

**BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION**

**DOCKET EL18-053**

**IN THE MATTER OF THE APPLICATION OF DEUEL HARVEST WIND ENERGY  
LLC FOR A PERMIT OF A WIND ENERGY FACILITY AND A 345 KV  
TRANSMISSION LINE IN DEUEL COUNTY**

**DIRECT TESTIMONY OF JON THURBER  
ON BEHALF OF THE COMMISSION STAFF  
MARCH 14, 2019**

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## **EXHIBITS**

- Exhibit\_JT-1 Deuel Harvest's Responses to Commission Staff Discovery
- Exhibit\_JT-2 Intervenors' Responses to Commission Staff Discovery Set 1
- Exhibit\_JT-3 South Dakota Department of Health Letter
- Exhibit\_JT-4 Decommissioning Conditions
- Exhibit\_JT-5 Commission Staff Discovery Set 2 to Intervenors
- Exhibit\_JT-6 Non-Participating Residence Setback Scenario Map

1 I. INTRODUCTION AND QUALIFICATIONS

2  
3 **Q. Please state your name and business address.**

4 A. Jon Thurber, Public Utilities Commission, State Capitol Building, 500 East Capitol  
5 Avenue, Pierre, South Dakota, 57501.  
6

7 **Q. By whom are you employed and in what capacity?**

8 A. I am a utility analyst for the South Dakota Public Utilities Commission (“Commission”). I  
9 am responsible for analyzing and presenting recommendations on utility dockets filed  
10 with the Commission.  
11

12 **Q. Please describe your educational and business background.**

13 A. I graduated summa cum laude from the University of Wisconsin – Stevens Point in  
14 December of 2006, with a Bachelors of Science Degree in Managerial Accounting,  
15 Computer Information Systems, Business Administration, and Mathematics. My  
16 regulated utility work experience began in 2008 as a utility analyst for the Commission.  
17 At the Commission, my responsibilities included analyzing and testifying on ratemaking  
18 matters arising in rate proceedings involving electric and natural gas utilities. In 2013, I  
19 joined Black Hills Corporation as Manager of Rates. During my time at Black Hills  
20 Corporation, I held various regulatory management roles and was responsible for the  
21 oversight of electric and natural gas filings in Wyoming, Montana, and South Dakota. In  
22 July of 2016, I returned to the Commission as a utility analyst. In addition to cost of  
23 service dockets, I work on transmission siting, energy conversion facility siting, wind  
24 energy facility siting, and Southwest Power Pool transmission cost allocation issues.  
25

26 In my ten years of regulatory experience, I have either reviewed or prepared over 175  
27 regulatory filings. These filings include five wind energy facility and three transmission  
28 facility siting dockets. I have provided written and oral testimony on the following topics:  
29 the appropriate test year, rate base, revenues, expenses, taxes, cost allocation, rate  
30 design, power cost adjustments, capital investment trackers, PURPA standards, avoided  
31 costs, electric generation resource decisions, and wind energy facility siting dockets.  
32

1 **Q. Are you familiar with Deuel Harvest Wind Energy LLC’s (“Deuel Harvest” or**  
2 **“Company” or “Applicant”) application for a permit of a wind energy facility and a**  
3 **345 kV transmission line, Docket EL18-053?**

4 A. Yes. I have reviewed the Company’s prefiled testimony, appendixes, figures, and  
5 responses to data requests produced by all parties as it pertains to the issues that I am  
6 addressing.

7

8 **II. PURPOSE OF TESTIMONY**

9

10 **Q. What is the purpose of your direct testimony?**

11 A. The purpose of my direct testimony is to discuss the review performed by Commission  
12 Staff of the Application, identify any issues or concerns with the representations made in  
13 the Application or by the Applicant, and provide Commission Staff’s recommendation on  
14 whether the permit should be granted.

15

16 **III. REVIEW OF THE APPLICATION**

17

18 **Q. Please explain the review process performed by Commission Staff in Docket**  
19 **EL18-053.**

20 A. After receiving the Application, Staff completed a review of the contents as it relates to  
21 the Energy Facility Siting statutes, SDCL 49-41B, and Energy Facility Siting Rules,  
22 ARSD 20:10:22. Staff then identified information required by statute or rule that was  
23 either missing from the Application or unclear within the Application and requested Deuel  
24 Harvest to provide or clarify that information. Once interested individuals were granted  
25 party status, Commission Staff also issued discovery to the intervenors in order to  
26 understand what concerns they had with the project. Please see Exhibit\_JT-1 for Deuel  
27 Harvest’s responses to Commission Staff discovery, and Exhibit\_JT-2 for Intervenors’  
28 responses to Commission Staff discovery.

29

30 In addition, Commission Staff subpoenaed experts from State Agencies to assist  
31 Commission Staff with our review. Tom Kirschenmann, Deputy Director of the Wildlife  
32 Division and Chief of the Terrestrial Resources Section at the Game, Fish, and Parks,  
33 reviewed the potential impacts to wildlife and associated habitats. Paige Olson, Review  
34 and Compliance Coordinator at the State Historic Preservation Office (SHPO), reviewed

1 the project to ensure historic properties are taken into consideration. Further,  
2 Commission Staff hired David Hessler, Vice President at Hessler Associates, Inc., to  
3 review the information on the noise emitted from the project.  
4

5 Finally, Commission Staff assisted intervenors and affected landowners by providing  
6 responses to numerous questions on the wind energy facility, the siting process  
7 established by South Dakota law, and the opportunities available for these individuals to  
8 be heard by the Commission. If the landowners had specific concerns with the wind  
9 energy facility, Commission Staff often recommended that those individuals file  
10 comments in the docket for the Commission's review. Where appropriate, Staff also  
11 included some of the landowners' questions or concerns in Commission Staff's data  
12 requests sent to Deuel Harvest to have them address the issue.  
13

14 **Q. What is the purpose of Commission Staff's expert witnesses in this proceeding?**

15 A. Commission Staff sought experts within their respective fields to assess the merits and  
16 deficiencies of the Application. Commission Staff requested that the experts address  
17 whether the information submitted by Deuel Harvest aligns with industry best practices,  
18 and if they agreed with the conclusions Deuel Harvest made regarding the potential  
19 impacts from the project.  
20

21 **Q. Did Commission Staff request assistance from the South Dakota Department of  
22 Health in review of the Application?**

23 A. Yes. SDCL 49-41B-22(3) requires the Applicant establish that the Deuel Harvest North  
24 Wind Farm will not substantially impair the health of the inhabitants. At the Public Input  
25 Hearing and through written comments to the Commission, inhabitants have raised  
26 concerns regarding health impacts from wind facilities. Commission Staff believes the  
27 Department of Health is the appropriate State agency to assess the potential health  
28 impacts from the facility.  
29

30 **Q. Has the Department of Health commented on health impacts associated with wind  
31 facilities in other dockets?**

32 A. Yes. For the Crocker Wind Farm (Docket EL17-028), the Department of Health provided  
33 Commission Staff with a letter stating that the Department of Health has not taken a  
34 formal position on the issue of wind turbines and human health. Further, they

1 referenced the Massachusetts Department of Public Health and Minnesota Department  
2 of Health studies and identified those studies generally conclude that there is insufficient  
3 evidence to establish significant risk to human health. I included the Department of  
4 Health's letter as Exhibit\_JT-3.

5  
6 **Q. What is the Department of Health's position on the health impacts associated with  
7 the Deuel Harvest North Wind Farm?**

8 A. On March 1, 2019, the Department of Health stated that it maintains the same position  
9 for the Deuel Harvest North Wind Farm as previously provided for the Crocker Wind  
10 Farm. Since the letter was provided for the Crocker Wind Farm, the Department of  
11 Health has not become aware of any additional studies that would cause the Department  
12 to re-evaluate their position.

13  
14 **Q. Was Deuel Harvest's Application considered complete at the time of filing?**

15 A. At the time of the filing, the application was generally complete. However, as identified  
16 above, Commission Staff requested further information, or clarification, from Deuel  
17 Harvest which Commission Staff believed was necessary in order to satisfy the  
18 requirements of SDCL 49-41B and ARSD 20:10:22. Deuel Harvest's responses to  
19 Commission Staff's information requests received to date are attached as Exhibit\_JT-1.  
20 Finally, I would also note that an applicant supplementing its original application with  
21 additional information as requested by Commission Staff is not unusual for siting  
22 dockets.

23  
24 **Q. Based on your review of the Application, responses to Commission Staff's data  
25 requests and Deuel Harvest's testimony, do you find the Application to be  
26 complete?**

27 A. Yes. Staff found that Deuel Harvest provided information that addressed the information  
28 required by ARSD Chapter 20:10:22 and SDCL 49-41B. However, at the time of writing  
29 this testimony, it is my opinion that Deuel Harvest should provide additional information  
30 to more-thoroughly address certain rules, explain the project's potential impacts, and  
31 clarify any discrepancies between turbine layout maps and the Application. This opinion  
32 is based on Commission Staff's interpretation of the Commission's rules and the  
33 testimony submitted by Commission Staff.

1 **Q. What issues and concerns does Commission Staff have with the Deuel Harvest**  
2 **North Wind Farm?**

3 A. I will address the following issues on behalf of Commission Staff:

4

- 5 • County Permitting
- 6 • Decommissioning
- 7 • Aircraft Detection Lighting System
- 8 • Indemnity Bond for Road Damage
- 9 • Turbine Layout Changes
- 10 • Intervenor Concerns
  - 11 ○ Private Airstrip Setback – Homan Field
  - 12 ○ Ice Throw
  - 13 ○ Minimization and Avoidance Setback Inaccuracies
  - 14 ○ Setback from Non-participating Residences

15

16 Each Commission Staff expert witness identified issues or conditions that need to be  
17 addressed by the Applicant in their respective areas of noise, cultural resources, and  
18 wildlife and associated habitats.

19

20 **IV. COUNTY PERMITTING**

21

22 **Q. Did the Company receive a Special Exception Permit for the Deuel Harvest Wind**  
23 **Farm from the Deuel County Board of Adjustment?**

24 A. A Special Exception Permit was issued on March 2, 2018. However, the Deuel County  
25 Board of Adjustment's decision to issue the Special Exception Permit was appealed to  
26 South Dakota Circuit Court.

27

28 **Q. Has Circuit Court issued a decision in the appeal, Case No. 19CIV18-19?**

29 A. Yes. The Petitioners' argued that the Board violated the Petitioners' due process rights  
30 when it allowed board members with a bias or conflict of interest to vote on the Project.  
31 On January 25, the Circuit Court found that Board members Dahl and DeBoer each had  
32 a unacceptable risk of bias in voting on the Project after receiving funds from Deuel  
33 Harvest for the Project. The Court listed the following facts regarding Board Members  
34 Kevin DeBoer and Mike Dahl in its Memorandum Decision:

1  
2           *“Board Members DeBoer and Dahl each had wind lease agreements with Deuel*  
3 *Harvest for the Projects that were being considered by the Board. Dahl’s*  
4 *agreement with Deuel Harvest was terminated by Deuel Harvest in 2016 due to*  
5 *low landowner interest in this area. Dahl was paid \$3,095 by Deuel Harvest for*  
6 *this easement prior to its termination. Board Member DeBoer also had*  
7 *agreements with Deuel Harvest for this Project which were signed in 2016 before*  
8 *he was a member of the Board of Adjustment. In 2017 DeBoer asked to be*  
9 *released from the agreements with Deuel Harvest so that he may continue to*  
10 *serve on the Board and participate in the proceedings. He received payments*  
11 *from Deuel Harvest in the amount of \$3,060 in 2016 and another \$3,060 in 2017*  
12 *prior to the termination of these agreements. There is no evidence that either*  
13 *Board Member ever returned the funds to Deuel Harvest or even attempted to*  
14 *return those funds.*

15  
16           *The Court finds that Board member DeBoer and Dahl, by virtue of the payments*  
17 *received from Deuel Harvest for this Project, held an unacceptable risk of actual*  
18 *bias and should have been disqualified from voting on these Projects.”*

19  
20           The Court invalidated the votes of Board Members DeBoer and Dahl, which resulted in a  
21 decision by the Board by a margin of three to zero.

22  
23           On February 22, 2019, the Court issued an Addendum to Memorandum Decision.  
24 SDCL 11-2-59 and the Deuel County Zoning Ordinance Section 504(4) requires  
25 conditional use permits to be approved by a two-thirds majority. Since Board Members  
26 Dahl and DeBoer each were disqualified from voting on this project, the Project did not  
27 pass the two-thirds majority required. The decision of the Board on the Project is  
28 reversed and remanded for a rehearing on the application.

29  
30 **Q. Does Deuel Harvest currently have a valid county permit?**

31 **A. No.**



1 **Q. Can a wind energy facility receive a state permit without having a county permit?**

2 A. Commission Staff would prefer that a county permit is obtained before the Commission  
3 makes a determination on a state permit. However, there is no requirement to obtain a  
4 county permit prior to obtaining a state permit. The Deuel Harvest North Wind Farm will  
5 need to comply with all applicable laws and rules (SDCL 49-41B-22(1)), including  
6 obtaining and complying with a valid Deuel County Special Exception Permit. To ensure  
7 compliance, Commission Staff recommends the Commission include the following  
8 condition if a permit is granted:

9

- 10 1. Applicant will obtain all governmental permits which reasonably may be  
11 required by any township, county, state or federal agency, or any other  
12 governmental unit for construction and operation activity of the Project prior to  
13 engaging in the particular activity covered by that permit. Copies of any  
14 permits obtained by Applicant shall be filed with the Commission.  
15

16 The risk Deuel Harvest assumes when it requests a state permit without first obtaining  
17 the Deuel County permit is, if Deuel Harvest can obtain the county permit, Deuel County  
18 may include a condition that materially changes how the Applicant constructs, operates,  
19 and maintains the Deuel Harvest North Wind Farm from what is presented in the state  
20 proceeding. Any requests for material modifications to the state permit would need  
21 approval from the Commission, and the filing could be in the form of a permit  
22 amendment or require a new permit application. Commission Staff recommends the  
23 following conditions, if a permit is granted, to ensure the Applicant constructs, operates,  
24 and maintains the Deuel Harvest North Wind Farm consistent with the representations  
25 made in this proceeding:

26

- 27 2. Applicant shall construct, operate, and maintain the Project in a manner  
28 consistent with (1) descriptions in the Application, (2) Application  
29 supplements, (3) responses to any data requests, (4) the Final Decision and  
30 Order Granting Permit to Construct Wind Energy Facility, Attachment A-  
31 Permit Conditions, (5) any applicable industry standards, (6) any permits  
32 issued by a federal, state, or local agency, and (7) evidence presented by  
33 Applicant at the evidentiary hearing.  
34

- 35 3. Except as otherwise provided in the Permit Conditions, Applicant shall  
36 comply with all mitigation measures set forth in the Application, Applicant's  
37 responses to data requests, and Applicant exhibits and testimony at the  
38 evidentiary hearing. Material modifications to the mitigation measures shall  
39 be subject to prior approval of the Commission.  
40

1 **Q. Does Commission Staff know the timeline for rehearing the Deuel County Special**  
2 **Exception Permit?**

3 A. No, I do not. Commission Staff recommends the Applicant provide the status of county  
4 permitting in rebuttal testimony.

5

6

V. **DECOMMISSIONING**

7

8 **Q. Did Deuel Harvest provide a decommissioning plan and cost estimate for the**  
9 **Deuel Harvest North Wind Farm?**

10 A. Yes. Mr. Michael Svedeman provided a summary of decommissioning on Pages 21 –  
11 22 of his pre-filed testimony, and the decommissioning plan and cost estimate was  
12 included in Appendix U of the Application.

13

14 **Q. Did Commission Staff have any concerns regarding the decommissioning cost**  
15 **estimate?**

16 A. Mr. Svedeman stated the net decommissioning cost is estimated to be \$3,256,300 (in  
17 2018 U.S. Dollars) assuming salvage and no resale of Project components. This  
18 estimate was based on the Project consisting of up to 112 turbines. The  
19 decommissioning cost per wind turbine with salvage and no resale is estimated to be  
20 \$29,074. Based on recently filed decommissioning cost estimates for other wind energy  
21 facilities before the Commission, the cost estimate per turbine was lower than  
22 anticipated. In December 2017, Mr. Copulus stated a conservative decommissioning  
23 cost estimate in current dollars is between \$100,000 to \$150,000 per turbine after  
24 salvage, including associated facilities for the Crocker Wind Farm. In October 2018, the  
25 Dakota Range III wind farm estimated the net decommissioning cost per wind turbine of  
26 \$101,420 (in 2018 U.S. Dollars), assuming salvage value and no resale of components.

27

28 **Q. Did Deuel Harvest work with Commission Staff to address your concerns**  
29 **regarding the appropriate amount of financial assurance for decommissioning?**

30 A. Yes, Commission Staff and Deuel Harvest agreed to the decommissioning conditions  
31 shown on Exhibit\_JT-4. Deuel Harvest proposed using similar decommissioning  
32 conditions as what the Commission approved for Dakota Range I, II, and III. The  
33 funding rate of \$5,000 per turbine per year for the first 30 years in consistent with past  
34 Commission decisions.

1 **Q. Are there any specific modifications to the decommissioning conditions in**  
2 **Exhibit\_JP-4 you would like to highlight?**

3 A. Yes, only one. In subpart b) that describes the escrow agreement, the parties  
4 specifically identified the possibility that the Commission may determine that funds in the  
5 escrow are sufficient to cover the costs of decommissioning and no additional funding is  
6 required when Deuel Harvest files its next decommissioning cost estimate with the  
7 Commission. Commission Staff believes the language used in past conditions already  
8 provided for that possibility and we did not object to specifically identifying that option.

9

10 **VI. AIRCRAFT DETECTION LIGHTING SYSTEM (ADLS)**

11

12 **Q. Has Deuel Harvest committed to employ an ADLS?**

13 A. Yes. On Page 3-2 of the Application, Deuel Harvest stated “wind turbines will be  
14 illuminated as required by Federal Aviation Administration (FAA) regulations and will  
15 also employ an Aircraft Detection Lighting System (ADLS), subject to availability and  
16 FAA approval.”

17

18 **Q. Did any Intervenors request this technology be installed?**

19 A. Yes. In response to Staff Data Request 1-3, Mr. Jon Henslin requested that the  
20 Applicant provide ADLS as mitigation.

21

22 **Q. Do you have any concerns with the ADLS commitment made by Deuel Harvest?**

23 A. I would prefer that the ADLS condition exclude the “subject to availability” condition, and  
24 the Commission simply adopt the following condition:

25

26 4. Applicant shall utilize an Aircraft Detection Lighting System if approved by the  
27 Federal Aviation Administration.

28

29 If ADLS availability issues occur due to industry wide demand, the Applicant would have  
30 the ability to request the Commission modify the mitigation requirement if the  
31 Commission adopts condition (3) previously mentioned in the County Permitting section  
32 of my testimony. Under this approach, Deuel Harvest would need prior approval from  
33 the Commission to forego ADLS deployment and be required to explain any availability  
34 issues. Further, should ADLS availability be an issue at the time the project starts

1 commercial operation, the Applicant could develop a plan to install the ADLS system at a  
2 later date.

3  
4 In Docket EL18-046, Dakota Range III had similar concerns regarding ADLS availability,  
5 and the approved settlement agreement adopted the same approach recommended by  
6 Commission Staff in this proceeding.

7  
8 **VII. INDEMNITY BOND FOR ROAD DAMAGE**

9  
10 **Q. Did Deuel Harvest provide a proposal for an indemnity bond pursuant to SDCL 49-  
11 41B-38 in their Application or Testimony?**

12 A. No. Per statute, Deuel Harvest is required to furnish an indemnity bond for damage to  
13 roads and bridges as a result of constructing a transmission facility. This bond benefits  
14 townships, counties, or other governmental entities that are crossed by a transmission  
15 facility to ensure that damage beyond normal wear to public roads, highways, bridges, or  
16 other related facilities are adequately compensated.

17  
18 **Q. Does 49-41B-38 provide a method to calculate an amount of the indemnity bond?**

19 A. No. The statute states the bond should be furnished in "a reasonable amount."  
20

21 **Q. Did Deuel Harvest propose an amount for an indemnity bond at Commission  
22 Staff's request?**

23 A. Yes. The Applicant proposed furnishing an indemnity bond in the amount of \$100,000 to  
24 comply with the requirements of SDCL 49-41B-38.

25  
26 **Q. Does Commission Staff agree with this proposal for the indemnity bond?**

27 A. Yes, Commission Staff believes this a reasonable amount for an indemnity bond based  
28 on the specifics of the proposed transmission facility. Since the proposed transmission  
29 facility is approximately 150 feet, crosses one section line, and only requires two dead  
30 end structures, the amount of road travel and hauling required to complete construction  
31 or survey work is limited.

1 **VIII. TURBINE LAYOUT CHANGES**

2  
3 **Q. Has Deuel Harvest notified the Commission of any potential changes to the**  
4 **turbine layout proposed in the Application?**

5 A. Yes. In the supplemental testimony of Mr. Michael Svedeman, two building permits  
6 were issued for houses after the Project obtained its Special Exception Permit from  
7 Deuel Count. These homes would be located within Deuel County's required 1,500-foot  
8 setback for participating residences from the nearest turbine. Deuel Harvest is currently  
9 assessing whether any turbines need to be relocated or removed from the project.

10  
11 Due to the concerns raised at the public input hearing regarding a potential eagle nest  
12 near Lake Alice, Deuel Harvest surveyed the area for a potential nest. According to the  
13 supplemental testimony of Ms. Andrea Giampoli, the biologists for Deuel Harvest  
14 confirmed the nest was an eagle nest. Deuel Harvest will voluntarily apply a 2,625 feet  
15 setback from the nest, and this will cause Deuel Harvest to relocate the two turbines that  
16 had been sited within 800 meters of the nest. Ms. Giampoli stated Deuel Harvest will  
17 seek any required approvals for turbine relocations from the Commission.

18  
19 **Q. Has Deuel Harvest updated the Commission on turbine relocations or removals**  
20 **associated with the new building permits or eagle nest setback?**

21 A. No. The information regarding possible turbine relocations and removals was provided  
22 to the Commission on February 14 in Deuel Harvest's supplemental testimony, and the  
23 Company has not requested any layout changes as of the submission of this testimony.

24  
25 **Q. Please explain your concerns regarding the turbine relocations or removals.**

26 A. Commission Staff prefers that the information presented in the Application be as  
27 complete as possible. Although the Application is considered a continuing application  
28 up to and including the date on which the permit is issued or denied pursuant to ARSD  
29 20:10:22:04(5), adequate time must be provided to review the Application and raise  
30 concerns. Commission Staff requests that Deuel Harvest provide an update on the  
31 layout changes in their rebuttal testimony, if not sooner.

1 **IX. INTERVENOR CONCERNS**

2  
3 **Q. Did you receive responses to discovery from all individuals granted party status?**

4 A. I received responses from five of the six individuals when I drafted this testimony. Mr.  
5 Will Stone did not respond to Commission Staff’s discovery request, but he did provide  
6 Commission Staff with a copy of his responses to the Applicant’s first set of discovery.  
7

8 **Q. Please summarize some of the Intervenor concerns raised.**

9 A. The following is a summary of concerns identified or mitigation measures requested by  
10 the Intervenors through their responses to discovery requests. The list does not include  
11 every concern or mitigation measure identified in response to discovery, and the  
12 Intervenors have stated that they may raise additional concerns through their testimony  
13 or at the hearing.  
14

- 15 • Setback from residences, property lines, and public right-of-ways;
- 16 • Setback from a private airstip, Homan Field;
- 17 • Risks associated with ice throw;
- 18 • Setback from eagle nests;
- 19 • Future development of non-participant land;
- 20 • Implementation of property value guarantees;
- 21 • Deployment of ADLS;
- 22 • Impact on wildlife and wildlife habitat;
- 23 • Risks associated with fire from wind turbines;
- 24 • Health impacts associated with wind turbines;
- 25 • Geological, hydrological, and aquifer studies to assess the impact to the  
26 environment;
- 27 • Impacts anticipated to the northern redbelly dace;
- 28 • Impacts anticipated to the northern long-eared bat;
- 29 • Shadow flicker;
- 30 • Noise;
- 31 • Economic impact to a pheasant preserve business;
- 32 • Gross income guarantee for a negatively impacted business;
- 33 • Impact to visual landscape;

- Loss of enjoyment of property; and
- Invenenergy's business practices.

Some of the concerns and mitigation measures proposed were not fully explained or supported. Commission Staff served a second set of data requests on each Intervenor to increase our understanding of their concerns. Please see Exhibit\_JT-5 for the additional discovery requests sent to the Intervenors. Commission Staff did not receive responses to these requests prior to drafting testimony.

**Q. Did any of the Intervenors or commenters at the public input meetings request that the Commission relocate turbines?**

A. Yes. SDCL 49-41B-36 specifically states that the Commission is not delegated the authority to designate or mandate the location of a wind energy facility. The Applicant proposes the location, and the Commission either approves or denies the location proposed based on evidence in the record. The Commission does not have the authority relocate any turbines to a specific location.

**Q. Did Commission Staff consider calling other state agencies as witnesses based on the concerns of the Intervenors?**

A. Commission Staff considered calling the South Dakota Department of Environment and Natural Resources (DENR) to review the geological and hydrological impacts, including impacts to aquifers. Commission Staff asked additional discovery of the Intervenors to get a better understanding of the studies requested, specific concerns, and potential impacts to evaluate. Depending on the content and timing of the Intervenor responses to Commission Staff's discovery requests, Commission Staff may contact the DENR to evaluate the concerns of the Intervenors.

**Q. Did Commission Staff consider hiring a witness to review the potential value impacts to property near wind turbines?**

A. Commission Staff considered hiring David Lawrence, real property appraiser with DAL Appraisal and Land Services, to review the information on potential impacts a wind energy facility or wind turbine can have on real property values in South Dakota. According to past testimony submitted by Mr. Lawrence on behalf of Commission Staff, "any conclusions presented about the potential impacts of wind projects in South Dakota

1 need to be supported by credible market evidence from South Dakota.” Commission  
2 Staff believes no new market evidence from South Dakota has been provided to review,  
3 and as a result, the opinions and recommendations from Mr. Lawrence will likely not  
4 have changed from Dockets EL17-055, EL18-003, and EL18-026.

5  
6 Commission Staff sent discovery to the Intervenor to request market sales near a wind  
7 turbine to support their assumption. Depending on the content and timing of the  
8 Intervenor responses, Commission Staff may contact Mr. Lawrence regarding his  
9 availability to review any new evidence submitted.

10 .  
11 **Q. Intervenor also requested a property value guarantee as a mitigation measure to**  
12 **address a potential decrease in property value. Has Mr. Lawrence provided the**  
13 **Commission his position on a property value guarantee in past dockets?**

14 A. Yes. In Docket EL18-026, Mr. Lawrence provided the following written testimony  
15 regarding a property value guarantee:

16  
17 **“Q: In response to Staff Data Request 1-4, Ms. Karen Jenkins requested a**  
18 **permit condition of a “guarantee of property value to be funded and**  
19 **developed by the Applicant, subject to approval of the property owner to**  
20 **protect residents in the footprint and buffer zone from financial loss should**  
21 **the residence become unlivable and/or unmarketable.” Do you have any**  
22 **comments on this condition request?**

23  
24 A: While I understand the goal of a property value guarantee, I have concerns  
25 about how to properly manage the valuation process for consistent results before  
26 the project and after the installation of the wind project. Many variables can  
27 influence the criteria to establish value or to reestablish value at a later date. For  
28 example, who is qualified to provide a value opinion? What will be the scope of  
29 work for establishing the market value before, and the market value after the  
30 installation of the wind project? How will changes in a property’s condition such  
31 as a well-maintained property versus a poorly maintained property be measured  
32 for value differences in contrast to the operational date of the wind project? I  
33 would be more supportive of the idea of a property value guarantee if there were  
34 a way to consistently define and measure the valuation process for a property’s  
35 market value in proximity to a wind project.”

36  
37 Mr. Lawrence also provided similar oral testimony during questioning regarding a  
38 property value guarantee associated with the Crocker Wind Farm, Docket EL17-055.

39  
40 Commission Staff sent discovery to the Intervenor to determine if there are any  
41 examples of how a property value guarantee has been implemented for any other wind



1 energy facility in other states. Depending on the content and timing of the Intervenor  
2 responses, Commission Staff may contact Mr. Lawrence regarding his availability to  
3 review any proposals for a property value guarantee.  
4

5 **Q. What specific concerns raised by the intervenors will you address further?**

6 A. I will address the Intervenor concerns regarding the setback from a private airstrip  
7 (Homan Field), risks associated with ice throw, minimization and avoidance setback  
8 inaccuracies, and the setback from non-participating residences.  
9

10 ***i. Setback from Private Airstrip - Homan Field***

11  
12 **Q. Please summarize the concern regarding Homan Field, a private airstrip on John  
13 Homan's property.**

14 A. According to the response of Garrett Homan to Commission Staff data request 1-2, he  
15 stated, "The project as proposed does not comply with 49-41B-22 (3) since proposed  
16 turbines to the northwest, west, and southwest of our family's airstrip (western half of  
17 section 32 in Glenwood township) pose a substantial threat of serious injury or death to  
18 users of the Airstrip."  
19

20 **Q. Did Garrett Homan provide a mitigation condition to address his safety concern  
21 for Homan Field?**

22 A. Yes. In response Commission Staff data request 1-3, Garrett Homan provided the  
23 following mitigation measure with supporting explanation:  
24

25 "I request the Commission order terms of the project to include:

- 26  
27 a) no turbine sites under a one-sided (biased to the East) traffic pattern airspace  
28 sized for category B aircraft, and  
29  
30 b) no turbine sites within 10 rotor diameters (4,170 ft or .8 statute miles) of the  
31 runway and imaginary approach surfaces for the runway.  
32

33 Regarding a), the dimensions of the traffic pattern airspace for our airstrip,  
34 defined per standards provided in FAA order JO 7400.2L, are 1.5 nautical miles  
35 (1.73 statute miles) from the north end, south end, and east side of the runway  
36 and .25 nautical miles (.29 statute miles) from the west side of the runway.  
37

38 Regarding b), the imaginary approach surfaces for our runway, defined per the

1 standards provided in 14 CFR 77.19 for utility runways with visual approaches,  
2 extend 5,000 ft from each end of the runway and expand to a width of 1,250 ft  
3 centered about the extended centerline. The 10x rotor diameter distance is  
4 applied from the outer boundaries of this shape comprised of an approach  
5 surface to the south, the runway, and an approach surface to the north .....  
6 This could be simplified into a rectangular shape extending 1 mile west, 1.75  
7 miles north, 1.75 miles east, and 1.75 miles south of the extents of the airstrip  
8 runway surface.”  
9

10 Commission Staff will refer to this setback request using the simpler terms of a 1 mile  
11 setback to the west of the airstrip, and 1.75 miles to the north, east, and south of the  
12 airstrip.  
13

14 **Q. Homan Field is located on the land owned by John Homan, father of Garrett**  
15 **Homan. Does John Homan share Garrett Homan’s safety concern for the private**  
16 **airstrip?**

17 A. Yes, John Homan has concerns regarding the safe usage of Homan Field. However,  
18 John Homan recommended a different mitigation condition than Garrett Homan. In  
19 response to Commission Staff data request 1-3, John Homan recommended the  
20 following condition to mitigate his safety concern: “A one mile set back to the west of  
21 Homan Field runway, and a two mile set back to the north, south, and east to  
22 accommodate the flight path for safe operations.” Garrett included more explanation  
23 and support for this recommendation, so Commission Staff will focus our review and  
24 analysis on Garrett’s proposed condition. The Homan’s can clarify their condition  
25 request at the hearing, if needed.  
26

27 **Q. How many turbine locations would need to be removed from the layout if the**  
28 **Commission adopted Garrett Homan’s recommended setback from Homan Field?**

29 A. According to Garrett Homan’s response to Commission Staff data request 1-3, six  
30 turbine locations (106, 107, 108, 117, 123, and 124) would need to be removed to  
31 provide a safe setback from Homan Field.  
32

33 **Q. How did Garrett Homan determine what was an appropriate setback for Homan**  
34 **Field?**

35 A. According to Garrett Homan’s response to Commission Staff data request 1-3, it  
36 appears as though his setback calculations were based off an FAA order (JO 7400.2L)  
37 and Codified Federal Regulations (14 CFR 79).

1 **Q. Based on your understanding, are those sources applicable to a private use**  
2 **airport?**

3 A. No. Based on consultation with the South Dakota Department of Transportation  
4 Aeronautics Office (“DOT Aeronautics Office”), it is my understanding the referenced  
5 order and regulations are applicable to public-use airports, not private-use airports. In  
6 addition, the DOT Aeronautics Office does not regulate setbacks of private airstrips.

7

8 **Q. Please provide some background information regarding the potential use of**  
9 **Homan Field.**

10 A. Garrett Homan is the only immediate Homan family member identified as a pilot through  
11 discovery. According to Garrett Homan’s response to Applicant data request 1-15, he  
12 believes he has flown to South Dakota one or two times in the last five years, and he has  
13 never landed at the Clear Lake Airport. In response to Applicant data request 1-16,  
14 Garrett Homan stated he does not currently own a plane, but he can rent a plane and it  
15 has been a life goal of his to own a plane.

16

17 **Q. Has the Commission previously addressed the issue of a private airstrip in**  
18 **proximity to a wind energy facility?**

19 A. No. In Docket EL17-055, Geronimo Energy voluntarily agreed to remove two turbines of  
20 the Crocker Wind Farm near Sheldon Stevens private airstrip. The issue of private  
21 airstrip setbacks has not been litigated before the Commission.

22

23 **Q. During your research of this issue, did you find any state that has provided a**  
24 **setback for private airstrips?**

25 A. In 2015, Oklahoma provided a 1.5-mile setback from private airstrips as part of wind  
26 siting legislation. After the law went into effect, Oklahoma saw a significant increase in  
27 the number of private air strips registered with the state. A number of the private airstrip  
28 applicants were not registered pilots, did not own planes, and admitted that they were  
29 registering private airports to increase the setback from wind turbines around their  
30 property. What was a good intentioned law to protect the safety of pilots legitimately  
31 using private airports was being manipulated. In 2017, Oklahoma passed legislation to  
32 eliminate the setback for private airports, while maintaining the setback for public  
33 airports.

34

1 **Q. Do you have an opinion on Garrett Homan’s recommended setback condition for**  
2 **Homan Field?**

3 A. I have issued discovery requests to Garrett Homan, John Homan, and Deuel Harvest  
4 regarding the requested condition, and I would like to review the responses before  
5 providing an opinion on the Intervenor’s requested setback.  
6

7 **ii. Risks Associated with Ice Throw**

8  
9 **Q. What is Deuel Harvest proposing for a setback to mitigate the potential hazard**  
10 **associated with ice throw?**

11 A. According to the supplemental testimony of Jacob Baker, “The Project will be set back at  
12 least 550 feet (1.1 times the tip height of the tallest proposed turbine) from non-  
13 participating property lines, and roads. This distance is consistent with state standards  
14 and the manufacturer’s recommendations.”  
15

16 **Q. Do you agree that the setback proposed by Deuel Harvest is consistent with state**  
17 **law?**

18 A. I agree that the setback proposed by Deuel Harvest is consistent with the minimum  
19 standard established by state law. SDCL 43-13-24 states:  
20

21 *Large wind energy system set back requirement--Exception. Each wind turbine*  
22 *tower of a large wind energy system shall be set back at least five hundred feet*  
23 *or 1.1 times the height of the tower, whichever distance is greater, from any*  
24 *surrounding property line. However, if the owner of the wind turbine tower has a*  
25 *written agreement with an adjacent land owner allowing the placement of the*  
26 *tower closer to the property line, the tower may be placed closer to the property*  
27 *line shared with that adjacent land owner.*  
28

29 **Q. Did Deuel Harvest provide documentation from the proposed turbine**  
30 **manufacturer to support its proposed setback?**

31 A. Yes. According Appendix V, Page 8, General Electric recommended the following  
32 setback to mitigate the risk of ice throw:  
33

1 "All turbine sites (blade failure/ice throw): 1.1 x tip height, with a minimum setback  
2 distance of 170 meters"

3  
4 **Q. Did the intervenors indicate concerns regarding the risk of ice throw?**

5 A. Yes. John Homan, Garret Homan, and Will Stone either indicated a concern or made an  
6 alternative setback proposal to mitigate the risk of ice throw. In response to Commission  
7 Staff data request 1-3, John Homan requested the following setback:

8  
9 "A 1500 foot set back from all public roads and right-of-ways for safety concerns –  
10 i.e. ice throw."

11  
12 In response to Commission Staff data request 1-3, Garrett Homan requested the  
13 following setback:

14  
15 "In regards to protecting neighbors and the general public from risk of ice throw, I  
16 request the Commission order terms of the project to include minimum setbacks from  
17 non-participating property lines or public right of ways of at least 1100 ft to satisfy the  
18 recommendations to reduce risk from ice throw provided in "GE Power and Water,  
19 Technical Documentation, Wind Turbine Generator System 1&2MW Platform, Safety  
20 Manual."

21  
22 In response to Applicant data requests 1-6, 1-7, 1-8, and 1-15, it appears Will Stone has  
23 concerns about ice throw, but a specific recommendation is not clear other than request  
24 for the elimination and relocation of turbines:

25  
26 "We have hunters on our property any time from September 1 to March 31 for the  
27 purpose of hunting pheasants. Hunters are out on the property during all weather  
28 conditions which may include times there would be ice build up on the wind tower  
29 blades that could be thrown on our property putting them in danger."

30  
31 "I am concerned of unconstitutionally imposing a safety zone on our property and on  
32 public right of ways ....."

1 “The elimination turbines 109, 110, 111. Relocating turbines 103 and 112 2000' from  
2 our business acres. Relocating turbines 51,52,64,72,A73,A74,A75,82,84,98,1122  
3 and 123 so they do not impose a safety zone in public right of ways.”  
4

5 “Turbines 103, 109, and 111 will unconstitutionally impose about a 1000' safety zone  
6 on the NW corner and North border line of our preserve acres.”  
7

8 “According to Vesta and Nordex manuals safety zone setbacks these turbines are  
9 imposing safety zones on right of ways where school buses travel, people drive, jog  
10 and ride bike.”  
11

12 **Q. Regarding John Homan’s recommended mitigation measure for ice throw, do you**  
13 **understand the basis for his recommendation?**

14 A. No, Mr. Homan did not provide documentation to support 1,500 feet as an appropriate  
15 setback to mitigate the risk of ice throw. I have sent John Homan discovery requesting  
16 further explanation and support for his recommendation.  
17

18 **Q. Regarding Garret Homan’s recommended mitigation measure for ice throw, did**  
19 **Garrett Homan submit the technical documentation he referenced to support his**  
20 **1,100 ft. setback recommendation?**

21 A. No, he did not submit the technical documentation referenced in response to Commission  
22 Staff’s discovery. It is unclear whether this documentation is applicable to the turbine  
23 models under consideration for this project. I have sent additional discovery to Garret  
24 Homan requesting further explanation.  
25

26 **Q. Regarding Will Stone’s concerns regarding ice throw and safety zone references,**  
27 **do you understand his specific ice throw mitigation recommendation and the**  
28 **basis for his safety zone concern?**

29 A. No, I do not understand what Mr. Stone is recommending for a setback to address the  
30 risk of ice throw, but it appears his safety zone concerns are from the manuals of Vesta  
31 and Nordex wind turbines. The turbines under consideration for this project are  
32 manufactured by General Electric, not Vesta or Nordex. Commission Staff believes it is  
33 more appropriate to use the technical documentation for the specific turbine models  
34 under consideration in this project if setbacks are to be based on an operation or safety

1 manual. I have sent additional discovery to Will Stone to get a more thorough  
2 understanding of his concerns and recommended mitigation measure.

3  
4 **Q. Multiple Intervenors made reference to “safety zone” concerns when discussing**  
5 **the risk associated with ice throw. Did you issue discovery to Deuel Harvest on**  
6 **this concern?**

7 A. Yes. Through discovery, Commission Staff requested the safety and operation manuals  
8 associated with the proposed turbines. Commission Staff also sent questions regarding  
9 the safety zone specific to these wind turbines, and whether a safety zone was  
10 appropriate to use as the basis for a setback to reduce the risk associated with ice  
11 throw. Commission Staff did not receive responses to discovery in advance of drafting  
12 my testimony, and requests Deuel Harvest address this issue in its rebuttal testimony.

13  
14 **Q. Did Commission Staff request assistance from the South Dakota Department of**  
15 **Transportation (DOT) in reviewing the setback to mitigate the risk of ice throw**  
16 **adjacent to state highway right-of-way in past wind energy facility dockets?**

17 A. Yes. In Docket EL18-046, the DOT reviewed the potential ice throw impacts on State  
18 Highway 12 and Interstate 29 from the Dakota Range III wind energy facility.  
19 Commission Staff requested the DOT’s opinion on the proposed setback of 1.1 times the  
20 tip height for Dakota Range III, and the DOT did not raise any concerns with the  
21 proposed setback.

22  
23 Depending on the content and timing of the responses to Commission Staff’s discovery  
24 requests, Commission Staff may contact the DOT to evaluate the ice throw concerns on  
25 public right-of-way.

26  
27 **Q. Do you have an opinion on the Applicant’s proposed setback condition to mitigate**  
28 **the risk of ice throw?**

29 A. I would like to review the responses to outstanding discovery requests and testimony  
30 before providing an opinion on the Intervenors’ proposed setback.

1 **iii. Minimization and Avoidance Setback Inaccuracies**

2  
3 **Q. Please summarize the concerns of intervenors Christina Kilby and Heath Stone**  
4 **regarding minimization and avoidance measures in the Application.**

5 A. On March 11, 2019, Ms. Kilby filed a motion to deny and dismiss the Application. In her  
6 brief to support the motion, Ms. Kilby made the following argument:

7  
8 “Deuel Harvest either intentionally misled or grossly erred in its Application and  
9 Presentation. The Application states:

- 10  
11 • All turbines will be sited away from Lake Alice; the nearest turbine will be  
12 2.41.6 km (1.0 mi) from the lake;  
13 • All turbines will be sited away from Long (Lone) Tree Lake, Lake Francis, and  
14 Rush Lake; the nearest turbine will be 0.80 km (0.50 mi) from each lake...

15  
16 (Application, Effect on Terrestrial Ecosystems, 13-27) These setbacks are also  
17 stated in Deuel Harvest North Wind Farm Bird and Bat Conservation Strategy, p  
18 37. However, Deuel Harvest’s Presentation at the Public Input Hearing and filed  
19 Jan. 28, 2019 claim setbacks of at least two-miles from Lake Alice.

20  
21 According to the project layout, the following turbines are in violation of these  
22 setbacks. Turbines 18, 19, 20 21, 30, 31, 32, 33, 34, 42, 43, and 44 are all less  
23 than two-miles from Lake Alice. Turbines 35, 36, 37, 38, 39, 40, and 41 are all  
24 less than one mile from Lake Alice. Turbines 94 and 102 are less than .5 miles  
25 from Rush Lake. And turbines 100, 101, 105, 111, 112, 113, and 114 are all less  
26 than .5 miles from Lake Francis. (Affidavit of Heath Stone, Kilby Affidavit Ex F )

27  
28 The two-mile setback from Lake Alice is also required by the Deuel County  
29 Ordinance. (Application, Appendix C) As the Application shows, the Project will  
30 not meet the required setbacks in Deuel County. In order to comply with the  
31 setbacks, numerous turbines will need to be moved. New noise and flicker  
32 analysis will need to be conducted utilizing a corrected layout. Deuel Harvest has  
33 failed to meet its burdens. These significant errors in the project layout and  
34 Application as a whole necessitate a denial of Deuel Harvest’s Application.”

35  
36 **Q. Did Commission Staff contact Deuel County regarding the two-mile setback from**  
37 **Lake Alice required per Ordinance?**

38 A. Yes. Here is the specific language from the Ordinance provided in the Application,  
39 Appendix C:

40  
41 *“Distance from the Lake Park District located at Lake Cochrane 3 miles, Lake Alice 2*  
42 *miles and 1 mile from the Lake Park District at Bullhead Lake.” (emphasis added)*



1 Commission Staff contacted Deuel County shortly after the Application was filed  
2 because there were proposed turbine locations clearly less than 2 miles from Lake Alice.  
3 The Ordinance was confusing to Commission Staff because the "Lake Park District"  
4 descriptor was attached to both Lake Cochrane and Bullhead Lake, but not Lake Alice.  
5 The Zoning Officer for Deuel County indicated to Commission Staff that the setback was  
6 from the Lake Park District at Lake Alice, not from Lake Alice itself. Commission Staff  
7 will defer to Deuel County to interpret its Ordinance on the Lake Alice setback as the  
8 measure relates to the orderly development of the region, and the Commission has  
9 legislative direction to give due consideration to the views of governing bodies of  
10 affected local units of government pursuant to SDCL 49-41B-22(4).

11  
12 **Q. Do you agree with Ms. Kilby and Mr. Stone that turbines are proposed within the**  
13 **minimization and avoidance distances described in the Application?**

14 A. Yes. Commission Staff agrees with Ms. Kilby and Mr. Stone that the minimization and  
15 avoidance measures included in the Application and Bird and Bat Conservation Strategy  
16 do not accurately describe the distance reflected in the proposed turbine location maps.  
17 It is unfortunate that these errors occurred. I recommended a permit condition on Page  
18 7, lines 26-32, that requires the Applicant to construct, operate, and maintain the project  
19 in a manner consistent with descriptions in the Application. Commission Staff believes  
20 the Applicant should be held accountable for the commitments made in their Application.

21  
22 **Q. Are the setbacks identified by Ms. Kilby and Mr. Homan required by county or**  
23 **state law?**

24 A. No. Commission Staff believes these were voluntary commitments made by Deuel  
25 Harvest in the Application.

26  
27 **Q. Has Commission Staff discussed with Deuel Harvest how they plan to address**  
28 **these errors?**

29 A. Yes. It is Commission Staff's understanding that Deuel Harvest will not make any  
30 changes to the proposed turbine layout, and the Applicant will amend the avoidance and  
31 minimization measures in the Application to accurately describe the proposed turbine  
32 layout.

1 **Q. Were the Applicant's errors material to Commission Staff's review?**

2 A. No. Commission Staff did not intend to pursue setbacks from lakes or South Dakota  
3 Game Production Areas for the Deuel Harvest North Wind Farm. With the Applicant's  
4 proposed resolution to the issue, Commission Staff believes its analysis and review of  
5 the Application will not be impacted since the turbine locations will not be moved.

6

7 **iv. Setbacks from Non-participating Residences**

8

9 **Q. What is Deuel Harvest proposing for a setback from non-participating residences?**

10 A. Deuel Harvest proposes a setback from non-participating residences consistent with the  
11 Deuel County Zoning Ordinance § 1215.03(2):

12

13 "Distances from existing non-participating residences and businesses shall be  
14 not less than four times the height of the wind turbine. Distance from existing  
15 participating residences, business and public buildings shall be not less than  
16 1,500 feet. Non-participating property owners shall have the right to waive the  
17 respective setback requirements. A setback of four times the turbine height of  
18 the GE 2.82-127 turbine (1,996 feet; rounded to 2,000 feet) was used for all non-  
19 participating residences."

20

21 **Q. Is there a state law that establishes a setback from non-participating residences?**

22 A. No. The legislature has not established a state standard for a setback from non-  
23 participating residences.

24

25 **Q. Did the Intervenors request a larger setback from non-participating residences?**

26 A. Yes. John Homan and Christina Kilby proposed an alternative setback from non-  
27 participating residences. In response to Commission Staff data request 1-3, John  
28 Homan requested the following setback:

29

30 "One and one half mile setback from non-participating residences, especially in the  
31 case of multiple residences in concentrated areas."

32

33 In response to Commission Staff data request 1-3, Christina Kilby requested the  
34 following setback:

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
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27  
28  
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30  
31  
32  
33  
34

“I ask that setbacks for non-participating landowners be set at two miles with the option of a waiver.”

**Q. Regarding Mr. Homan’s recommended setback from non-participating residences, do you understand the basis for his recommendation?**

A. No, Mr. Homan did not provide an explanation to support a one and one-half mile setback from non-participating residences. I have sent Mr. Homan discovery requesting further explanation and support for his recommendation.

**Q. Did Ms. Kilby provide an explanation for her recommended setback from non-participating residences?**

A. Yes. In response to Staff Data Request 1-3, Ms. Kilby stated “This is because of the characteristics of and problems caused by infrasound that turbines are known to produce.” I have sent Ms. Kilby discovery requesting documentation that supports the assertion that a two-mile setback is appropriate to alleviate problems caused by infrasound.

**Q. Has the Commission previously considered the potential impacts associated with infrasound and low frequency noise (ILFN) emitted from wind turbines?**

A. Yes. In Docket EL18-026, the Commission considered testimony regarding the potential impacts associated with ILFN emitted from wind turbines for the Prevailing Wind Park. Through discovery, Commission Staff requested Professor Mariana Alves-Periera provide recommendations for an appropriate zoning law for industrial wind turbines to address her concerns regarding ILFN. Ms. Alves-Periera did not offer a condition for consideration and indicated that “there are currently no scientifically-valid studies providing numerical data on ‘safe distances’ that can effectively protect families against ILFN-contaminated homes (whatever the source).”

**Q. Did you request any additional information from Deuel Harvest to support the proposed setback from non-participating residences?**

A. Yes. I requested Deuel Harvest provide evidence to support the reasonableness of Deuel County’s setback distance from non-participating residences. In addition, I requested the Applicant provide documentation of Deuel County’s reasoning and

1 findings to support the setback. I did not receive answers to these requests prior to  
2 drafting my testimony.

3  
4 **Q. Has the South Dakota legislature considered setbacks similar to the proposals of**  
5 **Ms. Kilby and Mr. Homan?**

6 A. Yes. During the 2019 legislative session, the South Dakota House of Representatives  
7 considered House Bill 1226, an act to revise the distance certain wind energy systems  
8 must be set back from surrounding property. One of the proposals within the bill was a  
9 setback from residences as shown below:

10  
11 “Each wind turbine tower of a large wind energy system shall be set back at least  
12 twelve times the height of the tower, or one and one-half miles, whichever  
13 distance is greater, from the perimeter of any residence, business, or public  
14 building, unless the owner of the wind turbine tower has a written agreement with  
15 the owner of the residence, business, or building allowing for a lesser setback  
16 distance. A residence is defined as a single or multi-family structure that has  
17 been lived in within the past three years.”  
18

19 House Bill 1226 failed in the House Commerce and Energy Committee by a vote of 10 to  
20 2.

21  
22 **Q. How does Deuel County’s setback for non-participating residences compare with**  
23 **other county setbacks in recent wind energy facility siting dockets before the**  
24 **Commission?**

25 A. See Table 1 for a listing of setbacks from non-participating residences by county for wind  
26 energy facility siting dockets filed with the Commission between 2015 and 2018. The  
27 setbacks provided below are minimum requirements, and wind turbines are often sited  
28 further away than the minimum non-participating residence setback to comply with other  
29 requirements and commitments.  
30  
31  
32  
33  
34  
35  
36

1

**Table 1 – Non-Participating Residence Setbacks**

Docket	Facility Name	County	Non-Participating Residence Setback	Zoning
EL15-020	Willow Creek Wind Energy Facility	Butte	1,000 ft.	No
EL17-055	Crocker Wind Farm	Clark	3,960 ft.	Yes
EL18-003	Dakota Range Wind Project	Grant	1,000 ft.	Yes
		Codington	1,000 ft.	Yes
EL18-026	Prevailing Wind Park	Bon Homme	1,000 ft.	Yes
		Hutchinson	1,000 ft.	No
		Charles Mix	2,000 ft. or 3.5 ft. X Turbine Height	No
EL18-046	Dakota Range III Wind Project	Grant	1,000 ft.	Yes
		Roberts	1,225 ft. + 2.5 ft X Turbine Height > 500 ft.	Yes

2

3

4 **Q. Does Deuel Harvest’s proposed turbine layout significantly exceed the minimum setback requirement for most non-participating residences?**

5  
6 A. In response to Commission Staff data request 1-5, Deuel Harvest indicated there are  
7 only two turbine locations within ½ mile, or 2,640 feet, of non-participating residences in  
8 the proposed turbine layout. Turbine location A99 is an alternative turbine location  
9 approximately 2,052 ft. from a non-participating residence, and turbine location 1 is  
10 approximately 2,520 ft. away from a non-participating residence.

11

12 **Q. Is a half-mile setback from non-participating residences achievable?**

13 A. Based solely on Deuel Harvest’s response to data request 1-5, I think the possibility  
14 should be explored. Without considering other constraints, an elimination of an  
15 alternative turbine and a minor turbine shift of 120 feet would meet the non-participating  
16 residence setback of one-half mile. The increased setback would limit the flexibility  
17 Deuel Harvest has to make turbine shifts during final micro-siting and may impact the  
18 financial opportunities of participating landowners.

19

20 **Q. Did Commission Staff evaluate any other alternative setbacks from non-participating residences for this Project?**

21  
22 A. Yes. See Exhibit\_JT-6 for a map created by Commission Staff that shows hypothetical  
23 setbacks from non-participating residences of ½ mile, ¾ mile, and 1 mile. Please note  
24 this map only shows the non-participating residence setback and does not consider any

1 other setbacks or constraints. A number of proposed turbine locations would be  
2 impacted if a ¾ mile setback was required from non-participating residences.

3  
4 **Q. Do you have a recommendation regarding a setback from non-participating**  
5 **residences?**

6 A. Commission Staff would like to review the responses to discovery requests and pre-filed  
7 testimony before offering a recommendation. Commission Staff has historically focused  
8 on the impacts associated with wind facilities, such as audible noise, and Commission  
9 Staff's recommended limits associated with those impacts have resulted in turbine  
10 locations that exceeded the minimum setback requirements from non-participating  
11 residences. Generally, the impacts associated with wind turbines become less at  
12 greater distance, and Applicants should strive to minimize impacts on non-participants to  
13 the maximum extent possible.

14  
15 **X. COMMISSION STAFF'S PERMIT RECOMMENDATION**

16  
17 **Q. Does Commission Staff recommend the Application be denied or rejected**  
18 **because of Commission Staff's issues and concerns?**

19 A. Not at this time. Because Deuel Harvest still has the opportunity to address outstanding  
20 issues on rebuttal and, to an extent, through the evidentiary hearing, Commission Staff  
21 reserves any position until such time as we have a complete record upon which to base  
22 the position. I would also note that some of the outstanding issues may be addressed  
23 through conditions should the Commission grant a permit.

24  
25 **Q. Does this conclude your testimony?**

26 A. Yes, this concludes my written testimony. However, I will supplement my written  
27 testimony with oral testimony at the hearing to respond to Intervenor testimony, Deuel  
28 Harvest rebuttal testimony, and responses to discovery.

29