

June 8, 2018

Daniel Wolf  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7<sup>th</sup> Place East, Suite 350  
St. Paul, MN 55101-2147

RE: EERA Comments and Recommendations  
Exceptions to the ALJ Report  
Freeborn Wind Farm, Freeborn County, Minnesota  
Docket No. IP-6946/WS-17-410

Dear Mr. Wolf,

Attached are comments and recommendations of Department of Commerce, Energy Environmental Review and Analysis (EERA) staff in the above matter.

Freeborn Wind Energy LLC has submitted an application pursuant to Minnesota Rule 7854.0400 for a Site Permit for an 84 megawatt wind project in Freeborn County, Minnesota.

This initial filing was made on June 15, 2017

Dan Litchfield, Senior Manager  
Freeborn Wind Energy LLC, c/o Invenergy LLC  
One South Wacker Drive, Suite 1800  
Chicago, IL 60606

These comments are based on EERA staff review of the Administrative Law Judge's Report and the record to date. Staff is available to answer any questions the Commission may have.

Sincerely,



Richard Davis  
EERA Staff

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

Nancy Lange  
Dan Lipschultz  
Matt Schuerger  
John Tuma  
Katie Sieben

Chair  
Commissioner  
Commissioner  
Commissioner  
Commissioner

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

PUC IP-6946/WS-17-410  
OAH 80-2500-34633

**DOC EERA'S EXCEPTIONS TO  
ADMINISTRATIVE LAW  
JUDGE'S REPORT**

**I. INTRODUCTION**

The Department of Commerce, Energy Environmental Review and Analysis (EERA), respectfully submits the following exceptions to the Findings of Fact, Conclusions of Law, and Recommendations (Report) issued by Administrative Law Judge Laurasue Schlatter (ALJ) for the proposed Freeborn Wind Farm 84 MW Large Energy Conversion System (LWECS) in Freeborn County, Minnesota (Project).

Overall, the 119-page Report provides a comprehensive analysis of the record evidence. EERA however does not support the ALJ's recommendation to deny a Site Permit to Freeborn Wind Energy, LLC (Applicant). EERA recommends that the Minnesota Public Utilities Commission (Commission) approve an LWECS Site Permit for the 84 MW Freeborn Wind Farm incorporating the recommendations provided below.

**II. EERA'S COMMENTS AND RECOMMENDATIONS**

EERA respectfully provides the following comments and recommendations to the Commission with respect to the ALJ's Report. EERA did not suggest edits or modifications to many of the findings in the ALJ's Report; however, this should not be construed to infer agreement with those

findings. EERA has provided comments and recommendations specifically to the ALJ's findings regarding Site Permit conditions, or findings that have been referenced as supporting facts to recommend amendments to Site Permit conditions.

## FINDINGS OF FACT

### ***Public Health Risks***

The ALJ Report FOF 301 indicates that it is unclear if the Project has met the Commission's 2008 Order Establishing General Wind Permit Standards.<sup>1</sup> In FOF 301 the ALJ is referring to the Exhibit A. General Wind Turbine Permit Setbacks, beginning on page 8 of the Commission's Order, and the ALJ appears to indicate language under the Noise Standard and Homes sections of the table in Exhibit A. The Commission's 2008 Order identifies the typical turbine setback necessary to meet the noise standard is between 750 and 1,500 feet from a residence, under the Noise Standard section.

The Commission's 2008 Order states, under the Homes section, turbines must be setback at least 500 feet and sufficient distance to meet the State noise standard. However, the Noise Standard and Homes setbacks identified in the Commission's 2008 Order are not additive, as the ALJ appears to have interpreted the setback distances. The project proponent would not calculate the setback distance from a residence to meet the noise standard, and then add 500 additional feet the noise standard setback. The project proponent would instead calculate the turbine setback distance necessary to meet the State Noise Standard, and as long as the noise standard setback is in excess of 500 feet from the residence the Home setback and standard has been satisfied.

Additionally, ALJ FOF 548 incorrectly interprets the Commission's 2008 Order, in that FOF 548 states there is a requirement of an additional 500 feet for a residential setback. FOF 548 recommends section 4.2 of the DSP be amended to require a 1,500 foot residential setback for all non-participating landowners. EERA disagrees with the ALJ's recommend amendment to section 4.2 of the DSP as it appears the recommended amendment is based on a misinterpretation of the Commission's 2008 Order, and there is no evidence supporting or justifying the recommended differentiate of residential setbacks for non-participating landowners. EERA recommends the language as identified in section 4.2 of the DSP be utilized.

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<sup>1</sup> Public Utilities Commission, Order Establishing General Wind Permit Standards, January 11, 2008.  
<https://mn.gov/commerce/energyfacilities/documents/19302/PUC%20Order%20Standards%20and%20Setbacks.pdf>

### ***Decommissioning***

In FOF 527 and 529, the ALJ recommends Freeborn Wind demonstrate its capacity to guarantee funding of project decommissioning and restoration before project construction commences. EERA is uncertain of what the ALJ means by “demonstrate” in this case. If the ALJ is recommending that Freeborn Wind must demonstrate with financial certainty or funding prior to construction of the Project, EERA disagrees with the ALJ’s recommendation. Financial certainty and funding guarantees have typically been implemented between the second and fifth year after beginning operation for other wind projects, which allows for the project to begin generating power and project income. EERA does not feel there is supporting evidence in the record to justify financial certainty or funding guarantees for decommissioning be provided by the Applicant prior to beginning construction.

ALJ FOF 528 appears also to confuse the issue of what legal entity is responsible decommissioning cost responsibilities. The ALJ discusses requirements of Freeborn Wind or any successors be added to the Draft Site Permit (DSP) Section 11.1 language. DSP Section 11.1 specifically identifies the Permittee as being responsible for decommissioning plans and associated costs. The term Permittee in this case is Freeborn Wind Energy, LLC or any successor should the Commission issue a site permit.

ALJ FOF 551 also recommends an amendment to section 11.1 of the DSP, which indicates that the demonstration of a resource guarantee occur at least 45 days before beginning construction. EERA does not agree with the recommended amendment to section 11.1 of the DSP, as the ALJ’s recommended amendments seem to be redundant and confusing when considering the existing language in Section 11.1 of the DSP. Section 11.1 in the DSP currently requires the Permittee to identify all surety and financial securities established for decommissioning in the decommissioning plan to be filed at least 14 days prior to the pre-operation meeting. EERA recommends the language in DSP Section 11.1 reflect the language identified in FOF 521 in the ALJ Report.

If the Commission believes a demonstration of a resource guarantee is necessary prior to construction, EERA recommends that the demonstration occur 14 days prior to the pre-construction meeting. Pre-construction compliance filing deadlines based on the pre-construction meeting date, which are typically more so under the control of the EERA staff and less fluid than when construction may commence.

EERA acknowledges that the initial Site Permit Application does not include a specific dollar amount for decommissioning as identified in Minn. Rule 7854.0400. This omission will be corrected for future projects. However, in the case of the Freeborn Wind Farm an additional public notice, as specified in FOF 529, including this information seems unnecessary. EERA questions what additional information will be gained by providing a public notice specifically for the decommissioning cost information. EERA does not believe the inclusion of these values in the initial application filling would have influenced EERA's comments and recommendations for application acceptance or during the development of the Preliminary DSP. As can be seen by the Commission's acceptance of the permit application and issuance of the DSP without the specific costs of project decommissioning, the cost information may be important for review, but it does not appear to be influential in Commission decisions to this point. Additionally, the cost figures will be displayed in the project's decommissioning plan, which will be available to the public for review and will be reviewed for compliance by EERA.

### **Noise**

EERA recommends deleting the last sentence of FOF 243 and the entirety of FOF 245, 246, and 247 regarding noise.

The MPCA does interpret Minn. R.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."<sup>2</sup> The next paragraph of the MPCA letter, however, goes on to state regarding compliance that "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."<sup>3</sup>

Interpreting the noise standard as a limit on total noise that applies to all sources is not an impractical or novel regulatory scheme. It is analogous to the approach used under other major regulatory schemes such as air permitting under the Clean Air Act and other environmental legislation. These programs require parsing of multiple sources, including natural sources if applicable, to determine which sources are causing or contributing to a standard exceedance.

Although the MPCA standards apply to total sound, the MPCA can of course only regulate the man-made noise that contributes to total sound. In the case of wind-farms, when existing sound levels are already at or near the 7030 limits (from wind noise, or otherwise) determining an allowable contribution

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<sup>2</sup> Ex. EERA-9, Appendix A (2012 Noise Guidance)

<sup>3</sup> Id

that is consistent with preservation of public health and welfare, but that does not unreasonably restrict development, is challenging. EERA recommends a middle-ground approach.

The Administrative Law Judge recommended that because the Minn. R. 7030 standards apply to total sound (background + project noise level), and because some locations have measured sound levels that are already above the 50 dBA nighttime L50 limit, no measurable contribution from the project should be allowed. Under this interpretation, the project-only contribution would have to be below 40 dBA at the nearby receptors. This would lead to a cumulative sound level as high as 50.4 dBA, which rounds down to 50 dBA, and therefore no net increase in total sound from project-related noise.<sup>4</sup>

In contrast, the Applicant and other wind-project developers have argued that Minn. R. 7030 standards apply to project-only noise levels, regardless of existing sound levels at a receptor. This approach would, for example, result in a cumulative sound level of 53 dBA where the existing sound level is 50 dBA and the project contribution is another 50 dBA.

EERA's recommended middle-ground approach is that when background sound is already at or above the Minn. R. 7030 limits, it is reasonable to allow project noise to contribute to the total sound level as long as that increase is not significant. A 1dB increase in noise level is insignificant based on measurement tolerances and the ability of a human ear to distinguish a difference in sound level. Therefore, allowing a 1 DB increase due to turbine-only noise when background nighttime noise levels are at 50 dBA translates into a project-only contribution of no more than 45 dBA. Therefore, the Department recommends that the Commission limit a wind project's total turbine-only noise contribution to no more than 45 dBA at nearby residential receptors. A 45 dB(A) contribution limit is also consistent with the recommendation in a NARUC report on sound emissions from wind farms prepared for the Commission in October, 2011.<sup>5</sup>

EERA believes this approach avoids significant impacts to the preservation of human health and welfare and avoids unreasonably restricting development. EERA proposes the following permit condition consistent with this approach and recommends incorporation of this condition into Freeborn Wind LLC's LWECS site permit.

EERA recommends the following permit condition regarding noise:

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<sup>4</sup> Report at Finding No. 237

<sup>5</sup> The National Association of Regulatory Utility Commissioners (NARUC), *Assessing Sound Emissions from Proposed Wind Farms & Measuring the Performance of Completed Projects*, NARUC Grants and Research, October, 2011, available at: <https://pubs.naruc.org/pub.cfm?id=539BA6EE-2354-D714-5157-359DDD67CE7F>

## **7.4 Pre and Post-Construction 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.

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.

***Over the Air Television Transmission Interference***

EERA does not support the ALJ's recommended modifications to DSP Section 5.2, as identified in FOF 544. FOF 544 of the ALJ Report recommends a modification to Section 5.2 of the DSP, which would result in a significant increase in the number of households the Applicant would have to provide a copy of the Site Permit and the Complaint Procedure. The additional service and notification to the households the ALJ Report has identified will come at a significant cost to the Applicant, and does not seem to be supported by the record. The ALJ's recommended modifications to Section 5.2 would require the Applicant to notify viewers in the "at risk area" of television stations other than KAAL. EERA does not believe this is appropriate, as the television stations other than KAAL, have not raised concerns about the Project causing OTA interference, which would imply the other television stations do not share KAAL's concerns for the proposed project's potential impacts to OTA.

The ALJ Report FOF 545 recommends significant modifications to Section 5.2.16 of the DSP. EERA does not support these proposed modifications. The Applicant has conducted detailed modelling to determine the Project's potential to impact OTA television, the ALJ FOF 545 seems to disregard this modelling effort with no evidence to support inaccuracy of these results. Additionally, ALJ FOF 545 appears to create a separate complaint procedure for OTA television interference, which is not supported by the evidentiary record and will create unnecessary administrative reporting. EERA recommends the Site Permit utilize the language in Section 5.2.16 of the DSP, and complaints of OTA television interference should be handled and reported using the Complaint Procedures identified in the DSP.

If the Commission believes additional notice of the Site Permit and Complaint Procedures under Section 5.2 of the Site Permit is necessary to ensure the operation of the Freeborn Wind Farm satisfies section 5.2.16 of the Site Permit, EERA recommends that Section 5.2 of the Site Permit be modified to direct the Permittee to serve notice of the Site Permit and Complaint Procedures directly to all television stations with signal service in the project area. If the television stations with signal service in the project area are aware of the operating wind energy facility, and should a viewer complaint be submitted to the television station staff, the station staff would be able to contact, and work with, Freeborn Wind Farm staff to determine if the reported viewer interference may be associated with a wind turbine. Complaints reported by any of the television stations would then be reported by the Permittee under their monthly complaint reporting requirements.

### ***Wind Turbine Blade Ice Throw***

ALJ Report FOF 549 recommends amendments to Section 5.2.25 of the DSP, which would require that any turbines located closer than 1,200 feet of any structure, road, or trail be inspected for ice, should conditions exist that make ice accumulation likely. EERA disagrees with the ALJ FOF 549 recommended amendments to Section 5.2.25, and instead recommends the existing language of Section 5.2.25 of the DSP be utilized. There is no evidence in the record suggesting turbines within 1,200 feet of a structure, road, or trail pose an ice throw danger to these features. DSP Section 4.4 Roads and Designated Public Trails establishes a turbine setback distance of 250 feet from public road rights-of-way and designated public trails. The 250 foot setback is established as the distance necessary to significantly reduce the potential for wind turbine ice throw danger.

ALJ FOF 309 cites a reported incident of ice thrown from a wind turbine in the Bent Tree Wind Farm, which supposedly struck a semi-truck traveling on Highway 13. 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.

ALJ FOF 309 also cites a GE Energy Ice Shedding and Ice Throw – Risk and Mitigation document (GER-4262) dated April 2006. While this is potentially useful information the GE document specifically states safe siting distances will be dependent on turbine dimensions, rotational speed, and many other potential factors. It is important to consider that the Freeborn Wind Farm is proposing to use Vestas wind turbines, not GE wind turbines. If a turbine ice monitoring protocol is going to be required in sections 4.4 or 5.2.25 of the Site Permit a distance should be established using Vestas documentation or independent professional turbine ice throw modeling.

### ***Shadow Flicker***

The ALJ Report FOF 546 recommends amending Section 7.2 of the DSP to require the Permittee to utilize shadow flicker detection systems during project operations to monitor shadow flicker exposure at receptor locations that are anticipated to receive over 27 hours of shadow flicker per year. EERA recommended the use of shadow flicker detection systems at receptors that could experience 30 hours of shadow flicker per year. Although there is no known negative

human health impacts associated with exposure to a particular level of wind turbine generated shadow flicker, EERA's recommendation of 30 hours per year reflects the limits identified in the Freeborn County Ordinance. There appears to be no evidence in the record that would support a more restrictive quantity of 27 hours of shadow flicker per year. EERA does not recommend the use of the amended Section 7.2 of the DSP as put forth in the ALJ FOF 546.

EERA recommends the following amended version of Section 7.2 of the DSP be utilized in the final Site Permit:

### Section 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 Plant 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.

### CONCLUSIONS OF LAW

ALJ Report Conclusions of Law 5, 9 and 10 reference Minn. Rule 7030.0040, which is the Minnesota Noise Standard. EERA does not dispute that noise modeling indicates the noise levels experienced at given receptors within the project area could exceed the L50 nighttime Minnesota Noise Standard of 50 dB(A). However, we have proposed an alternative permit condition that would require a post-permitting plan as provided as an alternative recommendation in the ALJ Report that would incorporate an analysis of the level of contribution of the wind turbine project to any modeled exceedances at nearby receptors.

The ALJ Report Conclusions 8 and 9 identify sections 4.2, 5.2, 5.2.25, 7.2, 7.4, and 11.1 of the DSP to which the ALJ has recommended amendments. EERA does not agree with any of the proposed amendments made by the ALJ for sections 4.2, 5.2, 5.2.25, 7.2, 7.4, and 11.1 of the DSP. EERA has proposed specific amended language for Section 7.2 and Section 7.4 of the DSP and Section 11.1 as identified in ALJ FOF 521. EERA has identified potential items for the Commissions consideration in Sections 5.2 and 5.2.25 of the DSP.

EERA staff appreciates the opportunity to submit these exceptions.

Dated: June 8, 2018

Respectfully submitted,



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## **CERTIFICATE OF SERVICE**

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

**Minnesota Department of Commerce  
Exceptions to ALJ's Report**

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

**Dated this 8<sup>th</sup> day of June 2018**

**/s/Sharon Ferguson**

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