

**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

1 **I. INTRODUCTION**

2 **Q. Please state your name.**

3 A. My name is Michael Hankard.

4  
5 **Q. Have you previously provided testimony in this docket?**

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

10

11 **II. PURPOSE OF TESTIMONY**

12 **Q. What is the purpose of your Rebuttal Testimony?**

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

16

17 **Q. What exhibits are attached to your Rebuttal Testimony?**

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

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

22

23 **III. UPDATED CUMULATIVE SOUND ANALYSIS**

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

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

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

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

<b>Table 1: South Deuel Wind + Tatanka Ridge Predicted Noise Level (L<sub>eq</sub> dBA) (Application Appendix M)</b>				
<b>Non-Participant Receptor</b>	<b>SG 4.4-164 low noise</b>	<b>V163-4.5 STE</b>	<b>GE 3.8-154 LNTE</b>	<b>Dominant Facility</b>
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

35

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

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

<sup>1</sup> The R-322 agreement is pending receipt through the U.S. Postal Service.

46

<b>Table 2: South Deuel Wind + Tatanka Ridge Predicted Noise Level (L<sub>eq</sub> dBA) (Updated as of December 4, 2024)</b>				
<b>Non-Participant Receptor</b>	<b>SG 4.4-164 low noise</b>	<b>V163-4.5 STE</b>	<b>GE 3.8-154 LNTE</b>	<b>Dominant Facility</b>
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

47

48 **IV. RESPONSE TO MR. HESSLER**

49

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

52 **A.** Yes.

53

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

55 **A.** I appreciate Mr. Hessler's recognition that the modeling and methodology I used  
 56 are consistent with good industry practice and that the modeling results are  
 57 conservative. They are conservative because a highly reflective ground absorption  
 58 coefficient of 0, per ISO standard 9613-2 is assumed. This means that the  
 59 modeling does not assume any ground absorption of sound. This results, as Mr.  
 60 Hessler notes on page 3 of his testimony, and I agree, in predictions that are about  
 61 1 or 2 dBA higher than expected actual operational noise levels.

62

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

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

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

75

76 **Q. Mr. Hessler refers to 45 dBA “regulatory limit” for cumulative noise for non-**  
77 **participants. What is your response?**

78 A. Mr. Hessler does not identify the source of the “regulatory limit.” There is no state  
79 statute or county zoning limit for cumulative sound. Deuel County regulates  
80 source-only sound, not cumulative sound.<sup>2</sup> However, I understand that Mr. Hessler  
81 is recommending that the same 45 dBA limit that Deuel County established for  
82 source only sound be applied to cumulative sound levels.

83

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

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

90

91 **Q. Please summarize the cumulative noise levels associated with the GE 3.8-**  
92 **154 turbine model for the four non-participants where the levels are above**  
93 **45 dBA.**

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

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<sup>2</sup> 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); see 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...”).

96

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

101 A. These two turbines are not contributing to distinguishable noise levels above 45  
102 dBA at any of the three receptors. The levels above 45 dBA are quite small (below  
103 0.5 dBA) and will not make any perceivable difference in sound at the receptors.  
104 Moreover, Mr. Hessler’s recommendation is based on the receptors being non-  
105 participants. Now that receptors R-212, R-306, and R-322, are participants, I  
106 understand that Mr. Hessler’s recommendation would not apply.

107

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

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

118

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

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

125 with Mr. Hessler that such levels above 45 dBA are “intangible, negligible and  
126 probably unlikely to actually occur given the conservatism in the modeling.”  
127

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

131 A. Yes. I appreciate Mr. Hessler’s concurrence.  
132

133 **V. CONCLUSION**

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

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

145 **Q. Does this conclude your testimony?**

146 A. Yes.  
147  
148

149 Dated this 5<sup>th</sup> day of December, 2024

150   
151

152 \_\_\_\_\_  
Michael Hankard