach. B .12	FW	Public Comment- Dr. Roberts	Yes	Changes reflect the record and improve accuracy and/or precision of the report.

1. No rationale or citation to record provided
2. Inclusion, deletion or modification does not necessary improve report, or is otherwise unnecessary
3. Substantially changes, or is contrary to ALJ
4. De Minimis editing
5. Found elsewhere in record
6. Not Supported in record

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

**SITE PERMIT FOR A
LARGE WIND ENERGY CONVERSION SYSTEM**

**IN
FREEBORN COUNTY**

**ISSUED TO
FREEBORN WIND ENERGY LLC**

PUC DOCKET NO. IP6946\WS-17-410

In accordance with the requirements of Minnesota Statutes Chapter 216F and Minnesota Rules Chapter 7854, this site permit is hereby issued to:

FREEBORN WIND ENERGY LLC

The Permittee is authorized by this site permit to construct and operate an up to 84 megawatt nameplate capacity Large Wind Energy Conversion System in Freeborn County, Minnesota. The Large Wind Energy Conversion System and associated facilities shall be built within the site identified in this permit and as portrayed on the official site maps, and in compliance with the conditions specified in this permit.

This site permit shall expire thirty (30) years from the date of this approval.

Approved and adopted this ____ day of _____

BY ORDER OF THE COMMISSION

Daniel P. Wolf,
Executive Secretary

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ATTACHMENTS

Official Site Permit Maps

Attachment A - Complaint Procedures for Permitted Energy Facilities

Attachment B - Compliance Filing Procedures for Permitted Energy Facilities

1.0 SITE PERMIT

The Minnesota Public Utilities Commission (Commission) hereby issues this site permit to Freeborn Wind Energy LLC (Permittee) pursuant to Minnesota Statutes Chapter 216F and Minnesota Rules Chapter 7854. This permit authorizes the Permittee to construct and operate the Freeborn Wind Farm (Project), an 84 megawatt (MW) nameplate capacity Large Wind Energy Conversion System (LWECS) and associated facilities in Freeborn County. The LWECS and associated facilities shall be built within the site identified in this permit and as identified in the attached official site permit map(s), hereby incorporated into this document.

1.1 Preemption

Pursuant to Minn. Stat. § 216F.07, this permit shall be the sole site approval required for the location, construction, and operation of this project and this permit shall supersede and preempt all zoning, building, and land use rules, regulations, and ordinances adopted by regional, county, local, and special purpose governments.

2.0 PROJECT DESCRIPTION

The Freeborn Wind Farm, when fully constructed and operational will have a nameplate capacity up to 200 MW, of which, 84 MW will be located in Freeborn County, Minnesota and the remaining 106 MW will be located in Worth County, Iowa. The Project will consist of 42 2-MW wind turbines, consisting solely of one turbine model or a combination of turbine models, which may include Vestas V110 and Vestas V116 as identified in the Permittee's Site Permit Application.

The project area includes approximately 26,273 acres of land, of which the Project currently holds leases on 17,435 acres. Upon completion, the project site will include no more than 100 acres of land converted to wind turbines and associated facilities approved by this site permit.

2.1 Associated Facilities

Associated facilities for the Project will include access roads, an operations and maintenance (O&M) facility, project substation, permanent meteorological tower and associated weather collection data systems, electrical collection lines, and fiber optic communication lines.

The Project substation will interconnect to the Glenworth Substation with an approximately seven mile long 161 kilovolt (kV) high voltage transmission line (HVTL). The Freeborn Wind Transmission Line Project 161 kV HVTL is under PUC Docket No. IP6946/TL-17-322, and issuance of the HVTL Route Permit is independent of this site permit process.

2.2 Project Location

The project is located in the following:

County	Township Name	Township	Range	Section
Freeborn	Hayward	102	20	12-15, 22-26, 35, 36
Freeborn	London	101	19	13, 14, 19-24, 27-33
Freeborn	Oakland	102	19	7-9, 16-21
Freeborn	Shell Rock	101	20	1, 2, 8, 11-17, 21-28, 35, 36

3.0 DESIGNATED SITE

The site designated by the Commission for the Freeborn Wind Farm is the site depicted on the official site permit maps attached to this permit. Within the site permit boundary, the Project and associated facilities shall be located on lands for which the permittee has obtained wind rights. Wind rights or easements have been obtained by the Permittee and include approximately 17,435 acres of land under easement and with participation agreements.

3.1 Turbine Layout

The preliminary wind turbine and associated facility layouts are shown on the official site maps attached to this permit. The preliminary layout represents the approximate location of wind turbines and associated facilities within the project boundary and identifies a layout that seeks to minimize the overall potential human and environmental impacts of the project, which were evaluated in the permitting process.

The final layout depicting the location of each wind turbine and associated facility shall be located within the project boundary. The project boundary serves to provide the Permittee with the flexibility to make minor adjustments to the preliminary layout to accommodate requests by landowners, local government units, federal and state agency requirements, and unforeseen conditions encountered during the detailed engineering and design process. Any modification to the location of a wind turbine and associated facility depicted in the preliminary layout shall be done in such a manner to have comparable overall human and environmental impacts and shall be specifically identified in the site plan pursuant to Section 10.3.

4.0 SETBACKS AND SITE LAYOUT RESTRICTIONS

4.1 Wind Access Buffer

Wind turbine towers shall not be placed less than five rotor diameters on the prevailing wind directions and three rotor diameters on the non-prevailing wind directions from the perimeter of the property where the Permittee does not hold the wind rights, without the approval of the Commission. This section does not apply to public roads and trails.

4.2 Residences

Wind turbine towers shall not be located closer than 1,000 feet from all residences or the distance required to comply with the noise standards pursuant to Minn. R. 7030.0040, established by the Minnesota Pollution Control Agency, whichever is greater.

4.3 Noise

The wind turbine towers shall be placed such that the Permittee shall, at all times, comply with noise standards established by the Minnesota Pollution Control Agency as of the date of this permit and at all appropriate locations. The noise standards are found in Minnesota Rules Chapter 7030. Turbine operation shall be modified or turbines shall be removed from service if necessary to comply with these noise standards. The Permittee or its contractor may install and operate turbines as close as the minimum setback required in this permit, but in all cases shall comply with Minnesota Pollution Control Agency noise standards. The Permittee shall be required to comply with this condition with respect to all homes or other receptors in place as of the time of construction, but not with respect to such receptors built after construction of the towers.

4.4 Roads

Wind turbines and meteorological towers shall not be located closer than 250 feet from the edge of the nearest public road right-of-way and the nearest designated public trail.

4.5 Public Lands

Wind turbines and associated facilities including foundations, access roads, underground cable, and transformers, shall not be located in publicly-owned lands that have been designated for recreational or conservation purposes, including, but not limited to, Waterfowl Production Areas, State Wildlife Management Areas, Scientific and Natural Areas or county parks, except in the

event that the public entity owning those lands enters into a land lease and easement with the Permittee. Wind turbines towers shall also comply with the setbacks of Section 4.1.

4.6 Wetlands

Wind turbines and associated facilities including foundations, access roads, underground cable and transformers, shall not be placed in public waters wetlands, as shown on the public water inventory maps prescribed by Minnesota Statutes Chapter 103G, except that electric collector or feeder lines may cross or be placed in public waters or public waters wetlands subject to permits and approvals by the Minnesota Department of Natural Resources and the United States Army Corps of Engineers, and local units of government as implementers of the Minnesota Wetlands Conservation Act.

4.7 Native Prairie

Wind turbines and associated facilities including foundations, access roads, collector and feeder lines, underground cable, and transformers shall not be placed in native prairie, as defined in Minn. Stat. § 84.02, subd. 5, unless addressed in a prairie protection and management plan and shall not be located in areas enrolled in the Native Prairie Bank Program. Construction activities, as defined in Minn. Stat. § 216E.01, shall not impact native prairie unless addressed in a prairie protection and management plan.

The Permittee shall prepare a prairie protection and management plan in consultation with the Minnesota Department of Natural Resources if native prairie, as defined in Minn. Stat. § 84.02, subd. 5, is identified within the site boundaries. The Permittee shall file the plan 30 days prior to submitting the site plan required by Section 10.3 of this permit. The plan shall address steps that will be taken to avoid impacts to native prairie and mitigation to unavoidable impacts to native prairie by restoration or management of other native prairie areas that are in degraded condition, by conveyance of conservation easements, or by other means agreed to by the Permittee, the Minnesota Department of Natural Resources, and the Commission.

4.8 Sand and Gravel Operations

Wind turbines and all associated facilities, including foundations, access roads, underground cable, and transformers shall not be located within active sand and gravel operations, unless otherwise negotiated with the landowner.

4.9 Wind Turbine Towers

Structures for wind turbines shall be self-supporting tubular towers. The towers may be up to 80 meters (262.5 feet) above grade measured at hub height.

4.10 Turbine Spacing

The turbine towers shall be constructed within the site boundary as shown in the official site maps. The turbine towers shall be spaced no closer than three rotor diameters in the non-prevailing wind directions and five rotor diameters on the prevailing wind directions. 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.

4.11 Meteorological Towers

Permanent towers for meteorological equipment shall be free standing. Permanent meteorological towers shall not be placed less than 250 feet from the edge of the nearest public road right-of-way and from the boundary of the Permittee's site control, or in compliance with the county ordinance regulating meteorological towers in the county the tower is built, whichever is more restrictive. Meteorological towers shall be placed on property the Permittee holds the wind or other development rights.

Meteorological towers shall be marked as required by the Federal Aviation Administration. There shall be no lights on the meteorological towers other than what is required by the Federal Aviation Administration. This restriction shall not apply to infrared heating devices used to protect the wind monitoring equipment.

All meteorological towers shall be fitted with the necessary equipment to deploy/attach acoustic recording devices to monitor wildlife activity.

4.12 Aviation

The Permittee shall not place wind turbines or associated facilities in a location that could create an obstruction to navigable airspace of public and private airports (as defined in Minn. R. 8800.0100, subp. 24(a) and 24(b)) in Minnesota, adjacent states, or provinces. The Permittee shall apply the minimum obstruction clearance for private airports pursuant to Minn. R. 8800.1900, subp. 5. Setbacks or other limitations shall be followed in accordance with the Minnesota Department of Transportation, Department of Aviation, and the Federal Aviation

Administration. The Permittee shall notify owners of all known airports within six miles of the project prior to construction.

4.13 Footprint Minimization

The Permittee shall design and construct the LWECS so as to minimize the amount of land that is impacted by the LWECS. Associated facilities in the vicinity of turbines such as electrical/electronic boxes, transformers, and monitoring systems shall, to the greatest extent feasible, be mounted on the foundations used for turbine towers or inside the towers unless otherwise negotiated with the affected landowner.

5.0 GENERAL CONDITIONS

The Permittee shall comply with the following conditions during construction and operation of the LWECS and associated facilities over the life of this permit.

5.1 Notification

Within 14 days of permit issuance, the Permittee shall send a copy of the permit and the complaint procedures to any regional development commission, county auditor and environmental office, and city and township clerk in which any part of the site is located. Within 30 days of permit issuance, the Permittee shall provide all affected landowners with a copy of this permit and the complaint procedures. In no case shall the landowner receive this site permit and complaint procedures less than five days prior to the start of construction on their property. The Permittee shall contact landowners prior to entering the property or conducting maintenance within the site, unless otherwise negotiated with the affected landowner.

5.2 Construction and Operation Practices

The Permittee shall comply with the construction practices, operation and maintenance practices, and material specifications described in the Freeborn Wind Farm Site Permit Application for a LWECS filed with the Commission on June 15, 2107, and the record of the proceedings unless this permit establishes a different requirement in which case this permit shall prevail.

5.2.1 Field Representative

The Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this permit during construction of the project. This person shall be accessible by telephone or other means during normal business hours throughout site preparation, construction, cleanup, and restoration.

The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the field representative 14 days prior to commencing construction. The Permittee shall provide the field representative's contact information to affected landowners, residents, local government units and other interested persons 14 days prior to commencing construction. The Permittee may change the field representative at any time upon notice to the Commission, affected landowners, residents, local government units and other interested persons.

5.2.2 Site Manager

The Permittee shall designate a site manager responsible for overseeing compliance with the conditions of this permit during the commercial operation and decommissioning phases of the project. This person shall be accessible by telephone or other means during normal business hours for the life of this permit.

The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the site manager 14 days prior to commercial operation of the facility. The Permittee shall provide the site manager's contact information to affected landowners, residents, local government units and other interested persons 14 days prior to commercial operation of the facility. The Permittee may change the site manager at any time upon notice to the Commission, affected landowners, residents, local government units and other interested persons.

5.2.3 Employee Training and Education of Permit Terms and Conditions

The Permittee shall inform all employees, contractors, and other persons involved in the construction and ongoing operation of the LWECS of the terms and conditions of this permit.

5.2.4 Topsoil Protection

The Permittee shall implement measures to protect and segregate topsoil from subsoil on all lands unless otherwise negotiated with the affected landowner.

5.2.5 Soil Compaction

The Permittee shall implement measures to minimize soil compaction of all lands during all phases of the project's life and shall confine compaction to as small an area as practicable.

5.2.6 Soil Erosion and Sediment Control

The Permittee shall implement those erosion prevention and sediment control practices recommended by the Minnesota Pollution Control Agency Construction Stormwater Program.

If construction of the facility disturbs more than one acre of land, or is sited in an area designated by the Minnesota Pollution Control Agency as having potential for impacts to water resources, the Permittee shall obtain a National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Construction Stormwater Permit from the Minnesota Pollution Control Agency that provides for the development of a Stormwater Pollution Prevention Plan (SWPPP) that describes methods to control erosion and runoff.

The Permittee shall implement reasonable measures to minimize erosion and sedimentation during construction and shall employ perimeter sediment controls, protect exposed soil by promptly planting, seeding, using erosion control blankets and turf reinforcement mats, stabilizing slopes, protecting storm drain inlets, protecting soil stockpiles, and controlling vehicle tracking. Contours shall be graded as required so that all surfaces provide for proper drainage, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation and prevent erosion. All areas disturbed during construction of the facilities shall be returned to pre-construction conditions.

5.2.7 Wetlands

Construction in wetland areas shall occur during frozen ground conditions to minimize impacts, to the extent feasible. When construction during winter is not possible, wooden or composite mats shall be used to protect wetland vegetation. Soil excavated from the wetlands and riparian areas shall be contained and managed in accordance with all applicable wetland permits. Wetlands and riparian areas shall be accessed using the shortest route possible in order to minimize travel through wetland areas and prevent unnecessary impacts.

Wetland and water resource areas disturbed by construction activities shall be restored to pre-construction conditions, in accordance with all applicable wetland permits. Restoration of the wetlands will be performed by the Permittee in accordance with the requirements of applicable state and federal permits or laws and landowner agreements.

5.2.8 Vegetation Management

The Permittee shall disturb or clear the project site only to the extent necessary to assure suitable access for construction, safe operation and maintenance of the project. The Permittee shall minimize the number of trees to be removed in selecting the site layout specifically preserving to

the maximum extent practicable windbreaks, shelterbelts, living snow fences, and vegetation, to the extent that such actions do not violate sound engineering principles.

5.2.9 Application of Pesticides

The Permittee shall restrict pesticide use to those pesticides and methods of application approved by the Minnesota Department of Agriculture, Minnesota Department of Natural Resources, and the U.S. Environmental Protection Agency. Selective foliage or basal application shall be used when practicable. All pesticides shall be applied in a safe and cautious manner so as not to damage adjacent properties including crops, orchards, tree farms, apiaries, or gardens. The Permittee shall contact the landowner or designee to obtain approval for the use of pesticide at least 14 days prior to any application on their property. The landowner may request that there be no application of pesticides on any part of the site within the landowner's property. The Permittee shall provide notice of pesticide application to affected landowners, and known beekeepers operating apiaries within three miles of the project site at least 14 days prior to such application.

5.2.10 Invasive Species

The Permittee shall employ best management practices to avoid the potential spread of invasive species on lands disturbed by project construction activities. The Permittee shall develop an Invasive Species Prevention Plan to prevent the introduction and spread of invasive species on lands disturbed by project construction activities and file with the Commission 14 days prior to the pre-construction meeting.

5.2.11 Noxious Weeds

The Permittee shall take all reasonable precautions against the spread of noxious weeds during all phases of construction. When utilizing seed to establish temporary and permanent vegetative cover on exposed soil, the Permittee shall select site appropriate seed certified to be free of noxious weeds. The Permittee shall consult with landowners on the selection and use of seed for replanting. To the extent possible, the Permittee shall use native seed mixes.

5.2.12 Public Roads

At least 14 days prior to the pre-construction meeting, the Permittee shall identify all state, county, or township roads that will be used for the project and shall notify the Commission and the state, county, or township governing body having jurisdiction over the roads to determine if the governmental body needs to inspect the roads prior to use of these roads. Where practical, existing roadways shall be used for all activities associated with the project. 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.

The Permittee shall prior to the use of such roads, make satisfactory arrangements with the appropriate state, county, or township governmental body having jurisdiction over roads to be used for construction of the project, for maintenance and repair of roads that may be subject to increased impacts due to transportation of equipment and project components. The Permittee shall notify the Commission of such arrangements upon request.

5.2.13 Turbine Access Roads

The Permittee shall construct the least number of turbine access roads necessary to safely and efficiently operate the project and satisfy landowner requests. 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. Access roads shall not be constructed across streams and drainage ditches without required permits and approvals. When access roads are constructed across streams, drainage ways, or drainage ditches, the access roads shall be designed and constructed in a manner so runoff from the upper portions of the watershed can readily flow to the lower portion of the watershed. Any access roads that are constructed across streams or drainage ditches shall be designed and constructed in a manner that maintains existing fish passage. Access roads that are constructed across grassed waterways, which provide drainage for surface waters that are ephemeral in nature, are not required to maintain or provide fish passage. Access roads shall be constructed in accordance with all necessary township, county or state road requirements and permits.

5.2.14 Private Roads

The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when obtaining access to the site, unless otherwise negotiated with the affected landowner.

5.2.15 Archaeological and Historic Resources

The Permittee shall make every effort to avoid impacts to identified archaeological and historic resources when constructing the LWECS. In the event that a resource is encountered, the Permittee shall contact and consult with the State Historic Preservation Office and the State Archaeologist. Where feasible, avoidance of the resource is required. Where not feasible, mitigation must include an effort to minimize project impacts on the resource consistent with State Historic Preservation Office and State Archaeologist requirements.

Prior to 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 human remains are encountered during construction, the Permittee shall immediately halt construction at such location and promptly notify local law enforcement and the State Archaeologist. Construction at such location shall not proceed until authorized by local law enforcement and the State Archaeologist.

5.2.16 Interference

At least 14 days prior to the pre-construction meeting, the Permittee shall submit to the Commission, an assessment of television and radio signal reception, microwave signal patterns, and telecommunications in the project area. 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 or radio reception, microwave patterns, or telecommunications in the event residents should complain about such disruption or interference after the turbines are placed in operation. 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 project so as to cause microwave, television, radio, telecommunications, or navigation interference in violation of Federal Communications Commission regulations or other law. In the event the project or its operations cause such interference, the Permittee shall take timely measures necessary to correct the problem.

5.2.17 Livestock Protection

The Permittee shall take precautions to protect livestock during all phases of the project's life.

5.2.18 Fences

The Permittee shall promptly replace or repair all fences and gates removed or damaged during all phases of the project's life unless otherwise negotiated with the affected landowner. When the Permittee installs a gate where electric fences are present, the Permittee shall provide for continuity in the electric fence circuit.

5.2.19 Drainage Tiles

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

5.2.20 Equipment Storage

The Permittee shall not locate temporary equipment staging areas on lands under its control unless negotiated with affected landowner. Temporary equipment staging areas shall not be located in wetlands or native prairie as defined in Sections 4.6 and 4.7.

5.2.21 Restoration

The Permittee shall, as soon as practical following construction of each turbine, restore the areas temporarily affected by construction to the condition that existed immediately before construction began, to the extent possible. The time period to complete restoration may be no longer than 12 months after completion of the construction, unless otherwise negotiated with the affected landowner. Restoration shall be compatible with the safe operation, maintenance and inspection of the project. Within 60 days after completion of all restoration activities, the Permittee shall advise the Commission in writing of the completion of such activities.

5.2.22 Cleanup

All waste and scrap that is the product of construction shall be removed from the site and all premises on which construction activities were conducted and properly disposed of upon completion of each task. Personal litter, including bottles, cans, and paper from construction activities shall be removed on a daily basis.

5.2.23 Pollution and Hazardous Waste

All appropriate precautions to protect against pollution of the environment shall be taken by the Permittee. The Permittee shall be responsible for compliance with all laws applicable to the generation, storage, transportation, clean up and disposal of all wastes generated during construction and restoration of the site.

5.2.24 Damages

The Permittee shall fairly restore or compensate landowners for damage to crops, fences, private roads and lanes, landscaping, drain tile, or other damages sustained during construction.

5.2.25 Public Safety

The Permittee shall provide educational materials to landowners adjacent to the site and, upon request, to interested persons about the project and any restrictions or dangers associated with the project. The Permittee shall also provide any necessary safety measures such as warning signs

and gates for traffic control or to restrict public access. The Permittee shall submit the location of all underground facilities, as defined in Minn. Stat. § 216D.01, subd. 11, to Gopher State One Call following the completion of construction at the site.

5.2.26 Tower Identification

All turbine towers shall be marked with a visible identification number.

5.2.27 Federal Aviation Administration Lighting

Towers shall be marked as required by the Federal Aviation Administration. There shall be no lights on the towers other than what is required by the Federal Aviation Administration. This restriction shall not apply to infrared heating devices used to protect the wind monitoring equipment.

5.3 Communication Cables

The Permittee shall place all communication and supervisory control and data acquisition cables underground and within or adjacent to the land necessary for turbine access roads unless otherwise negotiated with the affected landowner.

5.4 Electrical Collector and Feeder Lines

Collector lines that carry electrical power from each individual transformer associated with a wind turbine to an internal project interconnection point shall be buried underground. Collector lines shall be placed within or adjacent to the land necessary for turbine access roads unless otherwise negotiated with the affected landowner.

Feeder lines that carry power from an internal project interconnection point to the project substation or interconnection point on the electrical grid may be overhead or underground. Feeder line locations shall be negotiated with the affected landowner. Any overhead or underground feeder lines that parallel public roads shall be placed within the public rights-of-way or on private land immediately adjacent to public roads. If overhead feeder lines are located within public rights-of-way, the Permittee shall obtain approval from the governmental unit responsible for the affected right-of-way.

Collector and feeder line locations shall be located in such a manner as to minimize interference with agricultural operations including, but not limited to, existing drainage patterns, drain tile, future tiling plans, and ditches. Safety shields shall be placed on all guy wires associated with

overhead feeder lines. The Permittee shall submit the engineering drawings of all collector and feeder lines in the site plan pursuant to Section 10.3.

5.5 Other Requirements

5.5.1 Safety Codes and Design Requirements

The LWECS and associated facilities shall be designed to meet or exceed all relevant local and state codes, Institute of Electrical and Electronics Engineers, Inc. standards, the National Electric Safety Code, and North American Electric Reliability Corporation requirements. The Permittee shall report to the Commission on compliance with these standards upon request.

5.5.2 Other Permits and Regulations

The Permittee shall comply with all applicable state rules and statutes. The Permittee shall obtain all required permits for the project and comply with the conditions of those permits unless those permits conflict with or are preempted by federal or state permits and regulations. A list of the permits known to be required is included in the permit application. At least 14 days prior to the preconstruction meeting, the Permittee shall submit a filing demonstrating that it has obtained such permits. The Permittee shall provide a copy of any such permit upon Commission request.

The Permittee shall comply with all terms and conditions of permits or licenses issued by the counties, cities, and municipalities affected by the project that do not conflict with or are not preempted by federal or state permits and regulations.

6.0 SPECIAL CONDITIONS

N/A

7.0 SURVEYS AND REPORTING

7.1 Biological and Natural Resource Inventories

The Permittee, in consultation with the Commission and the Department of Natural Resources, shall design and conduct pre-construction desktop and field inventories of existing wildlife management areas, scientific and natural areas, recreation areas, native prairies and forests, wetlands, and any other biologically sensitive areas within the project site and assess the presence of state- or federally-listed or threatened species. The results of the inventories shall be filed with the Commission at least 30 days prior to the pre-construction meeting to confirm compliance of conditions in this permit. The Permittee shall file with the Commission, any

biological surveys or studies conducted on this project, including those not required under this permit.

7.2 Shadow Flicker

At least 14 days prior to the pre-construction meeting, the Permittee shall provide data on shadow flicker for each residence of non-participating landowners and participating landowners within and outside of the project boundary potentially subject to turbine shadow flicker exposure. Information shall include the results of modeling used, assumptions made, and the anticipated levels of exposure from turbine shadow flicker for each residence. The Permittee shall provide documentation on its efforts to avoid, minimize and mitigate shadow flicker exposure. ~~The~~ A Shadow Flicker Management Plan will be prepared by the Permittee, which will include the results of any shadow flicker modeling, assumptions made, levels of exposure prior to implementation of planned minimization and mitigation efforts, planned minimization and mitigation efforts, and planned communication and follow up with residence. The Shadow Flicker Management Plan shall be filed with the Commission at least 14 days prior to the pre-construction meeting to confirm compliance with conditions of this permit.

Should shadow flicker modeling identify any residence that will experience in 30 hours, or more, of shadow flicker per year, the Permittee must specifically identify these residences in the Shadow Flicker Management Plan. If through minimization and mitigation efforts identified in the Shadow Flicker Management Plan the Permittee is not able to reduce a residence's anticipated shadow flicker exposure to less than 30 hours per year a shadow flicker detection systems will be utilized during project operations to monitor shadow flicker exposure at the residence. ~~at receptor locations that were anticipated to receive over 30-27 hours of shadow flicker per year. The Permittee will submit a Shadow Flicker Monitoring and Management Plan at least 14 days prior to the pre-construction meeting.~~ The Shadow Flicker ~~Monitoring and~~ Management Plan will detail the placement and use of any shadow flicker detection systems, how the monitoring data will be used to inform turbine operations, and a detailed plan of when and how turbine operations will be adjusted to mitigate shadow flicker exposure exceeding 30 hours per year at any one receptor. The results of any shadow flicker monitoring and mitigation implementation will be reported by the Permittee in the Annual Project Energy Production Report identified in Section 10.8 of this Permit.

Commission staff and EERA staff will be responsible for the review and approval of the Shadow Flicker Management Plan. The Commission may require the Permittee to conduct shadow flicker monitoring at any time during the life of this Permit.

7.3 Wake Loss Studies

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission the pre-construction micro-siting analysis leading to the final tower locations and an estimate of total project wake losses. As part of the annual report on project energy production required under Section 10.8 of the permit the Permittee shall file with the Commission any operational wake loss studies conducted on this project during the calendar year preceding the report.

7.4 Noise Studies

7.4.1 Pre-Construction Demonstration of Compliance with Noise Standards

Freeborn Wind Energy LLC shall file a plan, including modeling and/or proposed mitigation, at least 60 days prior to the pre-construction meeting that demonstrates it will not cause or significantly contribute to an exceedance of the state noise standards using the following two- part protocol:

1. If background sound levels are less than the applicable standard at nearby receptors, the modeled turbine-only noise levels cannot cause an exceedance of the applicable state standard at nearby receptors, inclusive of the measured background noise level. "Cause" means that the project turbine-only contribution is in excess of the applicable state standard.
2. If background sound levels are equal to or greater than the applicable state standard at nearby receptors, the windfarm shall not contribute more than 45 dB(A) to total sound levels at the nearby receptors. Therefore, for example, when nighttime background sound levels are at 50 dB(A), a maximum turbine-only contribution of 45 dB(A) would result in a non-significant increase in total sound of 1 dB(A).

7.4.2 Post-Construction Noise Monitoring

The Permittee shall file a proposed methodology for the conduct of a post-construction noise study at least 14 days prior to the pre-construction meeting. The Permittee shall develop the post-construction noise study methodology in consultation with the Department of Commerce. The study must incorporate the most current Department of Commerce Noise Study Protocol to determine total sound levels and turbine-only contribution at different frequencies and at various distances from the turbines at various wind directions and speeds. The Permittee must conduct the post-construction noise study and file with the Commission the completed post-construction noise study within 12 months of commencing commercial operation.

A post-construction noise study must be made, commencing as soon as the Project begins operations, and continuing for the first 12 months of its operation. The study shall be conducted by an independent consultant selected by the Department of Commerce at Freeborn Wind's expense. The independent consultant shall assist the Department of Commerce in developing a study methodology upon consultation with the Minnesota Department of Health and Minnesota Pollution Control Agency. The study must incorporate the Department of Commerce Noise Study Protocol to determine the operating LWECS noise levels at different frequencies and at various distances from the turbines at various wind directions and speeds. In addition, the study must demonstrate the extent to which turbine-only noise contributes to the overall decibel level. Special attention should be paid to receptors predicted to experience the highest turbine noise levels. The completed post-construction noise study shall be filed with the Commission within 14 months after the Project becomes operational.

If the monitored turbine-only noise level is determined to be greater than the Minnesota State Noise Standard at nearby receptors or if the background sound levels exceed the Minnesota State Noise Standards and the turbine-only contribution exceeds 45 dB(A), the Permittee shall work with the Department of Commerce to develop a plan to minimize and mitigate turbine-only noise impacts.

7.5 Avian and Bat Protection

7.5.1 Avian and Bat Protection Plan

The Permittee shall comply with the provisions of the Avian and Bat Protection Plan (ABPP) submitted for this project as Appendix H of the June 15, 2017 site permit application and revisions resulting from the annual audit of ABPP implementation. The first annual audit and revision will be filed with the Commission 14 days before the preconstruction meeting and revisions should include any updates associated with final construction plans. The ABPP must address steps to be taken to identify and mitigate impacts to avian and bat species during the construction phase and the operation phase of the project. The ABPP shall also include formal and incidental post-construction fatality monitoring, training, wildlife handling, documentation (e.g., photographs), and reporting protocols for each phase of the project.

The Permittee shall, by the 15th of March following each complete or partial calendar year of operation, file with the Commission an annual report detailing findings of its annual audit of ABPP practices. The annual report shall include summarized and raw data of bird and bat fatalities and injuries and shall include bird and bat fatality estimates for the project using agreed upon estimators from the prior calendar year. The annual report shall also identify any deficiencies or recommended changes in the operation of the project or in the ABPP to reduce

avian and bat fatalities and shall provide a schedule for implementing the corrective or modified actions. The Permittee shall provide a copy of the report to the Minnesota Department of Natural Resources and to the U.S. Fish and Wildlife Service at the time of filing with the Commission.

7.5.2 Quarterly Incident Reports

The Permittee shall submit quarterly avian and bat reports to the Commission. Quarterly reports are due by the 15th of January, April, July, and October commencing the day following commercial operation and terminating upon the expiration of this permit. Each report shall identify any dead or injured avian and bat species, location of find by turbine number, and date of find for the reporting period in accordance with the reporting protocols. If a dead or injured avian or bat species is found, the report shall describe the potential cause of the occurrence (if known) and the steps taken to address future occurrences. The Permittee shall provide a copy of the report to the Minnesota Department of Natural Resources and to the U.S. Fish and Wildlife Service at the time of filing with the Commission.

7.5.3 Immediate Incident Reports

The Permittee shall notify the Commission, U.S. Fish and Wildlife Service, and the Minnesota Department of Natural Resources within 24 hours of the discovery of any of the following:

- (a) five or more dead or injured birds or bats within a five day reporting period;
- (b) one or more dead or injured state threatened, endangered, or species of special concern;
- (c) one or more dead or injured federally listed species, including species proposed for listing; or
- (d) one or more dead or injured bald or golden eagle(s).

In the event that one of the four discoveries listed above should be made, the Permittee must file with the Commission within seven days, a compliance report identifying the details of what was discovered, the turbine where the discovery was made, a detailed log of agencies and individuals contacted, and current plans being undertaken to address the issue.

7.5.4 Turbine Operational Curtailment

The Permittee shall operate all facility turbines so that all turbines are locked, or feathered, up to the manufacturer's standard cut-in speed from one-half hour before sunset to one-half hour after sunrise of the following day, from April 1 to October 31 of each year of operation.

All operating turbines at the facility must be equipped with operational software that is capable of allowing for adjustment of turbine cut-in speeds.

7.5.5 Karst Geology Investigations

Should initial geotechnical and soils testing at proposed turbine locations identify areas with karst bedrock within 50 feet or less of the soil surface, which may lead to sinkhole formation, additional geotechnical investigations will be performed to insure the area safe for the construction of a wind turbine.

Additional geotechnical investigations may include the following:

1. A geophysical investigation (electrical resistivity) to explore for voids in the bedrock.
2. Soil/bedrock borings to check and confirm the results of the electrical resistivity survey.
3. A series of electric cone penetrometer (CPT) soundings if the potential for loose zones in the soil overburden are suspected.

The Permittee must file with the Commission, a report for all geotechnical investigations completed. The reports must include methodology, results, and conclusions drawn from the geotechnical investigation.

8.0 AUTHORITY TO CONSTRUCT LWECS

8.1 Wind Rights

At least 14 days prior to the pre-construction meeting, the Permittee shall demonstrate that it has obtained the wind rights and any other rights necessary to construct and operate the project within the boundaries authorized by this permit. Nothing in this permit shall be construed to preclude any other person from seeking a permit to construct a wind energy conversion system in any area within the boundaries of the project covered by this permit if the Permittee does not hold exclusive wind rights for such areas.

8.2 Power Purchase Agreement

In the event the Permittee does not have a power purchase agreement or some other enforceable mechanism for sale of the electricity to be generated by the project at the time this permit is issued, the Permittee shall provide notice to the Commission when it obtains a commitment for

purchase of the power. This 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 electricity to be generated by the project. In the event the Permittee does not obtain a power purchase agreement or some other enforceable mechanism for sale of the electricity to be generated by the project within two years of the issuance of this permit, the Permittee must advise the Commission of the reason for not having such commitment. In such event, the Commission may determine whether this permit should be amended or revoked. No amendment or revocation of this permit may be undertaken except in accordance with Minn. R. 7854.1300.

8.3 Failure to Commence Construction

If the Permittee has not completed the pre-construction surveys required under this permit and commenced construction of the project within two years of the issuance of this permit, the Permittee must advise the Commission of the reason construction has not commenced. In such event, the Commission shall make a determination as to whether this permit should be amended or revoked. No revocation of this permit may be undertaken except in accordance with applicable statutes and rules, including Minn. R. 7854.1300.

9.0 COMPLAINT PROCEDURES

Prior to the start of construction, the Permittee shall submit to the Commission the procedures that will be used to receive and respond to complaints. The procedures shall be in accordance with the requirements of Minn. R. 7829.1500 or Minn. R. 7829.1700, and as set forth in the complaint procedures attached to this permit (Attachment A).

10.0 COMPLIANCE REQUIREMENTS

Failure to timely and properly make compliance filings required by this permit is a failure to comply with the conditions of this permit. Compliance filings must be electronically filed with the Commission. Attachment B to this permit contains a summary of compliance filings, which is provided solely for the convenience of the Permittee. If this permit conflicts, or is not consistent with Attachment B, the conditions in this permit will control.

10.1 Pre-Construction Meeting

Prior to the start of any construction, the Permittee shall participate in a pre-construction meeting with the Department of Commerce and Commission staff to review pre-construction filing requirements, scheduling, and to coordinate monitoring of construction and site restoration activities. Within 14 days following the pre-construction meeting, the Permittee shall file with

the Commission, a summary of the topics reviewed and discussed and a list of attendees. The Permittee shall indicate in the filing the construction start date.

10.2 Pre-Operation Meeting

At least 14 days prior to commercial operation of the facility, the Permittee shall participate in a pre-operation meeting with the Department of Commerce and Commission staff to coordinate field monitoring of operation activities for the project. Within 14 days following the pre-operation meeting, the Permittee shall file with the Commission, a summary of the topics reviewed and discussed and a list of attendees.

10.3 Site Plan

At least 14 days prior to the pre-construction meeting, the Permittee shall provide the Commission, the Department and the Freeborn County Environmental Services Office with a site plan that includes specifications and drawings for site preparation and grading; specifications and locations of all turbines and other structures to be constructed including all electrical equipment, collector and feeder lines, pollution control equipment, fencing, roads, and other associated facilities; and procedures for cleanup and restoration. The documentation shall include maps depicting the site boundary and layout in relation to that approved by this permit. The Permittee shall document, through GIS mapping, compliance with the setbacks and site layout restrictions required by this permit, including compliance with the noise standards pursuant to Minnesota Rules Chapter 7030. At the same time, the Permittee shall notify affected landowners and city and town clerks that the site plan is on file with the Commission and Freeborn County Environmental Services Office. The Permittee may submit a site plan and engineering drawings for only a portion of the project if the Permittee intends to commence construction on certain parts of the project before completing the site plan and engineering drawings for other parts of the project.

The Permittee may not commence construction until the 30 days has expired or until the Commission has advised the Permittee in writing that it has completed its review of the documents and determined that the planned construction is consistent with this permit. If the Permittee intends to make any significant changes to its site plan or the specifications and drawings after submission to the Commission, the Permittee shall notify the Commission, the Department, the Freeborn County Environmental Services Office, city and town clerks, and the affected landowners at least five days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this permit.

In the event that previously unidentified human and environmental conditions are discovered during construction that by law or pursuant to conditions outlined in this permit would preclude

the use of that site as a turbine site, the Permittee shall have the right to move or relocate turbine site. Under these circumstances, the Permittee shall notify the Commission, the Department, the Minnesota Pollution Control Agency, the Minnesota Department of Natural Resources, the Freeborn County Environmental Services Office, city and town clerks, and the affected landowners of any turbines that are to be relocated, and provide the previously unidentified environmental conditions and how the movement of the turbine mitigates the human and environmental impact at least five days before implementing the changes. No changes shall be made that would be in violation of any terms of this permit.

10.4 Status Reports

The Permittee shall file status reports with the Commission on progress regarding site construction. The Permittee need not report more frequently than monthly. Reports shall begin with the commencement of site construction and continue until completion of site restoration.

10.5 Notification to the Commission

At least three days before the project is to commence commercial operation, the Permittee shall file with the Commission the date on which the project will commence commercial operation and the date on which construction was completed.

10.6 As-Builts

Within 90 days after completion of construction, the Permittee shall submit copies of all final as-built plans and specifications developed during the project.

10.7 GPS Data

Within 90 days after completion of construction, the Permittee shall submit to the Commission, in the format requested by the Commission, geo-spatial information (e.g., ArcGIS compatible map files, GPS coordinates, associated database of characteristics) for all structures associated with the large wind energy conversion system.

10.8 Project Energy Production

The Permittee shall, by February 1st following each complete or partial year of project operation, file a report with the Commission on the monthly energy production of the project including:

- (a) the installed nameplate capacity of the permitted project;

- (b) the total monthly energy generated by the project in MW hours;
- (c) the monthly capacity factor of the project;
- (d) yearly energy production and capacity factor for the project;
- (e) the operational status of the project and any major outages, major repairs, or turbine performance improvements occurring in the previous year; and
- (f) any other information reasonably requested by the Commission.

This information shall be considered public and must be filed electronically.

10.9 Wind Resource Use

The Permittee shall, by February 1st following each complete or partial calendar year of operation, file with the Commission the average monthly and average annual wind speed collected at one permanent meteorological tower during the preceding year or partial year of operation. This information shall be considered public and must be filed electronically.

10.10 Emergency Response

The Permittee shall prepare an Emergency Response Plan in consultation with the emergency responders having jurisdiction over the facility prior to project construction. The Permittee shall submit a copy of the plan, along with any comments from emergency responders, to the Commission at least 14 days prior to the pre-construction meeting and a revised plan, if any, at least 14 days prior to the pre-operation meeting. The Permittee shall provide as a compliance filing confirmation that the Emergency Response Plan was provided to the emergency responders and Public Safety Answering Points (PSAP) with jurisdiction over the facility prior to commencement of construction. The Permittee shall obtain and register the facility address or other location indicators acceptable to the emergency responders and PSAP having jurisdiction over the facility.

10.11 Extraordinary Events

Within 24 hours of discovery of an occurrence, the Permittee shall notify the Commission of any extraordinary event. Extraordinary events include but shall not be limited to: fires, tower collapse, thrown blade, acts of sabotage, collector or feeder line failure, and injured worker or private person. The Permittee shall, within 30 days of the occurrence, file a report with the

Commission describing the cause of the occurrence and the steps taken to avoid future occurrences.

11.0 DECOMMISSIONING, RESTORATION, AND ABANDONMENT

11.1 Decommissioning Plan

The Permittee shall submit a decommissioning plan to the Commission at least fourteen 14 days prior to the pre-operation meeting, and provide updates to the plan every five years thereafter. The plan shall provide information identifying all surety and financial securities established for decommissioning and site restoration of the project in accordance with the requirements of Minn. R. 7854.0500, subp. 13. The decommissioning plan shall provide an itemized breakdown of costs of decommissioning all project components, which shall include labor and equipment. The plan shall identify cost estimates for the removal of turbines, turbine foundations, underground collection cables, access roads, crane pads, substations, and other project components. The plan may also include anticipated costs for the replacement of turbines or repowering the project by upgrading equipment.

The Permittee shall also submit the decommissioning plan to the local unit of government having direct zoning authority over the area in which the project is located. The Permittee shall ensure that it carries out its obligations to provide for the resources necessary to fulfill its requirements to properly decommission the project at the appropriate time. The Commission may at any time request the Permittee to file a report with the Commission describing how the Permittee is fulfilling this obligation.

11.2 Site Restoration

Upon expiration of this permit, or upon earlier termination of operation of the project, or any turbine within the project, the Permittee shall have the obligation to dismantle and remove from the site all towers, turbine generators, transformers, overhead and underground cables and lines, foundations, buildings, and ancillary equipment to a depth of four feet. Any agreement for removal to a lesser depth or no removal shall be recorded with the county and shall show the locations of all such foundations. To the extent feasible, the Permittee shall restore and reclaim the site to its pre-project topography and topsoil quality. All access roads shall be removed unless written approval is given by the affected landowner requesting that one or more roads, or portions thereof, be retained. All such agreements between the Permittee and the affected landowner shall be submitted to the Commission prior to completion of restoration activities. The site shall be restored in accordance with the requirements of this condition within 18 months of termination.

11.3 Abandoned Turbines

The Permittee shall advise the Commission of any turbines that are abandoned prior to termination of operation of the project. The project, or any turbine within the project, shall be considered abandoned after one year without energy production and the land restored pursuant to Section 11.2 unless a plan is developed and submitted to the Commission outlining the steps and schedule for returning the project, or any turbine within the project, to service.

12.0 COMMISSION AUTHORITY AFTER PERMIT ISSUANCE

12.1 Final Boundaries

After completion of construction, the Commission shall determine the need to adjust the final boundaries of the site required for this project in accordance with Minn. R. 7854.1300, subp. 1. If done, this permit may be modified, after notice and opportunity for public hearing, to represent the actual site required by the Permittee to operate the Project authorized by this permit.

12.2 Expansion of Site Boundaries

No expansion of the site boundaries described in this permit shall be authorized without the approval of the Commission. The Permittee may submit to the Commission a request for a change in the boundaries of the site for the project. The Commission will respond to the requested change in accordance with applicable statutes and rules.

12.3 Periodic Review

The Commission shall initiate a review of this permit and the applicable conditions at least once every five years. The purpose of the periodic review is to allow the Commission, the Permittee, and other interested persons an opportunity to consider modifications in the conditions of this permit. No modification may be made except in accordance with applicable statutes and rules.

12.4 Modification of Conditions

After notice and opportunity for hearing, this permit may be modified or amended for cause, including but not limited to the following:

- (a) violation of any condition in this permit;
- (b) endangerment of human health or the environment by operation of the project; or

- (c) existence of other grounds established by rule.

12.5 More Stringent Rules

The Commission's issuance of this permit does not prevent the future adoption by the Commission of rules or orders more stringent than those now in existence and does not prevent the enforcement of these more stringent rules and orders against the Permittee.

12.6 Right of Entry

Upon reasonable notice, presentation of credentials, and at all times in compliance with the Permittee's site safety standards, the Permittee shall allow representatives of the Commission to perform the following:

- (a) to enter upon the facilities easement of the site property for the purpose of obtaining information, examining records, and conducting surveys or investigations;
- (b) to bring such equipment upon the facilities easement of the property as is necessary to conduct such surveys and investigations;
- (c) to sample and monitor upon the facilities easement of the property; and
- (d) to examine and copy any documents pertaining to compliance with the conditions of this permit.

12.7 Proprietary Information

Certain information required to be filed with the Commission under this permit may constitute trade secret information or other type of proprietary information under the Data Practices Act or other law. The Permittee must satisfy requirements of applicable law to obtain the protection afforded by the law.

13.0 PERMIT AMENDMENT

This permit may be amended at any time by the Commission in accordance with Minn. R. 7854.1300, subp. 2. Any person may request an amendment of the conditions of this permit by submitting a request to the Commission in writing describing the amendment sought and the reasons for the amendment. The Commission will mail notice of receipt of the request to the Permittee. The Commission may amend the conditions after affording the Permittee and interested persons such process as is required.

14.0 TRANSFER OF PERMIT

The Permittee may request at any time that the Commission transfer this permit to another person or entity. The Permittee shall provide the name and description of the person or entity to whom the permit is requested to be transferred, the reasons for the transfer, a description of the facilities affected, and the proposed effective date of the transfer. The person to whom the permit is to be transferred shall provide the Commission with such information as the Commission shall require to determine whether the new Permittee can comply with the conditions of the permit. The Commission may authorize transfer of the permit after affording the Permittee, the new Permittee, and interested persons such process as is required. The Commission may impose additional conditions on any new permittee as part of the approval of the transfer.

Within 20 days after the date of the notice provided in Section 10.5, the Permittee shall file a notice describing its ownership structure, identifying, as applicable:

- (a) the owner(s) of the financial and governance interests of the Permittee;
- (b) the owner(s) of the majority financial and governance interests of the Permittee's owners; and
- (c) the Permittee's ultimate parent entity (meaning the entity which is not controlled by any other entity).

The Permittee shall immediately notify the Commission of:

- (a) a change in owner(s) of the majority* financial or governance interests in the Permittee;
- (b) a change in owner(s) of the majority* financial or governance interests of the Permittee's owners; or
- (c) a sale which changes the parent entity of the Permittee.

**When there are only co-equal 50/50 percent interests, any change shall be considered a change in majority interest.*

The Permittee shall notify the Commission of:

- (a) the sale of a parent entity or a majority interest in the Permittee;

- (b) the sale of a majority interest of the Permittee's owners or majority interest of the owners; or
- (c) a sale which changes the entity with ultimate control over the Permittee.

15.0 REVOCATION OR SUSPENSION OF PERMIT

The Commission may take action to suspend or revoke this permit upon the grounds that:

- (a) a false statement was knowingly made in the application or in accompanying statements or studies required of the Permittee, and a true statement would have warranted a change in the Commission's findings;
- (b) there has been a failure to comply with material conditions of this permit, or there has been a failure to maintain health and safety standards;
- (c) there has been a material violation of a provision of an applicable statute, rule, or an order of the Commission; or
- (d) the Permittee has filed a petition with the Commission requesting that the permit be revoked or terminated.

In the event the Commission determines that it is appropriate to consider revocation or suspension of this permit, the Commission shall proceed in accordance with the requirements of Minn. R. 7854.1300 to determine the appropriate action. Upon a finding of any of the above, the Commission may require the Permittee to undertake corrective measures in lieu of having this permit suspended or revoked.

16.0 EXPIRATION DATE

This permit shall expire 30 years after the date this permit was approved and adopted.

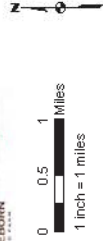
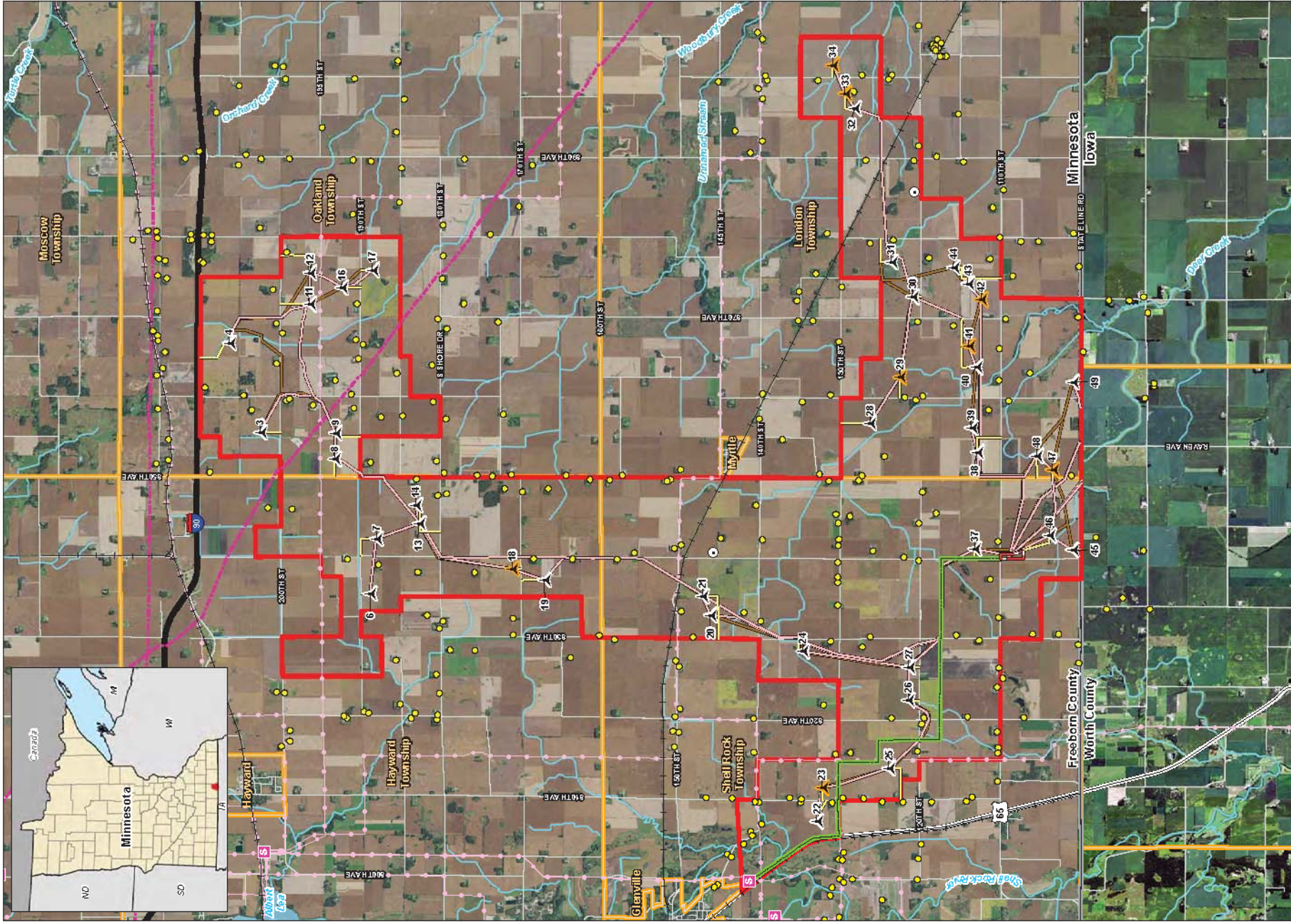


Figure 3
Project Area and Facilities
Freeborn Wind Farm
Freeborn County, MN

- Existing Substation
- Existing Pipeline
- Existing Transmission Line
- Access Road
- Collection Line
- Crane Path
- Proposed Transmission Line
- Vestas V110-2.0
- Vestas V116-2.0
- Residential Structure
- Permanent Met Tower
- Project Boundary
- O&M and Project Substation
- River/Stream
- Lake, Pond or Reservoir

**MINNESOTA PUBLIC UTILITIES COMMISSION
COMPLAINT HANDLING PROCEDURES FOR
PERMITTED ENERGY FACILITIES**

A. Purpose

To establish a uniform and timely method of reporting and resolving complaints received by the permittee concerning permit conditions for site preparation, construction, cleanup, restoration, operation, and maintenance.

B. Scope

This document describes complaint reporting procedures and frequency.

C. Applicability

The procedures shall be used for all complaints received by the permittee and all complaints received by the Minnesota Public Utilities Commission (Commission) under Minn. R. 7829.1500 or Minn. R. 7829.1700 relevant to this permit.

D. Definitions

Complaint: A verbal or written statement presented to the permittee by a person expressing dissatisfaction or concern regarding site preparation, cleanup or restoration or other site and associated facilities permit conditions. Complaints do not include requests, inquiries, questions or general comments.

Substantial Complaint: A written complaint alleging a violation of a specific permit condition that, if substantiated, could result in permit modification or suspension pursuant to the applicable regulations.

Unresolved Complaint: A complaint which, despite the good faith efforts of the permittee and a person, remains unresolved or unsatisfactorily resolved to one or both of the parties.

Person: 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.

E. Complaint Documentation and Processing

1. The permittee shall designate an individual to summarize complaints for the Commission. This person's name, phone number and email address shall accompany all complaint submittals.
2. A person presenting the complaint should to the extent possible, include the following information in their communications:
 - a. name, address, phone number, and email address;
 - b. date of complaint;
 - c. tract or parcel number; and
 - d. whether the complaint relates to a permit matter or a compliance issue.
3. The permittee shall document all complaints by maintaining a record of all applicable information concerning the complaint, including the following:
 - a. docket number and project name;
 - b. name of complainant, address, phone number and email address;
 - c. precise description of property or parcel number;
 - d. name of permittee representative receiving complaint and date of receipt;
 - e. nature of complaint and the applicable permit condition(s);
 - f. activities undertaken to resolve the complaint; and
 - g. final disposition of the complaint.

F. Reporting Requirements

The permittee shall commence complaint reporting at the beginning of project construction and continue through the term of the permit. The permittee shall report all complaints to the Commission according to the following schedule:

Immediate Reports: All substantial complaints shall be reported to the Commission the same day received, or on the following working day for complaints received after working hours. Such reports are to be directed to the Commission's Consumer Affairs Office at 1-800-657-3782 (voice messages are acceptable) or consumer.puc@state.mn.us. For e-mail reporting, the email subject line should read "PUC EFP Complaint" and include the appropriate project docket number.

Monthly Reports: During project construction and restoration, a summary of all complaints, including substantial complaints received or resolved during the preceding month, shall be filed by the 15th of each month to Daniel P. Wolf, Executive Secretary, Public Utilities Commission, using the eDockets system. The eDockets system is located at:
<https://www.edockets.state.mn.us/EFiling/home.jsp>

If no complaints were received during the preceding month, the permittee shall file a summary indicating that no complaints were received.

G. Complaints Received by the Commission

Complaints received directly by the Commission from aggrieved persons regarding site preparation, construction, cleanup, restoration, operation and maintenance shall be promptly sent to the permittee.

H. Commission Process for Unresolved Complaints

Commission staff shall perform an initial evaluation of unresolved complaints submitted to the Commission. Complaints raising substantial permit issues shall be processed and resolved by the Commission. Staff shall notify the permittee and appropriate persons if it determines that the complaint is a substantial complaint. With respect to such complaints, each party shall submit a written summary of its position to the Commission no later than ten days after receipt of the staff notification. The complaint will be presented to the Commission for a decision as soon as practicable.

I. Permittee Contacts for Complaints and Complaint Reporting

Complaints may be filed by mail or email to:

[Name]

[Mailing Address]

[Phone]

[Email]

This information shall be maintained current by informing the Commission of any changes as they become effective.

**MINNESOTA PUBLIC UTILITIES COMMISSION
COMPLIANCE FILING PROCEDURE FOR
PERMITTED ENERGY FACILITIES**

A. Purpose

To establish a uniform and timely method of submitting information required by Commission energy facility permits.

B. Scope and Applicability

This procedure encompasses all known compliance filings required by permit.

C. Definitions

Compliance Filing: A filing of information to the Commission, where the information is required by a Commission site or route permit.

D. Responsibilities

1. The permittee shall file all compliance filings with Daniel P. Wolf, Executive Secretary, Public Utilities Commission, through the eDockets system. The eDockets system is located at: <https://www.edockets.state.mn.us/EFiling/home.jsp>

General instructions are provided on the eDockets website. Permittees must register on the website to file documents.

2. All filings must have a cover sheet that includes:
 - a. Date
 - b. Name of submitter/permittee
 - c. Type of permit (site or route)
 - d. Project location
 - e. Project docket number
 - f. Permit section under which the filing is made
 - g. Short description of the filing

3. Filings that are graphic intensive (e.g., maps, engineered drawings) must, in addition to being electronically filed, be submitted as paper copies and on CD. Paper copies and CDs should be sent to: 1) Daniel P. Wolf, Executive Secretary, Minnesota Public Utilities Commission, 121 7th Place East, Suite 350, St. Paul, MN 55101-2147, and 2) Department of Commerce, Energy Environmental Review and Analysis, 85 7th Place East, Suite 500, St. Paul, MN 55101-2198.

The Commission may request a paper copy of any electronically filed document.

PROPOSED PERMIT

PERMIT COMPLIANCE FILINGS¹

PERMITTEE: Freeborn Wind Energy, LLC
 PERMIT TYPE: LWECS Site Permit
 PROJECT LOCATION: Freeborn County
 PUC DOCKET NUMBER: IP6946\WS-17-410

Filing Number	Permit Section	Description of Compliance Filing	Due Date
1	4.7	Prairie Protection and Management Plan	30 days prior to submitting Site Plan, as deemed necessary
2	4.12	Notification to Airports	Prior to project construction
3	5.1	Notification of Permit and Complaint Procedures	30 days of permit issuance
4	5.2.1	Field Representative	14 days prior to commencing construction
5	5.2.2	Site Manager	14 days prior to commercial operation
6	5.2.6	National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Construction Stormwater Permit	In accordance with Minnesota Pollution Control Agency
7	5.2.9	Notification of Pesticide Application	14 days prior to application
8	5.2.10	Invasive Species Protection Plan	14 days prior to pre-construction meeting
9	5.2.12	Identification of Roads	14 days prior to pre-construction meeting

¹ This compilation of permit compliance filings is provided for the convenience of the permittee and the Commission. It is not a substitute for the permit; the language of the permit controls.

Filing Number	Permit Section	Description of Compliance Filing	Due Date
10	5.2.16	Assessment of Television and Radio Signal Reception, Microwave Signal Patterns, and Telecommunications	14 days prior to pre-construction meeting
11	5.2.21	Site Restoration	60 days after completion of restoration
12	5.2.25	Public Safety/Education Materials	Upon request
13	5.4	Engineered Drawings of Collector and Feeder Lines	Submit with the Site Plan
14	5.5.2	Filing Regarding Other Required Permits	14 days prior to pre-construction meeting
15	7.1	Biological and Natural Resource Inventories	30 days prior to pre-construction meeting
16	7.2	Shadow Flicker Data	14 days prior to pre-construction meeting
17	7.3	Wake Loss Studies	14 days prior to pre-construction meeting and annual wake loss with annual report
18	7.4	Post-Construction Noise Methodology	14 days prior to pre-construction meeting
19	7.4	Post-Construction Noise Study	14 months of commercial operation
20	7.5.1	First Annual Audit and Revision of Avian and Bat Protection Plan	14 days prior to pre-construction meeting
21	7.5.1	Annual Report - Avian and Bat Protection Plan	15th of March each year or partial year

Filing Number	Permit Section	Description of Compliance Filing	Due Date
22	7.5.2	Quarterly Incident Reports	15th of January, April, July, and October the day following commercial operation
23	7.5.3	Immediate Incident Reports	24 hours of discovery and a report within 7 days
24	8.1	Demonstration of Wind Rights	14 days prior to pre-construction meeting
25	8.2	Power Purchase Agreement	If not obtained within two years issuance of permit
26	8.3	Failure to Construct	If within two years issuance of permit
27	10.0	Complaint Procedures	Prior to start of construction
28	10.1	Pre-Construction Meeting Summary	14 days following meeting
29	10.2	Pre-Operation Meeting Summary	14 days following meeting
30	10.3	Site Plan	14 days prior to pre-construction meeting
31	10.4	Construction Status Reports	Monthly
32	10.5	Commercial Operation	3 days prior to commercial operation
33	10.6	As-Builts	90 days after completion of construction

Filing Number	Permit Section	Description of Compliance Filing	Due Date
34	10.7	GPS Data	90 days after completion of construction
35	10.8	Project Energy Production	February 1st following each complete or partial year of project operation
36	10.9	Wind Resource Use	February 1st following each complete or partial year of project operation
37	10.10	Emergency Response Plan	14 days prior to pre-construction meeting and revisions 14 days prior to pre-operation meeting
38	10.11	Extraordinary Event	Within 24 hours of discovery
39	11.1	Decommissioning Plan	14 days prior to pre-operation meeting
40	14.0	Notice of Ownership	14 days after operation