

January 14, 2021

ELECTRONIC FILING

Will Seuffert, Executive Secretary
Public Utilities Commission
127 Seventh Place East, Suite 350
Saint Paul, MN 55101-2147

RE: Comments and Recommendations on Noise Complaint and Noise Compliance
Blazing Star Wind Project
Docket No. IP-6961/WS-16-686

Dear Mr. Seuffert:

Energy Environmental Review and Analysis (EERA) staff provides the attached comments and recommendations regarding noise complaints from Mr. Ron Weverka in the Blazing Star Wind Project docket.

Staff have reviewed the complaint history, corrective actions taken to-date, and a recent noise monitoring study conducted by the Permittee. EERA recommends that the Permittee develop a Curtailed Turbine Operations Plan for Turbine #90 to make sure the Blazing Star 1 Wind Farm is not exceeding the State sound level limits identified in Minnesota Rule 7030 at the Weverka residence.

I am available to answer any questions the Commission might have.

Sincerely,



Richard Davis
Environmental Review Manager

Enclosure

cc: Louise Miltich, EERA
Scott Ek, Minnesota Public Utilities Commission
Bret Eknes, Minnesota Public Utilities Commission

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

**Energy Environmental Review and Analysis
Comments and Recommendations on Noise Complaint and Noise
Compliance**

Blazing Star Wind Farm, LLC Docket No. IP-6961/WS-16-686

Date: January 14, 2021

Staff: Richard Davis | (507) 380-6859 | richard.davis@state.mn.us

Issues Addressed: These comments and recommendations contain the Minnesota Department of Commerce, Energy Environmental Review and Analysis (EERA) staff's noise complaint summary and recommendations in the above stated matter.

Additional documents and information, can be found on eDockets by searching "16" for year and "686" for number: <https://www.edockets.state.mn.us/EFiling/search.jsp> or the EERA webpage: [Project Docket: Blazing Star Wind Project \(mn.gov\)](#).

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On August 3, 2017, the Commission issued an order granting a Large Wind Energy Conversion System (LWECS) site permit to Blazing Star Wind Farm, LLC (Permittee) to operate the 200 MW Blazing Star Wind Farm in Lincoln County.¹ Blazing Star Wind Farm, LLC was issued an amended site permit on April 2, 2019², the Blazing Star Wind Farm has been constructed and began operation in early April 2020³ in compliance with the amended site permit.

¹ Commission. Blazing Star Wind Farm - Order Issuing Site Permit for LWECS. August 3, 2017. eDocket ID # **20178-134485-01**

² Commission. Blazing Star Wind Farm – Order Approving Site Permit Amendment. April 2, 2019. eDocket ID # **20194-151622-01**

³ Xcel Energy. Blazing Star Wind Farm – Compliance Filing – Pre-commercial Operation Filing Section 10.5. March 30, 2020. eDocket ID # **20203-161599-01**

Complaint and Corrective Action Summary

In the April 2020 Complaint Report compliance filing⁴, Blazing Star Farm, LLC reported a noise complaint filed by Ron Weverka on March 9, 2020 identifying an annoying droning noise coming from Turbine #90 during operation, and these noises are preventing individuals in the Weverka household from getting sleep.

In response to Mr. Weverka's complaint, Blazing Star 1 project staff-initiated contact with the Weverka family and began to coordinate on-site noise monitoring at the Weverka Property.⁵ Blazing Star 1 project staff also implemented daily turbine curtailment of turbine #90 from 7:00 pm to 7:00 am.⁶ Noise monitoring at the Weverka Property was implemented by Blazing Star 1 project staff on the morning of March 11, 2020, and additional monitoring was completed between March 31 – April 4, 2020 and May 18 – 19, 2020.⁷ Noise monitoring efforts by the Blazing Star 1 project staff did not identify any nighttime State Noise Standard exceedances at the Weverka Property.

Blazing Star 1 (Xcel Energy) hired RSG, Inc. to conduct additional outdoor sound level monitoring at the Weverka Property, which was conducted September 8 – 29, 2020. RSG monitored noise levels at two different locations during the September dates.⁸ Monitor Location 1, 45 meters to the west-southwest of the Weverka residence, was monitored between September 8 – 16th, and Monitor Location 2, 65 meters north of the Weverka residence, was monitored between September 17 – 29th.⁹ Turbine #90 was not operated during the nighttime period from September 8 – 16th, but Turbine #90 was operated at times during the nighttime period from September 17 – 29th.¹⁰

Sound level monitoring results indicate that sound levels at Monitor Location 2 is generally louder than Monitor Location 1, which is likely due to more exposure to wind, resident activities, and more exposure to the operational sounds generated to Turbine #90.¹¹ Monitoring Period 2 also had noticeably different meteorological conditions, generally more wind, than Monitoring Period 1.¹² RSG monitoring results did identify elevated sound levels at the Weverka Property during periods when Turbine #90 was not operating, which is likely due to sustained high wind speeds at ground level.¹³ On September 14 and 15,

⁴ Xcel Energy. Noise Monitoring Report – Ron Weverka Residence. July 9, 2020 (efiling date January 13, 2021).

eDocket ID # [20211-169780-01](#)

⁵ Xcel Energy. Noise Monitoring Report – Ron Weverka Residence. July 9, 2020 (efiling date January 13, 2021).

eDocket ID # [20211-169780-01](#)

⁶ Xcel Energy. Noise Monitoring Report – Ron Weverka Residence. July 9, 2020 (efiling date January 13, 2021).

eDocket ID # [20211-169780-01](#)

⁷ Xcel Energy. Noise Monitoring Report – Ron Weverka Residence. July 9, 2020 (efiling date January 13, 2021).

eDocket ID # [20211-169780-01](#)

⁸ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (efiling date January 13, 2021). eDocket ID # [20211-169783-01](#)

⁹ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (efiling date January 13, 2021). eDocket ID # [20211-169783-01](#)

¹⁰ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (efiling date January 13, 2021). eDocket ID # [20211-169783-01](#)

¹¹ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (efiling date January 13, 2021). eDocket ID # [20211-169783-01](#)

¹² Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (efiling date January 13, 2021). eDocket ID # [20211-169783-01](#)

¹³ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (efiling date January 13, 2021). eDocket ID # [20211-169783-01](#)

2020, Turbine #90 was operating at maximum power output, and initial turbine shut downs were implemented to identify turbine noise contribution during higher wind conditions.¹⁴ Turbine #90 also operated the nights of September 17th and 18th at approximately 50% of overall power production, and the nighttime sound levels ranged from 40 to 45 dBA.¹⁵ The night of September 19th Turbine #90 was not operated and the total sound level monitored dropped below 30 dBA, which indicates Turbine #90 operation is a primary sound source in the area.¹⁶ Nighttime sound level monitoring captured total sound levels that exceeded the 50 dBA L₅₀ multiple nights in mid to late September, which were likely due to high wind speeds as Turbine #90 was not operating at those times.¹⁷ One start up period of Turbine #90 caused an exceedance of the 50 Dba L50 limit, which was the only nighttime State limit exceedance identified during RSG’s September analysis.¹⁸

RSG also utilized a “trigger button” at the Weverka residence, which allowed the Weverkas to provide feedback by pushing the trigger when they could hear noticeable or disturbing sound levels.¹⁹ The trigger was pushed by the Weverkas 15 times between September 8 – 29, 2020.²⁰ Results of the trigger analysis show that Turbine #90 was the primary feature generating noise when the Weverkas activated the trigger.²¹ A number of trigger events (10 of 15 triggers) appear to occur at the same time as nearby turbine shutdown events, but the start up or operation of Turbine #90 appeared to be the primary factor that influenced trigger activation.²² Most the turbine trigger events are associated with Turbine #90 operating at or near maximum power production and maximum rated sound power.²³ The trigger activations associated with lower wind speeds appear to be associated with gusty winds and variable turbine power production, which likely resulted in fluctuations in sound level emissions from Turbine #90.²⁴ Two of the trigger activations occurred in the middle of the night and appear to be associated with Turbine #90 start up.²⁵ Three trigger activations occurred with total sound levels exceeding 50 dBA

¹⁴ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

¹⁵ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

¹⁶ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

¹⁷ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

¹⁸ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

¹⁹ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

²⁰ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

²¹ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

²² Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

²³ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

²⁴ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

²⁵ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

1 – hour L₅₀, which all happened during daytime hours.²⁶ The maximum sound level that occurred during a daytime trigger activation was 51 dBA, and the maximum sound level monitored during a nighttime trigger activation was 49 dBA.²⁷

Turbine shutdown and start up events were identified, and the associated sound level monitoring data was analyzed by RSG.²⁸ At Monitoring Location 1 there was one period associated with a turbine shutdown that registered a total sound level that exceeded 50 dBA, which occurred during the daytime.²⁹ At Monitoring Location 2, three nighttime periods showed exceedances of the total nighttime L₅₀ limit, which appear to have been associated with Turbine #90 operation and other nearby turbine shutdowns.³⁰

Staff Comments and Recommendations

EERA provides technical expertise and assistance to the Commission.³¹ EERA and the Commission work cooperatively, but function independently to meet their respective statutory responsibilities. In this matter EERA staff has technical input to offer on both the resolution of this particular noise complaint and on the status of Blazing Star, LLC's (Xcel Energy) compliance with noise conditions in their LWECs Site Permit.

Noise Compliance

Based on the sound monitoring and analysis of the Blazing Star 1 Wind Project conducted by RSG there are conditions under which operation of the Blazing Star 1 Wind Project would result in exceedances of the State sound level limits identified in Minnesota Rule 7030. Exceedance of noise level limits in Minnesota Rule 7030 is a violation of the Project's Site Permit, under condition 4.3.

In review of available sound level monitoring from the Blazing Star project staff and RSG, EERA has identified the following key items for the Commission to consider:

- Monitoring of the fully operating Project did not identify any exceedances of the daytime noise level limits identified in Minnesota Rule 7030.
- Monitoring during full operation of Project Turbine #90 during daytime hours, did produce total sound levels that would exceed the nighttime level limits identified in Minnesota Rule 7030 if the same weather conditions were present at night.
- Under certain weather conditions Turbine #90 was a significant sound contributor to Monitoring Location 2 on the Weverka Property.
- Monitoring identified that Turbine #90 could be operated at 50% power level output, during nighttime periods, under specific meteorological conditions without exceeding the Minnesota Rule 7030 nighttime sound level limit of 50 dBA.

²⁶ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

²⁷ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

²⁸ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

²⁹ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

³⁰ Xcel Energy. BSW Noise Complaint Response – Weverka Residence. November 23, 2020 (filing date January 13, 2021). eDocket ID # [20211-169783-01](#)

³¹ Minn. Stat. [216E.03](#), subd. 11.

- Full operation of the Blazing Star 1 Wind Project, including Turbine #90, can generate an exceedance of 50 dBA at Monitoring Location 2 on the Weverka Property.
- Turbine only sound levels from Turbine #90, measured at Monitor Location 2 on the Weverka Property, are one to two dB higher than indicated by the Project's pre-construction sound propagation modeling.

The Permittee has indicated to EERA that the post-construction noise monitoring required under the Project's Site Permit, special condition 7.4 was completed during the summer of 2020, and will be submitted to eDockets in the near future. EERA will review and provide our compliance review letter on this monitoring report to the Commission once it becomes available.

EERA would like to make the Commission aware of a potential issue with respect to timing in this matter. Mr. Weverka's complaint was submitted on March 9, 2020 but based on eDocket filings by the Permittee the full commissioning and operation of turbines at the Blazing Star 1 Project would have commenced in early April 2020.³² EERA understands there are legitimate reasons that turbines may be temporarily operated prior to commencement of commercial operation, but this has not been fully explained in the Permittee's filings to date.

Complaint Resolution

Blazing Star 1 project staff have reported that immediate action was taken to address the March 9, 2020 complaint report from Mr. Weverka. By implementing the full operational curtailment of Turbine #90 during nighttime hours the Permittee had taken actions to begin to resolve Mr. Weverka's complaint. Additional resolution efforts have been taken by the Permittee in the form of conducting sound monitoring and the controlled operation of Turbine #90 to allow for specific sound level monitoring. At this time EERA is not aware of any claim that the Weverka complaint is unresolved, and it appears the Permittee is actively working to find a way to efficiently operate Turbine #90 and also avoid exceedance of the State sound level limits under Minnesota Rule 3070.

EERA Staff Recommendations

Based on EERA's review of available sound monitoring data and analysis for the Blazing Star 1 Wind Project, EERA concludes that the Blazing Star 1 Wind Project, including Turbine #90, can operate at full power level production during daytime hours without exceeding Minnesota Rule 7030 daytime total noise limits. EERA also concludes that Turbine #90, specifically, can operate to some degree, during nighttime periods and not exceed the nighttime sound level limits under Minnesota Rule 7030. EERA recommends Blazing Star Wind Farm, LLC be required to develop a Curtailed Turbine Operation Plan for Turbine #90, in coordination with EERA staff. The Curtailed Turbine Operation Plan would identify specific meteorological conditions and background sound levels, including other Project turbine operation noises, under which Turbine #90 can operate during nighttime hours and not exceed the nighttime sound level limits under Minnesota Rule 7030. The Curtailed Turbine Operation Plan should also provide specifics on additional sound level monitoring activities at the Weverka Property to validate the sound levels during the operation of Turbine #90.

With the identified deviation of one to two dB between the monitored operational turbine only sound level generated by Turbine #90 at Monitoring Location 2 on the Weverka Property and the pre-

³² Xcel Energy. Compliance Filing – Pre-Commercial Operation Filing Section 10.5. March 30, 2020. eDocket ID # [20203-161599-01](#).

construction sound propagation modeling, EERA recommends the Commission require Blazing Star Wind Farm, LLC to investigate this matter further. It should be determined what caused the sound level deviation, specifically reviewing the various sound model inputs and the turbine manufacturer's identified maximum sound power level output of the operating turbine model. If it is determined that the turbine manufacturer's turbine maximum sound power level output was not accurate, EERA recommends the Commission require Blazing Star Wind Farm, LLC work through their turbine manufacturer warranty to possibly resolve the issues associated with the turbine only generated sound of Turbine #90. Determination of Turbine #90's maximum sound power level output is necessary to determine if the modifications to Turbine #90 should be implemented under the turbine manufacturer warranty, versus possible costs of turbine modifications or curtailed operations coming at the cost of rate payers.

EERA recommends the Commission require the Permittee submit a letter to the docket to clarify timing issues with respect to Mr. Weverka's complaint and commencement of commercial operation at the Blazing Star 1 Wind Farm.