BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION BY DEUEL HARVEST WIND ENERGY SOUTH LLC FOR ENERGY FACILITY PERMITS OF A WIND ENERGY FACILITY AND A 345 KV TRANSMISSION FACILITY IN DEUEL COUNTY, SOUTH DAKOTA FOR THE SOUTH DEUEL WIND PROJECT

SD PUC DOCKET EL24-023

PRE-FILED REBUTTAL TESTIMONY OF MICHAEL HANKARD ON BEHALF OF DEUEL HARVEST WIND ENERGY SOUTH LLC

December 5, 2024

I. INTRODUCTION

Q. Please state your name.

A. My name is Michael Hankard.

Q. Have you previously provided testimony in this docket?

A. Yes. I submitted Direct Testimony in this docket on behalf of Deuel Harvest Wind Energy South LLC ("South Deuel Wind") in support of its Facility Permit Application ("Application") to the South Dakota Public Utilities Commission ("Commission") on June 28, 2024.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your Rebuttal Testimony?

A. The purpose of my Rebuttal Testimony is to provide an update to the cumulative sound analysis for the South Deuel Wind Project ("Project") and to respond to the testimony of Commission Staff witness David Hessler.

Q. What exhibits are attached to your Rebuttal Testimony?

A. The following exhibits are attached to my Rebuttal Testimony:

- **Exhibit 1**: Table E-1: Cumulative Noise Levels, South Deuel Wind + Tatanka Ridge (Updated Application Appendix M).
- **Exhibit 2**: Cumulative Noise Level Contour Plots.

III. UPDATED CUMULATIVE SOUND ANALYSIS

Q. Did you prepare a cumulative sound analysis as part of your Noise Analysis report that was submitted in this docket as Appendix M?

A. Yes. I modeled the sound expected from the Project plus the sound from the existing Tatanka Ridge wind project that is currently operational and located southwest of the Project.

Q. Did the cumulative sound analysis reflect that there were non-participating landowners with residences (receptors) that would experience more than 45 dBA from both projects cumulatively?

A. Yes. My analysis showed seven non-participating receptors would experience sound at levels above 45 dBA. The results for each turbine model configuration are shown below in Table 1.

Table 1: South Deuel Wind + Tatanka Ridge Predicted Noise Level (L_{eq} dBA) (Application Appendix M)

Non-Participant Receptor	SG 4.4-164 low noise	V163-4.5 STE	GE 3.8-154 LNTE	Dominant Facility
R-087	41.9	44.0	45.1	S. Deuel Wind
R-089	42.3	44.2	45.2	S. Deuel Wind
R-171	44.2	44.9	45.3	Tatanka Ridge
R-205	43.2	44.6	45.5	Both
R-212	44.8	45.1	45.2	Tatanka Ridge
R-306	45.2	45.7	46.0	Tatanka Ridge
R-322	44.7	45.4	45.9	Both

Q. Do you have any updates to that cumulative sound analysis?

A. Yes. Since the date of my report, June 20, 2024, South Deuel Wind entered into agreements with four landowners who own receptors R-212, R-305, R-306, and R-322, making them Project participants.[1] I have updated my noise modeling table (Application Appendix M, Table E-1) to reflect the updated participant status, attached as **Exhibit 1**. As a result, the list of non-participants who may experience more than 45 dBA in cumulative sound is reduced. There are no non-participating receptors above 45 dBA for the SG 4.4-164 and V163-4.5 turbine model configurations. There are four non-participating receptors above 45 dBA for the GE 3.8-154 turbine model configuration shown below.

[1] The R-322 agreement is pending receipt through the U.S. Postal Service.

Table 2: South Deuel Wind + Tatanka Ridge Predicted Noise Level (L_{eq} dBA) (Updated as of December 4, 2024)				
Non-Participant Receptor	**SG 4.4-164 low noise**	**V163-4.5 STE**	**GE 3.8-154 LNTE**	**Dominant Facility**
R-087	41.9	44.0	45.1	S. Deuel Wind
R-089	42.3	44.2	45.2	S. Deuel Wind
R-171	44.2	44.9	45.3	Tatanka Ridge
R-205	43.2	44.6	45.5	Both

IV. RESPONSE TO MR. HESSLER

Q. Have you reviewed the Direct Testimony submitted by Mr. David Hessler, Hessler Associates, Inc., submitted on behalf of Commission Staff?

A. Yes.

Q. What is your general response to Mr. Hessler's Direct Testimony?

A. I appreciate Mr. Hessler's recognition that the modeling and methodology I used are consistent with good industry practice and that the modeling results are conservative. They are conservative because a highly reflective ground absorption coefficient of 0, per ISO standard 9613-2 is assumed. This means that the modeling does not assume any ground absorption of sound. This results, as Mr. Hessler notes on page 3 of his testimony, and I agree, in predictions that are about 1 or 2 dBA higher than expected actual operational noise levels.

Q. On page 4, Mr. Hessler is critical of South Deuel Wind's analysis of cumulative noise impacts. Do you agree with his criticism?

A. No. In the Noise Analysis attached as Appendix M to the Application, I note that, "Due to the proximity of Tatanka Ridge Wind, which is located to the southwest of the proposed Project, an analysis was conducted to predict cumulative noise levels (those from the simultaneous operation of all Project and Tatanka Ridge wind

turbines, exclusive of background noise). Data for the Tatanka Ridge turbines was obtained from the noise report for that facility filed with the Commission and from the U.S. Wind Turbine Database." Table E-1 of the Noise Analysis included the results of this cumulative noise assessment. As noted above, I updated the data in Table E-1 to reflect the additional four participants in the Project. I have also provided cumulative sound contours in **Exhibit 2**.

Q. Mr. Hessler refers to 45 dBA "regulatory limit" for cumulative noise for non-participants. What is your response?

A. Mr. Hessler does not identify the source of the "regulatory limit." There is no state statute or county zoning limit for cumulative sound. Deuel County regulates source-only sound, not cumulative sound.[2] However, I understand that Mr. Hessler is recommending that the same 45 dBA limit that Deuel County established for source only sound be applied to cumulative sound levels.

Q. On page 5, Mr. Hessler recognizes that the levels over 45 dBA are quite small and will not make any real difference in how noise is perceived by the receptor. Do you agree with this statement?

A. I do. As Table 2 above demonstrates the greatest level above 45 dBA is 0.5 dBA, and as Mr. Hessler testifies, a sound level of 45 dBA is indistinguishable from a sound level of 46 dBA.

Q. Please summarize the cumulative noise levels associated with the GE 3.8-154 turbine model for the four non-participants where the levels are above 45 dBA.

A. The sound levels are 45.1 dBA for R-087, 45.2 dBA for R-089, 45.3 dBA for R-171, and 45.5 dBA for R-205.

[2] *See* Direct Testimony of Monica Monterrosa, pp. 9-10 (explaining that the Project will comply with Deuel County Ordinance siting standards, including noise, and that the Project received County approval and a conditional use permit); s*ee also* Exhibit JT-1, p. 637 (containing October 2024 email correspondence from Deuel County Zoning Officer Jodi Theisen noting "The county's interpretation is that the ordinance is a source related ordinance...").

Q. Based on the information Mr. Hessler had regarding sound levels and participant status at R-306, R-212, and R-322, Mr. Hessler recommended that turbine locations 89 and H be classified as "no build" sites to reduce sound levels at these receptors to below 45 dBA. What is your response?

A. These two turbines are not contributing to distinguishable noise levels above 45 dBA at any of the three receptors. The levels above 45 dBA are quite small (below 0.5 dBA) and will not make any perceivable difference in sound at the receptors. Moreover, Mr. Hessler's recommendation is based on the receptors being non-participants. Now that receptors R-212, R-306, and R-322, are participants, I understand that Mr. Hessler's recommendation would not apply.

Q. Mr. Hessler also recommends that turbine location 39 be a "no build" site because it contributes to sound at R-205 and R-171. Do you agree?

A. While I agree that turbine location 39 contributes to sound at these two receptors, it does not need to be removed or designated as a "no build." As Mr. Hessler noted, a sound level of 46 dBA is "indistinguishable" from a sound level of 45 dBA. These receptors are at 45.3 dBA and 45.5 dBA. I believe these levels are appropriate for an area with two wind energy generation facilities, especially for R-171 where the Tatanka project is the dominant sound source. Furthermore, as recognized by Mr. Hessler and in my Noise Analysis, Application Appendix M, the noise level prediction model is considered to over-predict by 1 to 2 dBA.

Q. Mr. Hessler also testifies that turbine locations 33 and 56 would be "good candidates" as "no build" sites to lower levels at R-212, R-87 and R-89. Do you agree?

A. I do not believe these should be designated as no-build sites. First, receptor R-212 is now a participant and therefore Mr. Hessler's recommendation should not apply. Second, the levels at R-81 and R-89 are 0.1 and 0.2 dBA above 45 dBA. I agree

with Mr. Hessler that such levels above 45 dBA are "intangible, negligible and probably unlikely to actually occur given the conservatism in the modeling."

Q. On page 8, Mr. Hessler finds South Deuel Wind's proposed edits to the Commission's noise condition are fair and reasonable. Do you agree with this assessment?

A. Yes. I appreciate Mr. Hessler's concurrence.

V. CONCLUSION

Q. In summary, do you agree that all proposed turbine locations and all three turbine models can be constructed and operated in compliance with the applicable noise regulations?

A. Yes. I do. Furthermore, I disagree with Mr. Hessler that any turbine locations should be designated as "no build." The sound levels produced by the Project will be below 45 dBA at non-participant receptors, which meets the Deuel County Zoning Ordinance source-only sound requirement. In addition, when evaluating cumulative sound, for which there is no statutory or county limit, the estimated levels will be up to 45.5 dBA at four non-participant receptors. The sound levels at the four receptors will be indistinguishable from 45 dBA or intangible, negligible and unlikely to actually occur given the conservatism in the modeling.

Q. Does this conclude your testimony?

A. Yes.

Dated this 5th day of December, 2024

Michael Hankard