

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

**Katie Sieben  
Valerie Means  
Matt Schuerger  
Joseph K. Sullivan  
John A. Tuma**

**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

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

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**NOTICE OF MOTION  
AND  
MOTION FOR ORDER TO SHOW CAUSE AND FOR HEARING**

**SUE MADSON – WIND NOISE COMPLAINANT’S  
DEMAND FOR NOISE MONITORING REPORTS AND TURBINE CURTAILMENT**

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**NOTICE; Any opposition to the motion must be filed and served on this docket’s service list within 14 days of service of this motion filing. Minn. R. 7829.0401, Subp. 1.**

This Motion comes before the Commission on behalf of Sue Madson, resident and business owner and operator within the Freeborn Wind Project. After numerous complaints regarding noise of the Freeborn wind project: that the noise was excessive; that it was making her family’s lives unbearable; that it was impacting her business and ability to provide day care for the children she is responsible for; and her repeated calls and emails to Xcel Energy; granting Xcel permission to perform two wind noise monitoring studies; and Mrs. Madson’s multiple

appearances before the Public Utilities Commission and filed comments<sup>1</sup> predicting and raising multiple issues; Mrs. Madson is seeking a Commission Order to Show Cause requiring that Xcel Energy produce the noise monitoring study reports and mitigate excessive noise generated by the Freeborn Wind Project.

Mrs. Madson is seeking the reports from wind noise studies performed by Xcel Energy earlier this year. Madson demands the Freeborn Wind Project be ordered to produce the results of the initial short wind noise monitoring study and the longer 22-day study, and to shut down turbines 20 and 21, those nearest Mrs. Madson, and for an Order that Xcel Energy produce and eFile the two noise monitoring studies it ostensibly performed on and near Mrs. Madson's property. Mrs. Madson also seeks an Order for the Department of Commerce to undertake noise monitoring through an independent contractor. The Xcel Energy noise monitoring that was completed was said to have exceedences of 50 dB(A), but Xcel Energy has repeatedly refused to provide Mrs. Madson with the study reports. On demonstration of exceedences, Xcel Energy must shut down the turbines that violated the noise conditions of its permit and Minnesota Rules Ch. 7030. As the grantor of the permit, the Commission has the responsibility to enforce the permit conditions, the Commission has the authority to charge Commerce-EERA to conduct noise monitoring, and the Commission has the express authority to suspend or revoke the Freeborn permit.

Under the provisions of Minn. Stat. §§ 216B.025, 216F.04(d) and Minn. R. 7854.1300, Subp. 4, and Special Conditions in Section 6.0 of the Freeborn Site Permit, the Commission has authority to revoke the site permit or take other remedial action. In addition, the Commission and the Freeborn project had warning and actual and constructive knowledge that the Complaint process was flawed and inadequate, that noise, shadow flicker, and over-the-air interference was

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<sup>1</sup> See Sue and John Madson Comment, June 7, 2021 ([20216-174832-01](#)).

likely to occur; and yet those “living” with the project make complaint after complaint without resolution. Experiences with other wind projects is relevant, and must be considered.

Madson has made several formal complaints regarding excessive noise to Xcel Energy as directed by the permit Complaint process, has had numerous emails to and fro, beginning months ago, yet her complaints have been regarded as “General” complaints, not “Substantial,”<sup>2</sup> and are shown as “pending” in the Compliance Filing of “LWECS Complaint Report Form.” Aff. of Overland, Exhibit AA (Complaints 76, 87, 89, 93, 96, 98). In this case, Xcel Energy has ostensibly conducted noise monitoring, twice, has stated that the monitoring showed instances of over 50 dB(A), but has also claimed that Xcel does not have ability to separate out ambient noise. Ex. A, emails. Xcel will not provide Madson with the reports, offering various reasons the reports cannot be produced, and has not filed them in the Freeborn Commission docket. Further, Xcel expects Madson to participate in the “Post Construction Monitoring,” which of course she will, noise monitors have been set up in her yard, yet there’s been no substantive action taken to resolve her complaint made in May, 5 months ago. Id.

Madson asks that the Commission issue an Order to Show Cause why this permit should not be revoked and that the Commission refer this matter to the Office of Administrative Hearings for a hearing. Madson requests the Commission order immediate independent noise monitoring at her home and business over an at least two week-long period parallel to the post-construction noise monitoring by Xcel Energy, performed by an independent noise expert contracted through and overseen by the Department of Commerce-EERA to replicate the Xcel post-construction noise monitoring. Madson requests that the results of all noise monitoring be compared with the Xcel Energy pre-construction noise modeling looking for discrepancies between predictions and existing noise levels.

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<sup>2</sup> See updated Complaint Handling Procedures, [20218-177402-01](#) filed August 24, 2021.

In the interim, Madson requests that after noise monitoring is completed, that turbines within 2,500 feet of her residence and business be immediately turned off pending resolution of this matter – not just at night, but off all day and all night.

**I. PROCEDURAL POSTURE**

Minn. Stat. §§ 216B.025, 216F.04(d) and Minn. R. 7854.1300, Subp. 4, and Site Permit each authorize the Commission to address permit violations and revoke or suspend the Freeborn permit, and any interested party may make a motion for Commission action. Again, as above, after repeated complaints about noise, beginning May 12, 2021 shortly after commercial production began, with complaints documented in the Xcel Compliance filings, Xcel Energy did perform some noise monitoring, but the results have not been revealed nor have they been eFiled in the Commission’s Freeborn Wind docket.

Madson’s noise complaints are unresolved. As above, Madson asks that the Commission issue an Order to Show Cause why this permit should not be revoked and that the Commission refer this matter to the Office of Administrative Hearings for a hearing. Madson requests the Commission order immediate **independent** noise monitoring at her home and business over an at least two week-long period parallel to the post-construction noise monitoring by Xcel Energy, performed by an independent noise expert contracted through and overseen by the Department of Commerce-EERA to replicate the Xcel post-construction noise monitoring. Madson requests that the results of all noise monitoring be compared with the Xcel Energy pre-construction noise modeling, in particular looking for **discrepancies** between predictions and existing noise levels, in addition to looking for exceedences of Minnesota’s noise standard.

Madson requests that after noise monitoring is completed, that turbines within 2,500 feet of her residence and business be immediately turned off pending resolution of this matter.

Mrs. Madson has already suffered over-the-air reception interference, and Xcel Energy did mitigate this problem to Madson's satisfaction. Aff. of Madson, para. 23. Mrs. Madson has suffered extreme noise issues during construction, and Xcel's proposed solution was a tall temporary sound-absorbent wall to buffer the sound! Mrs. Madson's home is one that was anticipated by modeling to experience excessive shadow flicker, and Xcel has paid to purchase trees and install blinds, leaving the Madson family and her day care children in the dark during periods of high shadow flicker. The noise of the turbines has been an issue since commercial operation began and has yet to be resolved. It's time.

## **II. FACTS -- HOW WE GOT TO WHERE WE ARE TODAY**

Procedurally, the project and complaints have lumbered through the Complaint process outlined in the permit and Xcel Energy compliance filings. See Exhibit AA, Compliance Filing, September Complaints, October 22, 2021; see also Complaint Handling Procedures, [20218-177402-01](#), updated August 24, 2021. The noise issue remains Mrs. Madson's primary complaint, and little has been done. Madson's complaints show up in the Xcel Energy compliance filings, beginning with the May 12, 2021, Complaint, and listed as numbers 98, 96, 93, 89, 87, and 76. Exhibit AA, Complaints, Compliance Filing.

Association of Freeborn County Landowners, including Mrs. Madson, repeatedly warned the Commission about inadequate and unresponsive Complaint process, particularly after the years long struggle with complaints about the Bent Tree project and the ultimately documented noise exceedences of turbines in that project. Overland Aff., Ex. KK, Bent Tree Noise Studies; Ex. LL, Hagen and Langrud settlements filed with PUC. The Bent Tree settlements came after years of complaints by Langruds and Hagens, primarily regarding noise, but also OTA (over the air) reception issues for the Hagens, and shadow flicker issues for the Langruds. See PUC's Bent

Tree Docket WS-08-573. A noise study was ordered by the Commission, which demonstrated noise exceedences, and it was then replicated, also demonstrating noise exceedences. Ex. KK. The studies verification of exceedences lead to a quick settlement. Ex. LL. The Bent Tree turbines were Vestas V-82 turbines, with a rotor diameter of 82 meters, smaller than the Freeborn wind turbines. Ex. KK, p. 9 of 130. The nearest turbine to Hagens’ property was 1,150, and the nearest to Langruds’ property was 1,525.

Freeborn Wind turbines near Madson’s home are Vestas V-120, with rotor diameter of 120 meters. Ex. B, p. 6 of 32. Sound power levels of the Vestas V-120 turbines are:

**Table 4-1. Source Sound Power Levels**

Noise Source	Octave Band Sound Power Level (dB)									Overall Sound Power Level (dBA)
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz	8,000 Hz	
Vestas V120-2.0	114.2	113.4	112.6	111.2	108.8	105.5	101.1	95.1	87.7	110.6
Vestas V120-2.0 w/ STE	113.9	112.4	111.0	109.2	106.7	103.4	99.2	93.6	86.7	108.6

Ex. A, p. 8 of 32. From Madson’s home, Turbine T-20 is 1,591 feet away and T-21 is 2,570 feet away. Ex. A, emails, p. 31 of 37.

AFCL’s attorney also warned the Commission that a predictable result of use of a 0.5 ground factor, rather than 0.0 ground factor, would be to understate expected project noise, specifically in 13 projects before the Commission, including Freeborn Wind and Blazing Star. Overland Aff., Ex. II and Ex. JJ. This February 1, 2021, comment included testimony of two wind noise experts in Wisconsin Public Service Commission dockets. One was Hankard, who also was Freeborn sound expert and testified in the Freeborn contested case, and the other was Schommer, both stating that 0.0 ground factor should be used for modeling an elevated source, Schomer extensively, and Hankard had this to say:

7 | A The model that we use has been shown to predict  
8 | conservatively with 0.5. I mean, 0.5 ground factor  
9 | is used in probably -- well, with the exception  
10 | perhaps of wind turbine projects which are different  
11 | because the source is elevated. But for projects  
12 | like a typical power plant, a solar plant where the  
13 | sources are relatively close to the ground, I would  
14 | say 90 to 99 percent of the studies use 0.5. And

Id., p. 7.

This result of improper use of noise inputs, and therefore modeling that understates the potential for noise, is playing out in the Blazing Star docket. In the Blazing Star wind docket, there have been numerous complaints, although thus far only the Waverka complaints have come before the Commission. Mr. Waverka made many complaints regarding turbine T-90, just 1,150 feet from his home. That 1,150 feet is the same distance as Hagen's home to the nearest turbine in Bent Tree, and not far off of Madson's T-20 at 1,570 feet. All the turbines near the Waverka home are Vestas V120. Ex. CC, p. 3 of study. Waverka had numerous discussions with Xcel Energy and Commission staff, and in September 2020, he was asked to file a written complaint, which he did, detailing his attempts to deal with the noise, working with Xcel's Gerlach, struggling to have noise monitoring completed, that the wind project had taken away their use and enjoyment of their property, and his obvious frustration with their inability to get relief. Ex. BB, Waverka letter. Waverka first complained to Xcel on March 9, 2020, and immediately, on that same date, Xcel placed T-90 on daily curtailment between 7pm and 7am That curtailment has since changed to 6pm-6am. Ex. GG, Xcel Response to Complaint.

Xcel had performed noise monitoring at Waverka's home initially on March 11, 2020, and then March 31 – April 4, 2020, and May 18-19, 2020, and produced a report dated July 9, 2020. Ex. DD, Xcel's Noise Monitoring Report. This report states that "Overall, measured hourly noise levels were compliant with MPCA daytime noise standards," but compliance with night-time standards is not mentioned in that summary. Later in that report, it notes that T-90 was shut down between 7:00 p.m. and 7:00 a.m., so there was no T-90 noise to monitor at night. Id., p. 2. The conclusions note that:

The highest turbine-only level of T-90 alone was calculated from measurements to be 49.8 dBA, which suggests that with all turbines operating, BSW could generate over 50 dBA turbine-only sound at Monitoring Location 2.

Ex. CC, p. 30. The timing of Xcel's 7 p.m. to 7a.m. curtailment for Waverka was immediate – it began March 9, 2020, the same day that Xcel first heard of Waverka's complaint. Ex. DD, Xcel Noise Study, p. 2, July 9, 2020. For the Freeborn Wind project, and regarding Madson's noise complaints, Xcel has not curtailed night-time operation of the T-20 and T-21 turbines near Madson. It's important at this point to note that Waverka specifically stated that the noise of the turbine made it very difficult to enjoy their time outside in their garden, working in the shop, and they cannot spend time outside with family and friends "because of the thumping and wooshing noise echoing in our yard when visiting." Ex. BB, Waverka Letter, p. 3. Madson reports similar issues, the wind turbine noise outside is distressing, and visitors and parents bringing children to day-care have noticed and commented on it. Ex. A, Madson emails to and fro Xcel.

Xcel explained in its January 21, 2021, filing to the Commission, just before the Agenda meeting regarding the Waverka complaint, the steps it had taken:

1) Shut down T-90 for 12 hours every day from 7:00pm to 7:00am from March 2020 to November 2020, and at the Weverka's request 6:00pm to 6:00am since November 2020 to present day.

- 2) Performed noise monitoring and commissioned a third-party noise study at the Weverka residence, with results provided in reports completed in July 2020 (Xcel Energy) and November 2020 (RSG). These reports were shared with the Weverkas, and with Staff, and were filed to the Docket on January 13, 2021.
- 3) Provided monthly updates on the Docket, consistent with the Complaint Handling Procedures associated with the Site Permit, on how the Company has maintained compliance with the noise standard while conducting on-site studies to gain more information.

Ex. GG, p. 1. Xcel goes on to state that there was no separation to determine “turbine only” noise, that “the September study was designed to measure total noise at the Weverka residence.”

Id., p. 2. Xcel has told Madson that it is unable to, does not have resources, does not have expertise, to determine “turbine only” noise by separating out background ambient noise.

Madson Aff. and Ex. A, emails. For Waverka, and for Madson, conducting noise studies is pointless if the “turbine only” noise is not isolated – the permit is based on “turbine only” noise.

With a need for “additional analysis,” the complainants will have to suffer with the noise, which is not reasonable. Xcel claims for Waverka that:

Due to the confirmed exceedance, and the potential for additional exceedances, Xcel Energy will continue to curtail T-90 operations from 6:00pm to 6:00am each day until an understanding can be reached on how to avoid any exceedances of the nighttime noise standard.

Ex. GG, p. 2.

After Waverka’s complaint, noise monitoring was performed, exceedances of noise standards were demonstrated, and concluded that “nighttime limits (50 dBA L<sub>50</sub>) were exceeded at both monitoring locations.” Ex. CC, p. 30. A very important fact at the end of the

Conclusions was that:

**Turbine-only sound levels from T-90 were measured to be about 1 to 2 dB higher than predicted by the sound propagation model.**

Id. (emphasis added). Xcel Energy also did not file this crucial noise monitoring in the Blazing Star docket until January 13, 2021, just before the Commission’s Agenda Meeting.

The Blazing Star sound monitoring results were confirmed by Commerce-EERA:

*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.

Ex. EE, Commerce-EERA Comments and Recommendations, p. 5 of 7. Commerce-EERA also noted the 1-2 dB deviance of monitoring between the sound modeling and monitoring:

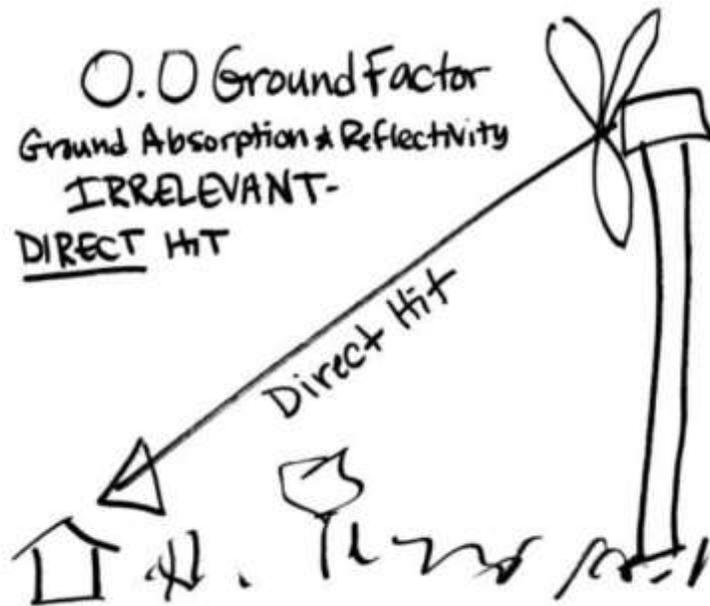
**With the identified deviation of one to two dB between the monitored operational turbine only sound level generated by Turbine #90 at Monitoring Location 2 on the Weverka Property and the pre-construction sound propagation modeling, EERA recommends the Commission require Blazing Star Wind Farm, LLC 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.**

Id., p. 7 of 7 (emphasis added). While the briefing papers for the Commission's meeting do state that "Waverka indicated that he has been in contact with Xcel several times and that the noise testing is not resulting in a resolution to the problem," there is no acknowledgement of the discrepancy between pre-construction noise modeling and post-construction noise monitoring.

Ex. HH, Staff Briefing Papers, p. 3. The nighttime exceedances were acknowledged. Id. PUC Staff regarded the complaint as "unresolved." It was not until after Waverka contacted the Commission staff and asked that his complaints be brought before the Commission that Commerce-EERA reviewed the complaints and two noise reports and provided recommendations. Id., p. 4; Ex. EE, Commerce-EERA Recommendation and Comment. The recommendation of Commerce-EERA that the discrepancy in pre- and post-construction noise was not followed through into the Briefing Paper view of Commerce-EERA recommendations, nor was any action regarding the discrepancy proposed as a decision option.

A review of the "various sound model inputs" requested by Commerce-EERA highlights

the issue and importance of ground factor input, and the increase in noise over that predicted in modeling has now been documented by noise monitoring. This increase of noise above that in predictive pre-construction modeling should be expected with use of 0.5 ground factor. Ex. II, Ex. JJ.



Id., p. 6 of 29.

Ground factor is a numerical representation between 0.0 to 1.0, used in noise modeling, of the percentage of interference, or blockage, of noise from the source to the receptor. A 0.0 ground factor means there is nothing between the source and receptor, and a 0.1 means that the sound is completely blocked. A 0.5 ground factor is used for power plants on the ground because there are trees, hills, bushes and buildings between the source and receptor. A 0.0 is to be used for highly elevated sources such as wind turbines, where there is nothing between the source and receptor. See Ex. II, p. 7, and Schommer, Id., Tr. p. 568-582. An elevated noise source the height of a wind turbine provides a direct hit for receptors on the ground – there is nothing to block the noise, hence the use of 0.0 ground factor for an elevated source. Id. This deviation between the pre-construction noise modeling and post-construction noise monitoring will likely

be found in any of the projects utilizing a 0.5 ground factor in pre-construction modeling, and particularly with the larger and noisier Vestas V-120 turbines in projects such as Blazing Star and Freeborn. For this reason, the pre-construction modeling must be carefully compared with all post-construction noise monitoring results.

In a letter filed with the Commission, the Madsons stated clearly that the noise is high, and that they tested using three different meters on over 80 occasions, finding noise levels “which ranged between 43 and 95 dB, and often above the modeled maximum.” See Sue and John Madson Comment, June 7, 2021 ([20216-174832-01](#)). Freeborn Wind monitoring will likely provide evidence in another wind noise modeling v. monitoring discrepancy.

The Freeborn Wind project encroached on Sue Madson, her family, her business, her property, and her life. Madson’s complaint about over-the-air interference issue was handled by Xcel through an agreement and settlement for mitigation with an antenna. Madson’s shadow flicker issue was handled by Xcel through an agreement and a settlement for the estimated cost of trees, blinds, and awnings. Affidavit of Madson, para. 3. Madson also individually requested a Permit Amendment to address and partially allay her concerns anticipated regarding noise, which was rejected by the Commission. Xcel was ordered to address Madson’s shadow flicker and noise complaints:

The Commission hereby directs Xcel, after further consultation with Ms. Madson and with 30 days of the date of this order, to make a compliance filing demonstrating the steps the Company has taken to mitigate impacts, as well as a description of the expected effects of mitigation on shadow flicker and noise levels to Ms. Madson’s property.

Order, September 16, 2020, p. 6 ([20209-166629-01](#)). As with Waverka’s many complaints, two noise studies have been completed for Madson. Although the initial 3-hour noise monitoring was performed in May 2021, and the 22-day noise monitoring performed between June 9 and

July 1, 2021, no action has been taken, the reports have not been released to Madson despite several requests, and the noise complaints remain unresolved.

Madson has carefully followed the Complaint process accompanying the Freeborn permit. Beginning May 12, 2021, Madson complained in writing via email:

*I have been wondering why some days these turbines are so loud we can hear them in our house, with windows closed? On Monday the 10<sup>th</sup>, my sound meter measured over 50 dB.*

Ex. A, emails; see also Ex. AA, Complaints, Xcel Compliance Filing, Complaint 76. Madson's Complaint was characterized as a "General" complaint, rather than a "Substantial Complaint," although it is a "Substantial" complaint because there are noise provisions in the permit and that noise exceedences, if substantiated, could result in permit modification or suspension, meeting the definition of "Substantial Complaint."

The Complaint Handling Procedures<sup>3</sup> provide the following definitions:

**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, television or communication signals, 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.

All of Sue Madson's Complaints, 76, 87, 89, 93, and 98 were mischaracterized as "General," rather than "Substantial." Ex. AA. This mischaracterization of a noise complaint as "General" was also found in the Blazing Star complaints, where all were deemed to be "general" complaints. Ex. FF, Blazing Star Complaints. The Madson noise complaint has been reiterated in

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<sup>3</sup> Complaint Handling Procedures, [20218-177402-01](#) filed August 24, 2021.

emails between Madson and Xcel personnel and the Compliance Filing listing of complaints. See attached Madson’s Exhibit A, emails with Xcel; also Exhibit AA. Madson’s Complaints were regarded as sufficient to warrant noise monitoring.

The Compliance Filing, Xcel’s “Actions taken to Resolve Complaint” states:

*Upon receipt of the complaint, Xcel Energy reached out to the complainant and took sound level measurements on May 18, 2021. Data from that monitoring showed sound levels below the daytime limits of the state noise standard. This information was shared with the complainant. The next step Xcel Energy has proposed – and has been accepted by the complainant – is to conduct continuous monitoring (24/7) for two to three weeks in June to ensure compliance with both daytime and nighttime noise standards at the property. Xcel Energy will provide an update on this monitoring once the data is collected and a report is completed.*

Exhibit AA, Xcel Energy Monthly Complaint Report. The informal screenshot that was provided to Madson shows a daytime high level of noise ranging from 50.6 to 56.2.

Location	Start/Duration	Data File	LAF10	LAF50	LAF90	LAeq	Comments
65 ft SE of house, 22 ft SW of barn	0800 - 090		54.9	52.6	50.6	53.2	Click-or-tap-here-to-enter-text
"	0900 - 100		55.3	52.4	50.2	53.2	Click-or-tap-here-to-enter-text
"	1000 - 105		56.2	53.0	50.8	53.9	Mostly full hour

Ex. C, Screenshot. This 3-hour noise monitoring session was in the daytime, as was the 2<sup>nd</sup> Waverka noise monitoring, and not at night. The 2<sup>nd</sup> Waverka-Blazing Star noise monitoring concluded that:

... compliance with nighttime sound level limits could not be assessed directly at Monitor Location 1. However, there were daytime periods where wind turbine sound emissions caused total sound levels to increase above 50 dBA L<sub>50</sub> (e.g. Shutdown #16). If the same conditions occurred at night, an exceedance of the nighttime limit would result.

Ex. CC, BSW Noise Complaint Response, p. 30. Similarly, it would reasonably be expected to be true that when considering the noise of the Freeborn Wind project near Madson’s home “[i]f

the same conditions occurred at night, an exceedance of the nighttime limit would result.” The studies need to be reviewed and compared to establish the facts.

In June, after that first noise test at Madsons’, there was communication between Complainant and Xcel regarding bringing the meter out to Madson’s home and business for longer term monitoring and discussion of timing and the placement location for the meter. Exhibit A, June 7, 2021, email. The meter was placed on or about June 9, and during the 22 days that the monitor was present, Madson noticed that turbine T-20 was often not running and reported this to Xcel, noting that the noise would obviously be lower if the nearest turbine was not operating. Ex. D, Madson’s contemporaneous noise notes, see also Ex. E, Noise Monitoring Equipment Locations. Note that the equipment for the June 9 – July 1, 2021, noise monitoring study was positioned behind the tree-line of tall conifers. The testing equipment for the ongoing post-construction noise monitoring is set at the tree line and should have a more direct line of sound. See photos, Ex. E.

Madson followed up “Complaint 76” with additional complaints, noted as 87, 89, 93, 96, and 98, and again, each was characterized by Xcel as a “General Complaint,” and each is shown as “pending” on the August 2021 Complaint Report. Ex. AA, Complaints 76, 87, 89, 93, 96, and 98. Setting up 2-3 weeks of noise monitoring was discussed, and the noise monitors were set up. There was additional back and forth between Madson and Xcel in late June regarding removing the monitor that had been present for just over three weeks, set for July 1, 2021, and requesting the results of the noise monitoring. Affidavit of Madson, Exhibit A, emails.

After the monitoring ended and monitor was removed at the beginning of July, Madson contacted Xcel again with another noise specific complaint:

*Complainant contacted Sean Lawler to share what their family’s complaints are.  
Complainant stated that on 7/14, tower 20 was loud in the afternoon and again in*

*the evening. The other closest tower T21 was not running at that time. On 7/15 complainant stated that their grandson said that he was unable to sleep until 04:00. Complainant's daughter also stated how loud the turbines sounded in her room with her windows shut and her television on.*

Ex. AA, Xcel Monthly Complaint Report. Xcel's "Actions Taken to Resolve Complaint" states:

*Chris Hogg responded back to the Complainant to inform them that the towers were running as expected but to continue to send any issue or complaint to the Freeborn Wind Farm.*

Id. Well, that's helpful...

The complaints of Madson are Substantial Complaints – Madson complained of excessive noise, which if over the noise standard prescribed in Minnesota's noise rule could shut down the turbines and/or the project. Perhaps Xcel will respond that the complaints were not "alleging a violation of a specific permit condition," citing chapter and verse of the permit, but Xcel is certainly aware that noise exceedences "could result in permit modification or suspension pursuant to the applicable regulations." Multiple complaints have been made by Madson, Xcel did onsite monitoring on May 18, 2021 in response to the initial, May 12, 2021, complaint, and did set up 2-3 week monitoring in June, an indication that the complaint was regarded by Xcel as significant, substantial.

Madson has requested the reports of results of the two noise monitoring exercises multiple times. Exhibit A, also Affidavit of Madson, para. 6, 11, 14-18. Xcel initially offered to provide results, gave different timelines for provision, but no results are forthcoming. In odd statements, Xcel Energy's Hogg and Gerlach have stated that they would not be turning over the noise monitoring studies, offering as excuses that they did not have personnel with expertise to separate out the wind noise from ambient noise, at another time that they did not have the equipment available. Affidavit of Madson, para. 14-17. If it is true that the company does not have what is needed to perform noise monitoring in response to noise complaints, what is the

point of taking measurements, what is the point of doing any wind noise monitoring, and what is the point of Xcel Energy's "Complaint" process? If the company is not able to separate out ambient noise and interpret the results and produce reliable and credible noise monitoring reports, performing noise modeling is useless. Based on noise complaints at both Blazing Star and Freeborn, based on noise monitoring done for both complainants, it seems likely that the results of the Freeborn noise monitoring are similar to the results for Blazing Star at Wavreka's home, and that exceedences will be exposed.

Xcel has withheld noise monitoring reports previously, for example, in noise monitoring of the Blazing Star project, which uses V-120 turbines, the same as those used for Freeborn Wind, and Xcel also used the improper 0.5 ground factor for modeling of these very large turbines. After multiple complaints by several landowners amongst the Blazing Star turbines, Xcel did perform noise monitoring at one Complainant's home, and issued a report on July 9, 2020. Overland Aff., Exhibit DD, Xcel Energy Noise Monitoring Report, July 9, 2020. This July report was not filed in the Blazing Star docket until January 13, 2021. Id. On November 23, 2020, Xcel produced another report focused on Blazing Star noise levels, specifically at the Waverka's property. Overland Aff., Exhibit CC. This report found noise exceedences, also admitted in Commerce and Commission filings. Overland Aff., Exhibit EE, GG, and HH. These noise monitoring reports were withheld and were not filed in the Blazing Star docket until the Commission Agenda Meeting was imminent. It is these noise monitoring reports as were finally produced for Blazing Star, noise monitoring performed in response to a resident's multiple complaints, that are the type of report that Sue Madson is expecting and seeking, and which Xcel will not provide.

Because of the exceedences documented in the Blazing Star reports, and Xcel's

withholding of reports from noise monitoring in her yard, Madson believes that independent noise monitoring is needed, performed by a contractor selected and controlled by Commerce-EERA and not Xcel. If the Freeborn noise monitoring studies similarly show noise exceedances in the Freeborn Wind project, as were demonstrated in Blazing Star, Xcel has a serious problem on its hands with these two projects showing exceedances where a 0.5 ground factor was used for these Vestas V-120 turbines, so much larger than those problematic Vestas V-82 turbines of Bent Tree.

In that Blazing Star docket, there were discussions between Xcel and Commerce regarding resolution, but no apparent discussions with Complainants. In that specific project, there are many more complaints, beginning as the project was approaching commercial production and after commercial operation began. For Blazing Star, Commerce-EERA reported that monitoring demonstrates noise level exceedances and noise levels 1-2 dB(A) higher than modeling predicted:

- 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.

Overland Affidavit, Exhibit EE, Commerce-EERA Comment, p. 6 of 7. For Mrs. Madson, there has been no immediate curtailment as there was in Blazing Star, there have been no noise studies revealed, and there have been no discussions about mitigation or removal. The complainants in these two projects in the same noise scenario have been treated very differently.

Because Freeborn Wind uses the same turbine as Blazing Star, with the same noise characteristics, and the pre-construction modeling also used a 0.5 ground factor, it is expected that the resulting turbine noise will be similar – that the noise modeling would understate the

expected noise levels, and that noise monitoring would reveal a discrepancy between the modeled noise and actual noise. Ex. CC p. 3; p. 30; Ex. DD; see also Ex. B, Freeborn Wind pre-construction noise modeling.

### **III. CONCLUSION**

At this time, Madson requests that the Commission take up her Complaints about noise. Madson requests that the noise monitoring study performed by Xcel be produced so that they may be compared with the Freeborn Wind project's Xcel Energy noise modeling utilizing a 0.5 ground factor, and that Commerce-EERA independent noise monitoring be performed and then compared with the Freeborn Wind pre-construction noise modeling and the post-construction noise modeling now underway, and also with the Blazing Star Xcel Energy wind project noise monitoring report. These reports must be lined up and scrutinized to determine the integrity and credibility of each.

Madson also wants the Commission to note that the credibility of noise monitoring is lessened when noise is not considered when the wind is over 11 mph. Wind turbines obviously make the most noise when the wind is highest, and this is also the time when the turbines are generating the most energy. There is incentive to eliminate these times of high wind and high production from the noise studies. This skews studies, and calls the results into question.

This failure of Xcel Energy to document, address, and eliminate the noise that Mrs. Madson is experiencing is a demonstration that the Complaint process is ineffective, and that the Department of Commerce-EERA, not Xcel Energy, should be the one handling wind project complaints and noise monitoring.

Madson requests the Commission review the full record, and the Freeborn Wind Project be ordered to show cause why the Commission should not:

- Order Xcel Energy to produce and file in eDockets the results of a short wind noise monitoring testing in May 2021, and the report for the longer 22-day study, from June 9 to July 1, 2021, in both raw data and narrative form as was done in response to the Waverka/Blazing Star complaint (see Ex. CC and DD); and
- Order the Department of Commerce-EERA to perform noise studies, parallel to the ongoing post-construction noise monitoring studies, through an independent contractor for this Madson complaint and all other wind noise complaints in the Freeborn Wind project, using a contractor capable of producing credible noise studies, i.e. having equipment and expertise to identify and separate out turbine only noise, and document noise levels at Freeborn Wind, in particular, turbines T-20 and T-21, and others where residents have complained; and
- On demonstration of exceedences, Order Xcel Energy to shut down and remove turbines 20 and 21, those nearest Mrs. Madson; and
- Order that on demonstration of exceedences, Xcel Energy must shut down and remove any other turbines that have violated the noise conditions of its permit and Minnesota Rules Ch. 7030, including but not limited to those near Madson's home and business.
- Begin a rulemaking to revise the Complaint process, taking response to complaints out of the hands of the project owners, setting time limits for resolution, strengthening Commission oversight, and restore enforcement to ensure compliance with permit conditions.
- Request that the MPCA initiate rulemaking for wind turbine noise, distinct from the existing Minn. R. ch. 7030.
- Such other relief as warranted by demonstration of noise exceedences and withholding of noise studies.

Respectfully submitted,




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