

BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION

DOCKET EL19-012

**IN THE MATTER OF THE APPLICATION OF SWEETLAND WIND FARM, LLC FOR
FACILITY PERMITS FOR A WIND ENERGY FACILITY AND A 230-kV
TRANSMISSION FACILITY IN HAND COUNTY, SOUTH DAKOTA FOR THE
SWEETLAND WIND FARM PROJECT**

**DIRECT TESTIMONY OF JON THURBER
ON BEHALF OF THE COMMISSION STAFF
JUNE 19, 2019**

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EXHIBITS

- Exhibit_JT-1 Sweetland's Responses to Commission Staff Discovery
- Exhibit_JT-2 Intervenor's Letter of Concerns
- Exhibit_JT-3 Commission Staff Outstanding Discovery to Intervenor
- Exhibit_JT-4 Commission Staff Outstanding Discovery to Sweetland
- Exhibit_JT-5 South Dakota Department of Health Letter
- Exhibit_JT-6 Commission Staff Request to South Dakota Department of Environment and Natural Resource for Comment in Docket EL18-053
- Exhibit_JT-7 South Dakota Department of Environment and Natural Resource Response Letter in Docket EL18-053
- Exhibit_JT-8 Recommended Noise Level Design Goals and Limits at Residential Receptors for Wind Turbine Developments in the United States

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 seven 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
33

1 In addition, Commission Staff assisted the intervenor and affected landowners by
2 providing responses to numerous questions on the wind energy facility, the siting
3 process established by South Dakota law, and the opportunities available for these
4 individuals to be heard by the Commission. If the landowners had specific concerns with
5 the wind energy facility, Commission Staff often recommended that those individuals file
6 comments in the docket for the Commission’s review. Where appropriate, Staff also
7 included some of the landowners’ questions or concerns in Commission Staff’s data
8 requests sent to Sweetland to have them address the issue.

9
10 **IV. STATE AGENCY CONSULTATION**

11
12 **Q. Did Commission Staff request assistance from any other State Agencies in review**
13 **of the Application?**

14 A. Yes. Commission Staff consulted with the South Dakota Game, Fish, and Parks
15 (“GF&P”), the State Historic Preservation Office (“SHPO”), and the South Dakota
16 Department of Transportation – Aeronautics Division (“DOT – Aeronautics”).

17
18 **Q. Did any of those agencies communicate concerns to Commission Staff specific to**
19 **the Sweetland Wind Farm Project?**

20 A. At the time of writing this testimony, no concerns specific to the Sweetland Wind Farm
21 Project were raised by any of those agencies.

22
23 **Q. Why did Commission Staff not request the GF&P and the SHPO testify for the**
24 **Sweetland Wind Farm Project?**

25 A. There are a few reasons why Commission Staff did not request testimony from the
26 SHPO and the GF&P. First, an Environmental Assessment (“EA”) is being completed by
27 the Western Area Power Administration for the entire Sweetland Wind Farm Project. It
28 is Commission Staff’s understanding that the GF&P and the SHPO were consulted for
29 the EA, and any comments those agencies may have on the project will be considered
30 during that process. Second, the GF&P and the SHPO have not communicated to
31 Commission Staff any concerns specific to the Sweetland Wind Farm Project. As such,
32 Commission Staff is unaware of any unique issues or concerns with wildlife or historic
33 properties that would need to be addressed through the state permitting process.
34 Finally, the procedural schedule in this docket allows for Commission Staff to present

1 rebuttal witnesses. Should any issues arise that fall in their areas of expertise,
2 Commission Staff is planning to present the appropriate agency as a rebuttal witness.

3
4 **Q. Did the GF&P make any comments on the Applicant's commitments to minimize**
5 **impacts to whooping cranes or post-construction lek monitoring?**

6 A. Yes. On page 13-17 of the Application, Sweetland voluntarily committed to conduct two
7 years of post-construction lek monitoring. Sweetland also committed to multiple
8 measures to minimize impacts to whooping cranes on pages 13-16 and 13-17 of the
9 Application. For operational monitoring during whooping crane migration seasons, if a
10 crane is spotted turbines will be shut down within 2 miles of the crane until it leaves.
11 These commitments are consistent with the GF&P's recommendations.

12
13 **Q. Has Commission Staff consulted with any other State Agencies for other wind**
14 **energy facility permit applications in the past?**

15 A. Yes. For the Crocker Wind Farm (Docket EL17-055) and other wind energy projects
16 thereafter, Staff consulted with the South Dakota Department of Health ("DOH"). For the
17 Deuel Harvest Wind Farm (Docket EL18-053), Staff consulted with the South Dakota
18 Department of Environment and Natural Resources ("DENR").

19
20 **Q. Please explain the consultation between Commission Staff and the DOH for wind**
21 **energy facilities.**

22 A. In Docket EL17-055, SDCL 49-41B-22(3) required that Crocker Wind Farm, LLC
23 establish that the Crocker Wind Farm will not substantially impair the health of the
24 inhabitants. At the Public Input Hearing and through written comments to the
25 Commission, inhabitants raised concerns regarding health impacts from wind facilities.
26 Commission Staff believes the Department of Health is the appropriate State Agency to
27 assess the potential health impacts from the facility.

28
29 For the Crocker Wind Farm, the Department of Health provided Commission Staff with a
30 letter stating that the Department of Health has not taken a formal position on the issue
31 of wind turbines and human health. Further, they referenced the Massachusetts
32 Department of Public Health and Minnesota Department of Health studies and identified
33 those studies generally conclude that there is insufficient evidence to establish
34 significant risk to human health. I included the DOH's letter as Exhibit_JT-5.

1 Subsequently, for the Prevailing Wind Park project, Docket EL18-026, the Commission
2 received additional comments regarding health concerns with supporting information.
3 Commission Staff provided this information to the DOH for review. The DOH's position
4 did not change based on the additional information Commission Staff provided and
5 indicated that the letter dated October 13, 2017 is generally applicable to any wind
6 turbine project.

7
8 **Q. For the Deuel Harvest Wind Farm, please summarize Commission Staff's**
9 **consultation with DENR.**

10 A. During the Deuel Harvest Wind Farm proceeding, intervenors raised concerns about the
11 impact wind turbine construction and operation may have on shallow aquifers and
12 spring-fed streams. The main concerns raised were that wind turbines may cause
13 pollution of the aquifers and springs due to spills and vibrations during operations.
14 Commission Staff consulted with the DENR to determine if the Agency had similar
15 concerns or any knowledge about wind turbine construction and operations adversely
16 impacting aquifers or springs (Exhibit_JT-6).

17
18 The DENR provided Commission Staff with a response letter identifying that historical
19 spills reported by wind turbines in South Dakota have been minor and were easily
20 addressed. In addition, the DENR does not consider a concrete foundation to be a
21 source of ground water contamination. Based on the Intervenor's letter of concern in
22 this proceeding, it appears similar concerns are going to be raised in this docket and,
23 therefore, I included the DENR's letter as Exhibit_JT-7.

24
25 **V. APPLICATION COMPLETENESS**

26
27 **Q. Was Sweetland's Application considered complete at the time of filing?**

28 A. At the time of the filing, the application was substantially complete. However, as
29 identified above, Commission Staff requested further information, or clarification, from
30 Sweetland which Commission Staff believed was necessary in order to satisfy the
31 requirements of SDCL 49-41B and ARSD 20:10:22. It is Commission Staff's position
32 that ARSD 20:10:22:04(5) allows for the applicant to provide additional information
33 throughout the Commission's review period. Finally, I would also note that an applicant

1 supplementing its original application with additional information as requested by
2 Commission Staff is not unusual for siting dockets.

3
4 **Q. What issues and concerns does Commission Staff have with the Sweetland Wind**
5 **Farm Project?**

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

- 7
8 • Public Input Hearing Comments
9 • Indemnity Bond for Road Damage
10 • Transmission Line Routes
11 • Pending Participant
12 • Aircraft Detection Lighting System
13 • Ice Throw
14 • Decommissioning
15 • Sound
16 • Intervenor Concerns

17
18 **VI. PUBLIC INPUT HEARING COMMENTS**

19
20 **Q. Were there any comments at the Public Input Hearing held in Miller, South Dakota,**
21 **on April 25, 2019, that you would like to address?**

22 A. Yes. A number of commenters asked about an informational filing made by Sweetland,
23 2017 Info EL9, where the Company self-reported it had begun construction of the wind
24 energy facility in 2016 without securing a permit from the Commission.

25
26 **Q. What action did the Commission pursue regarding the violation?**

27 A. Given the potential criminal implications of this matter, the Commission informed the
28 Hand County State's attorney of this matter.

29
30 **Q. What action did the Hand County State's Attorney take with this information?**

31 A. On August 8, 2018, the Hand County State's Attorney notified the Commission that "no
32 action has been taken at the County level based upon relayed concerns regarding the
33 applicable burden of proof." See Commission Information Filing 2018 Info EL16 for the
34 complete letter.

1 **Q. After the Public Input Hearing, did the Applicant provide any additional testimony**
2 **on this incident addressing Commissioner questions?**

3 A. Yes. Matt Heck, Director of Development at Scout Clean Energy, filed supplemental
4 testimony to address the Commissioner questions.

5
6 **Q. Does Commission Staff have a position on this incident in this proceeding?**

7 A. The Sweetland Wind Farm needs to comply with all applicable laws and rules pursuant
8 to South Dakota Codified Law 49-41B-22(1) in order to meet its burden of proof.

9 Commission Staff expects Sweetland to obtain and comply with all necessary permits.

10 Commission Staff recommends the Commission include the following condition if a
11 permit is granted:

12
13 *Applicant will obtain all governmental permits which reasonably may be*
14 *required by any township, county, state or federal agency, or any other*
15 *governmental unit for construction and operation activity of the Project prior to*
16 *engaging in the particular activity covered by that permit. Copies of any*
17 *permits obtained by Applicant shall be filed with the Commission.*
18

19 **VII. INDEMNITY BOND FOR ROAD DAMAGE**

20
21 **Q. Did Sweetland provide a proposal for an indemnity bond pursuant to SDCL 49-**
22 **41B-38 in their Application or Testimony?**

23 A. No. Per statute, Sweetland is required to furnish an indemnity bond for damage to roads
24 and bridges as a result of constructing a transmission facility. This bond benefits
25 townships, counties, or other governmental entities that are crossed by a transmission
26 facility to ensure that damage beyond normal wear to public roads, highways, bridges, or
27 other related facilities are adequately compensated.

28
29 **Q. Does 49-41B-38 provide a method to calculate an amount of the indemnity bond?**

30 A. No. The statute states the bond should be furnished in "a reasonable amount."
31

32 **Q. Has Commission Staff requested that Sweetland propose an amount for an**
33 **indemnity bond through discovery?**

34 A. Yes. Commission Staff submitted discovery request 3-2 to request a proposal with an
35 explanation. Commission Staff did not receive a response to this request prior to

1 drafting testimony, and I would like to review the response before providing an opinion
2 on the amount of the indemnity bond.

3
4 **VIII. TRANSMISSION FACILITY ROUTES**

5
6 **Q. What did Sweetland propose for a transmission route in the Application?**

7 A. In Section 8.3 of the Application, Sweetland proposed two routes, a preferred and
8 alternate, for the approximate 7-mile 230-kV Gen-Tie Line. Figure A-2 in the Application
9 illustrates the Applicant's two proposed route options.

10
11 **Q. Why did the Applicant propose two routes?**

12 A. According to Page 8-11 of the Application, a portion of the preferred route is not
13 currently under easement. The Applicant has 100% of the easements associated with
14 the alternative route.

15
16 **Q. Does the Commission have the authority to site two routes, or designate a
17 preferred or alternate route?**

18 A. No, Commission Staff does not believe the legislature has given the Commission the
19 authority to site alternative transmission routes. SDCL 49-41B-11 states the application
20 shall contain the following information:

21
22 *49-41B-11(2). Description of the nature and location of the facility.*
23 *49-41B-11(6). A statement of the reasons for the selection of the proposed*
24 *location.*
25

26 Commission Staff interprets this statute to require the Applicant to file for approval of one
27 transmission route, not multiple routes. Commission Staff's statutory interpretation is
28 further supported by ARSD 20:10:22:35(3):

29
30 *20:10:22:35 (3) Information concerning transmission facilities. The proposed*
31 *transmission site and major alternatives as depicted on overhead photographs*
32 *and land use culture maps;*
33

34 ARSD 20:10:22:35(3) appears to require a single transmission site, not multiple sites.
35

1 **Q. Did Commission Staff share its statutory interpretation with Sweetland regarding**
2 **transmission line routes?**

3 A. Yes. On April 5, 2019, Commission Staff Counsel provided our interpretation to
4 Sweetland. On April 11, 2019, Sweetland filed a letter to request the Commission
5 consider and approve the preferred route for the Gen-Tie-Line and removed the
6 alternate route from further consideration. Based on the Applicant's request,
7 Commission Staff only reviewed and analyzed the preferred transmission route in this
8 Application.

9

10 **IX. PENDING PARTICIPANT**

11

12 **Q. Regarding the pending participant for the preferred transmission line route, do**
13 **you know why Sweetland has not been able to obtain the easement?**

14 A. On Page 8-11 of the Application, the Applicant states the landowner "would prefer to
15 wait until after Energy Facility Permits have been issued by the Commission before
16 deciding whether to participate in the Project."

17

18 **Q. Has the Commission previously considered landowners with a pending**
19 **participant status in a wind energy facility docket?**

20 A. Yes. In the Crowned Ridge I Wind Farm pending before the Commission, Docket EL19-
21 003, the Commission rejected the identification as landowners as pending and required
22 all landowners be identified as participating or non-participating prior to the evidentiary
23 hearing.

24

25 **Q. Who is the landowner that is listed as the pending participant?**

26 A. According to Figure A-2, the pending participant is Gilbert & Stephanie Rodgers.

27

28 **Q. Are any wind turbines planned to be located on Gilbert and Stephanie Rodgers**
29 **property?**

30 A. According to Figure A-2, Gilbert and Stephanie Rodgers currently have four alternate
31 turbine locations on their property: 84A, 85A, 86A, and 87A.

32

33 **Q. Is Mr. Gilbert Rodgers an elected official in Hand County?**

34 A. Yes, Mr. Gilbert Rodgers is a County Commissioner in Hand County.

1 **Q. Is Commission Staff concerned with Mr. Rodgers involvement?**

2 A. Based on what Commission Staff is currently aware of, no. Commission Staff is not
3 aware of any items in the Development Agreement approved by Hand County that are
4 unusual.

5

6 **X. AIRCRAFT DETECTION LIGHTING SYSTEM**

7

8 **Q. What commitment has Sweetland made regarding the implementation of AN
9 Aircraft Detection Lighting System?**

10 A. On page 3-3 of the Application, Sweetland states “wind turbines will be illuminated in
11 accordance with Federal Aviation Administration regulations and will employ an Aircraft
12 Detection Lighting System (ADLS), if required.”

13

14 **Q. Has the Commission required ADLS on all wind energy facility permits since the
15 Crocker Wind Farm in Docket EL17-055?**

16 A. Yes. Aesthetic impacts of wind farm obstruction lighting can be annoying to the public
17 living nearby. An ADLS mitigates nighttime aesthetic impacts associated with wind
18 energy facilities.

19

20 **Q. Has Commission Staff asked the Applicant to install an ADLS through discovery?**

21 A. Yes. Commission Staff did not receive a response to this request prior to drafting
22 testimony, and I will update my testimony based on the Applicant’s response.

23

24 **XI. ICE THROW**

25

26 **Q. Please summarize the information submitted by Sweetland on the mitigation
27 measures implemented to address the risks associated with ice throw.**

28 A. On page 8-8 of the Application, Sweetland states “each turbine monitors the wind speed
29 and direction to ensure its current position is most efficient to produce electricity. This
30 data is also used for applying the brakes if there is ice build-up on the blades.”

31

32

33

1 **Q. Does Commission Staff understand the “data used” to monitor icing on wind**
2 **turbine blades?**

3 A. Commission Staff has requested more information on the technology that will be
4 employed at each turbine to detect and assess ice buildup through discovery.
5

6 **Q. Why is Commission Staff concerned with the technology employed by the**
7 **Applicant to monitor icing on wind turbine blades?**

8 A. The wind turbine manufacturer, General Electric, recommends more stringent setbacks
9 to address the risks associated ice throw than currently proposed by the Applicant if
10 certain technology is not installed on the turbine. Commission Staff requests
11 documentation from General Electric that confirms the recommended setback in the
12 safety manual does not apply because of the method Sweetland is employing to sense
13 and assess ice build-up on blades.
14

15 **XII. DECOMMISSIONING**
16

17 **Q. Did Sweetland provide a decommissioning plan and cost estimate for the**
18 **Sweetland Wind Farm?**

19 A. Yes. Mr. Mark Wengierski provided a summary of decommissioning on Pages 20 – 21
20 of his pre-filed testimony, and the decommissioning plan and cost estimate was included
21 in Appendix P of the Application.
22

23 **Q. Does Commission Staff have any concerns with the decommissioning plan?**

24 A. Yes. On page 4 of Appendix P of the Application, the Applicant provided the following
25 decommissioning requirements included in landowner leases:
26

- 27 • Below-grade facilities will be removed to not less than 3 feet below grade; and
- 28 • There is no obligation to remove cables, lines, or conduits buried more than 3 feet
29 below grade.

30
31 The Applicant further stated “the concrete foundations of all the wind turbines will be
32 removed to a depth of 3 feet below grade and backfilled with surrounding subsoil and
33 topsoil. The parts of the foundations that are deeper than 3 feet will be abandoned in
34 place.”

1 Commission Staff is concerned that removing turbine foundations to a depth of three feet
2 may not be sufficient to restore the land for agriculture purposes. Applicants of recent
3 wind energy facility permits have committed to the removal of underground facilities,
4 such as turbine foundations, to a depth of four feet. Without additional support and
5 explanation, Commission Staff would recommend removal of underground facilities to a
6 depth of at least four feet.

7
8 **Q. Does Commission Staff have any concerns regarding the decommissioning cost**
9 **estimate?**

10 A. Mr. Wengierski summarized Sweetland's decommissioning cost estimate on page 21 of
11 his direct testimony:

12
13 "The decommissioning cost estimate assumed 71 GE 2.82/127 turbines and
14 either 89-meter or 114-meter hub height. The net decommissioning cost (in 2019
15 U.S. dollars) is estimated to be \$2.6 million assuming 89-meter hub height and
16 \$2.9 million assuming 114-meter hub height. The decommissioning cost per wind
17 turbine is estimated to be \$37,091 assuming 89-meter hub height and \$40,956
18 assuming 114-meter hub height. These estimates are based on the
19 decommissioning approach outlined in the decommissioning cost estimate and
20 assume salvage of wind turbine and transmission facility components."

21
22 Based on recently filed decommissioning cost estimates for other wind energy facilities
23 before the Commission, Sweetland's decommissioning cost estimate per turbine was
24 lower than anticipated by Commission Staff. In December 2017, the Crocker Wind Farm
25 stated a conservative decommissioning cost estimate in current dollars is between
26 \$100,000 to \$150,000 per turbine after salvage, including associated facilities. In
27 October 2018, the Dakota Range III wind farm estimated the net decommissioning cost
28 per wind turbine of \$101,420 (in 2018 U.S. Dollars), assuming salvage value and no
29 resale of components. Sweetland has not adequately explained why its
30 decommissioning cost estimate is significantly below recently filed estimates before the
31 Commission.

32
33 In addition, the proposed operational life of the Sweetland Wind Farm is too aggressive
34 of an assumption to base funding for the decommissioning of the facility. Mr. Wengierski

1 anticipates a 35-year useful life for the Project. The Commission has based
2 decommissioning funding on 25 and 30-year useful lives for wind energy facilities in
3 recent dockets but has not utilized a 35-year useful life. Commission Staff would
4 recommend a more conservative useful life estimate of 30-years to base funding for the
5 decommissioning of the Sweetland Wind Farm.
6

7 **Q. Sweetland provided the decommissioning cost estimate in 2019 dollars in the**
8 **Application. Did Sweetland provide a projected decommissioning cost estimate at**
9 **the time of decommissioning?**

10 A. No. Commission Staff requested that Sweetland provide a decommissioning cost
11 estimate per turbine in 2050 dollar assuming salvage through discovery and did not
12 receive the Applicant's response prior to drafting testimony.
13

14 **Q. What type of financial assurance did Sweetland propose in its Application for**
15 **decommissioning?**

16 A. Sweetland did not propose any financial instrument for decommissioning.
17

18 **Q. What is the Commission's preferred type of financial assurance for**
19 **decommissioning in recent wind energy facility permits?**

20 A. In Docket EL17-055, the Commission, on its own motion, ordered that the Crocker Wind
21 Farm provide an escrow account as the financial assurance for decommissioning. For
22 each subsequent wind energy facility permit application, Commission Staff has
23 negotiated, and the Commission has approved, settlements including an escrow account
24 to provide financial security for decommissioning. The escrow account condition in
25 Docket EL17-055 was used as a template in all settlements. The Commission has also
26 approved a condition that states the escrow account requirement does not apply if the
27 applicant is purchased by an electric utility which is rate regulated by the Commission.
28 In that case, the financial cost of decommissioning will be reviewed and recovered from
29 customers through utility rates.
30

31 The Commission has also required the Applicant to review and update the cost estimate
32 of decommissioning for the project beginning in year ten following commercial operation
33 of the project and each fifth year thereafter to ensure that funding is updated periodically
34 to reflect current estimates.

1 **Q. Is Sweetland willing to fund an escrow account as a financial assurance to**
2 **guarantee decommissioning costs?**

3 A. Commission Staff has made this inquiry through discovery and has not received a
4 response from the Applicant prior to drafting testimony.

5
6 **Q. Please summarize your testimony on Sweetland’s decommissioning plan,**
7 **decommissioning cost estimate, and financial assurance proposal.**

8 A. Commission Staff has the following concerns regarding Sweetland’s decommissioning
9 plan, decommission cost estimate, and financial assurance proposal:

10

11 • Sweetland proposes to remove facilities to a depth not less than 3 feet below
12 grade. Commission Staff is concerned that removing turbine foundations to a
13 depth of three feet may not be sufficient to restore the land for agriculture
14 purposes. Commission Staff would recommend removal of underground facilities
15 to a depth of at least four feet.

16 • Sweetland estimates the decommissioning cost per turbine of \$37,091 or
17 \$40,956 in 2019 U.S. dollars, depending on the turbine height, assuming a
18 salvage credit. This estimate is lower than many recently filed decommissioning
19 cost estimates filed with the Commission. Commission Staff has issued
20 discovery to obtain a better understanding of the basis for Sweetland’s estimate.

21 • Sweetland proposes a 35-year useful life for the project. Commission Staff
22 would recommend a more conservative useful life of 30-years to base funding for
23 the decommissioning of the Sweetland Wind Farm.

24 • Sweetland did not propose a financial instrument to guarantee funds for
25 decommissioning. Commission Staff has issued discovery to Sweetland to
26 determine if the Applicant will fund an escrow account as a financial assurance to
27 guarantee decommissioning costs consistent with Commission precedent.

28

29 **XIII. SOUND**

30

31 **Q. Did Sweetland provide a sound level assessment for the project?**

32 A. Yes, please see Appendix L of the Application for the sound level assessment. Mr.
33 Robert O’Neal provided testimony that describes the sound modeling methodology and

1 discusses how the project will comply with applicable acoustic commitments made by
2 Sweetland.

3
4 **Q. What is the sound level commitment that Sweetland made in the Development**
5 **Agreement?**

6 A. The Development Agreement provides that sound levels resulting from the project wind
7 turbines will not exceed 50 dBA at the currently occupied residences of participating
8 landowners and 45 dBA at the currently occupied residences of non-participating
9 landowners, unless waived in writing by the owner of the occupied residence.

10
11 **Q. Did Sweetland provide any testimony or documentation supporting the sound**
12 **level commitment as a reasonable state regulatory limit?**

13 A. Not that Commission Staff is aware of.

14
15 **Q. Did Sweetland perform a baseline sound survey of the existing conditions within**
16 **the site area?**

17 A. Not that Commission Staff is aware of.

18
19 **Q. Why is a baseline sound survey important?**

20 A. By comparing the expected project sound levels to the pre-existing sound level, one can
21 determine the perceptibility of the project using the amount by which the project sound
22 level exceeds the natural environment. Applicants can try to minimize this differential,
23 irrespective of an absolute regulatory limit.

24
25 **Q. Has Sweetland proposed a specific post-construction sound monitoring method**
26 **to verify compliance with the requirement if there are complaints about noise?**

27 A. Not that Commission Staff is aware of.

28
29 **Q. Does Sweetland's sound modeling demonstrate that the project complies with the**
30 **requirements of the Development Agreement?**

31 A. Based on the Updated Sound and Shadow Flicker Analyses, Exhibit A10-1, it is unclear.
32 There are three receptors (6, 7, 20) that were listed as "participating" in the participation
33 status column in Appendix L of the Application that were changed to "pending
34 participating" in the updated analysis. These three receptors have an expected sound

1 level of either 49 or 50 dBA. If Sweetland is unable to secure lease agreements with
2 these landowners, these residences expected sound level exceeds Sweetland's
3 commitment for non-participating landowners. Sweetland should clarify the participation
4 status of these three receptors in rebuttal testimony.
5

6 **Q. How many non-participating receptors have an expected sound level above 40**
7 **dBa?**

8 A. There are two non-participating residences with an expected sound level above 40 dBA.
9 Receptor 8 has an expected sound level of 43 dBA, and receptor 11 has an expected
10 sound level of 42 dBA.
11

12 **Q. How many participating receptors have an expected sound level above 45 dBA?**

13 A. According to Exhibit A10-1, 11 participating receptors have an expected sound level
14 above 45 dBA, with 5 of the 11 receptors at either 49 or 50 dBA, which is quite high.
15

16 **Q. How does the sound commitment made in the Development Agreement compare**
17 **with the sound requirements ordered by the Commission in recent wind energy**
18 **facility permits?**

19 A. The sound commitments ordered by the Commission for the Prevailing Wind Park and
20 the Triple H Wind Project are more restrictive than what Sweetland has proposed for
21 their project. For the Prevailing Wind Park, the Commission ordered a limit of 40 dBA at
22 non-participating residences and 45 dBA at participating residences, unless the owner of
23 the residence has signed a waiver. For the Triple H Wind Project, the Commission
24 ordered a limit of 45 dBA at all residences, unless the owner of the residence has signed
25 a waiver.
26

27 The Sweetland sound commitment is comparable to the sound requirement ordered by
28 the Commission for the Dakota Range I and II Wind Project, Dakota Range III Wind
29 Project, and Deuel Harvest North Wind Farm. While the Sweetland sound commitment
30 is consistent with the Crocker Wind Farm sound requirement, the non-participating
31 residence setback for the Crocker Wind Farm made the sound requirement moot. Once
32 the non-participating residence setback was reflected in the project layout, all non-
33 participating residences expected sound levels were below 40 dBA.
34

1 **Q. What is Commission Staff’s recommended sound design goal and regulatory limit**
2 **for wind energy facilities?**

3 A. Since the Crocker Wind Farm in Docket EL17-055, Commission Staff has consistently
4 advocated for a 40 dBA ideal design goal and a regulatory limit of 45 dBA for wind
5 energy facilities. This recommendation is based on the recommendation of David M.
6 Hessler, and Commission Staff attaches his peer-reviewed article that supports this
7 recommendation as Exhibit_JT-8.

8
9 **Q. What is your recommendation for the participating residences that exceed the**
10 **recommended regulatory limit of 45 dBA?**

11 A. Participating landowners have elected to participate in the Sweetland Wind Farm project,
12 and presumably have researched the potential impacts of the wind farm before making
13 that choice. Staff has concerns when sound levels exceed 45 dBA as the likelihood of
14 complaints increase. To establish the appropriate sound expectation, Commission Staff
15 would encourage the participating landowners to visit a neighboring wind energy facility
16 so that they are aware of the sound level produced by comparable wind facilities.

17
18 **Q. Is the 40 dBA design goal achievable at the Sweetland Wind Farm for non-**
19 **participating landowners?**

20 A. Since there are only two non-participating residences above 40 dBA and both
21 residences are located near the edge of the project area, Commission Staff believes
22 achieving the ideal design goal can be accomplished with minimal alterations to the
23 project layout. Turbine locations 9, 10, 21, and 22 should be evaluated to reduce the
24 sound at receptors 8 and 11.

25
26 **Q. What options did Commission Staff explore to achieve the design goal for these**
27 **two receptors?**

28 A. Sweetland may be able to lower the sound level at these two non-participating
29 residences by using Low Noise Trailing Edge (“LNTE”) technology on the turbines near
30 the residences, or by removing specific turbines from the layout and using other
31 alternate locations.

32
33 Commission Staff did not evaluate moving the turbines to another location on the same
34 landowners’ property as the maps submitted by the Applicant did not provide adequate

1 information to evaluate that option. The Applicant can provide other options for the
2 Commission to consider in rebuttal testimony.

3
4 **Q. How much does the use of LNTE technology reduce the sound level for the two**
5 **non-participating receptors?**

6 A. According to the Applicant's response to Commission Staff data request 1-35, if turbine
7 locations 9, 10, 21, and 22 utilized the GE 2.82 – 127 LNTE turbine model, the sound
8 level at receptor 8 would be reduced from 43 dBA to 42 dBA, and the sound level at
9 receptor 11 would be reduced from 42 dBA to 41 dBA.

10
11 The Applicant stated that a 1 dBA change in sound level is generally unperceivable to
12 the human ear.

13
14 **Q. How many turbines would the Applicant need to remove to achieve the design**
15 **goal for the two non-participating residences?**

16 A. According to the Applicant's updated response to Commission Staff data request 1-36
17 and 1-37, it appears the Applicant would need to remove turbines 9, 10, 21, and 22, to
18 achieve the design goal of 40 dBA for all non-participating residences. Sweetland
19 proposed 15 alternative turbine location sites in the Application that could be considered.

20
21 **Q. Did the Applicant include an uncertainty factor in the sound modeling?**

22 A. Yes. On page 9 of the direct testimony Robert O'Neal, Mr. O'Neal stated a "uncertainty
23 factor of 2.0 dBA was added to the sound power level for the proposed turbine to
24 account for uncertainty in the manufacturer's sound data." Commission Staff considers
25 this a conservative modeling assumption.

26
27 **Q. Can Sweetland achieve Commission Staff's ideal design goal with LNTE turbine**
28 **models if the uncertainty factor is removed as a modeling assumption?**

29 A. Yes. Without a 2.0 dBA uncertainty factor, receptor 8 has an expected sound level of 41
30 dBA, and receptor 11 has an expected sound level of 40 dBA. If the Applicant utilized
31 the GE 2.82 – 127 LNTE turbine model for turbines 9, 10, 21, and 22, the expected
32 sound level at receptor 8 would be reduced from 41 dBA to 40 dBA, and the sound level
33 at receptor 11 would be reduced from 40 dBA to 39 dBA.

1 **Q. Does Commission Staff have a position on whether the sound model will produce**
2 **accurate predictions if the uncertainty factor is removed?**

3 A. Sweetland will need to make that determination and Commission Staff expects
4 Sweetland to be accountable for accurate sound level predictions. Commission Staff
5 has hired Mr. David Hessler to review sound information in prior wind energy facility
6 dockets before the Commission, and Mr. Hessler has not included an uncertainty factor
7 in the sound models he has prepared.

8
9 If Sweetland or the Commission has concerns with the accuracy of the model without the
10 uncertainty factor, Sweetland may need to remove four turbines to achieve Commission
11 Staff's ideal design goal. The Commission will need to balance the desire to avoid noise
12 complaints with the economic impact to the landowners that may lose income from
13 removing a turbine as it considers Commission Staff's ideal design goal.

14
15 **Q. Will Commission Staff consider calling Mr. David M. Hessler as a rebuttal witness**
16 **if the Applicant is unwilling to modify its layout or turbine model to achieve**
17 **Commission Staff's ideal design goal?**

18 A. Yes.

19
20 **XIV. INTERVENOR CONCERNS**

21
22 **Q. Did the Commission grant intervention to any interested persons in this docket?**

23 A. Yes. The Commission granted intervention to Theresa Lichy on May 14, 2019.

24
25 **Q. Please summarize Ms. Lichy's concerns with the Sweetland Wind Farm.**

26 A. On June 4, 2018, Commission Staff met with Ms. Lichy and representatives from
27 Sweetland in Miller, South Dakota, to discuss her concerns with the project. Ms. Lichy
28 stated her main concern is the placement of wind turbines 48 and 55. Please see
29 Exhibit_JT-2 for a letter of concerns provided by Ms. Lichy at this meeting. Ms. Lichy
30 listed four concerns that I will summarize briefly below:

31
32 1. Setback from property lines – Ms. Lichy requests at least a ½ mile setback from
33 her property line to allow for the future building of a residence on either of her
34 properties;

- 1 2. Potential harm to cattle that graze in proximity to the Sweetland Wind Farm – Ms.
2 Lichty is concerned about decreased production (miscarriages, deformities,
3 weight loss) in her cattle herd from grazing in proximity to wind turbines;
4 3. Potential contamination of water supply for cattle from the construction and
5 operation of the Sweetland Wind Farm – Ms. Lichty is concerned about water
6 contamination from the construction of concrete wind turbine foundations and
7 leakage of oil from the wind turbines after construction; and
8 4. Potential risks associated with fire from wind turbines.

9
10 **Q. Does the Commission have the authority to relocate turbines?**

11 A. No. SDCL 49-41B-36 specifically states that the Commission is not delegated the
12 authority to designate or mandate the location of a wind energy facility. The Applicant
13 proposes the location, and the Commission either approves or denies the location
14 proposed based on evidence in the record.

15
16 **Q. Has Ms. Lichty provided any documentation or studies to support her concerns?**

17 A. No. Commission Staff issued discovery to Ms. Lichty to provide an opportunity to
18 support these concerns. Commission Staff did not receive responses to these requests
19 prior to drafting testimony.

20
21 **Q. Has the Commission considered similar issues to the concerns raised by Ms.
22 Lichty in prior wind energy facility siting dockets?**

23 A. Yes, the Commission has considered similar issues except for the potential harm to
24 cattle that graze in proximity to wind turbines. In the Deuel Harvest Wind Farm
25 proceeding, Docket EL18-053, the Commission heard testimony on wind energy facilities
26 impact on the future development of non-participating properties, hydrological impacts
27 associated with the construction and operation of wind energy facilities, and the potential
28 risks associated with fire from wind turbines.

29
30 **Q. Please summarize the non-participant future development issue considered by the
31 Commission in the Deuel Harvest North Wind Farm proceeding.**

32 A. An intervenor in the proceeding, Mr. Heath Stone, requested a 2,000-foot setback from
33 his family's homestead at which there is currently an abandoned residence. Mr. Stone
34 stated his future plans are to build a home at this site. According to the Final Decision

1 and Order in the proceeding, Mr. Stone had no current specific plans for re-constructing
2 the homestead, and there is no evidence that a building permit or other permit had been
3 issued for the property. The Commission did not grant Mr. Stone's request for a 2,000-
4 foot setback from the abandoned homestead on his property and ordered the turbine
5 manufacturer's recommended setback from the property line of 1.1 times the tip height
6 of the turbine, with a minimum set back distance of 558 feet.

7
8 **Q. Does Ms. Lichty have any specific development plans or obtained any permits to
9 develop to construct a residence?**

10 A. Not that Commission Staff is aware of.

11
12 **Q. Do you agree that the property line setback proposed by Sweetland is consistent
13 with state law?**

14 A. Commission Staff agrees that the property line setback proposed by Sweetland is
15 consistent with the minimum standard established by state law. SDCL 43-13-24 states:

16
17 *Large wind energy system set back requirement--Exception. Each wind turbine*
18 *tower of a large wind energy system shall be set back at least five hundred feet*
19 *or 1.1 times the height of the tower, whichever distance is greater, from any*
20 *surrounding property line. However, if the owner of the wind turbine tower has a*
21 *written agreement with an adjacent land owner allowing the placement of the*
22 *tower closer to the property line, the tower may be placed closer to the property*
23 *line shared with that adjacent land owner.*

24
25 **Q. Has the South Dakota legislature considered modifying SDCL 43-13-24 for
26 setbacks from property lines?**

27 A. Yes. During the 2019 legislative session, the South Dakota House of Representatives
28 considered House Bill 1226, an act to revise the distance certain wind energy systems
29 must be set back from surrounding property. The bill would have changed the set back
30 from "five hundred feet or 1.1 times the height of the tower" to "one thousand five
31 hundred feet or three times the height of the tower." House Bill 1226 failed in the House
32 Commerce and Energy Committee by a vote of 10 to 2.

1 **Q. Does Commission Staff have any other comments regarding Ms. Lichty's request**
2 **for a half-mile setback from her property line?**

3 A. There may be certain locations on Ms. Lichty's properties that are more suitable for the
4 construction of a home than other locations. Generally, home builders consider access
5 to services and roads, topology, and geology, among other things, when choosing a site.
6 The Commission may want to analyze specific build sites on Ms. Lichty's properties so
7 the impacts of the wind energy facility can be considered on the residence.

8
9 **Q. Has Commission Staff provided Ms. Lichty with the contact information of a DENR**
10 **representative to answer questions about hydrological impacts associated with**
11 **the construction and operations of wind energy facilities?**

12 A. Yes. Ms. Lichty has been in contact with the DENR regarding her concerns about
13 ground water.

14
15 **Q. Regarding Ms. Lichty's concerns about fire protection, what did the Commission**
16 **determine about the risk of fire at the project in the Deuel Harvest Wind Farm**
17 **proceeding?**

18 A. In Finding of Fact 125 from the Final Decision and Order, the Commission found the
19 following regarding the risk of fire at the wind energy facility:

20
21 The record demonstrates that Deuel Harvest has taken appropriate measures to
22 avoid and/or minimize the risk of fire at the Project. Turbine fires are rare. As Mr.
23 Baker testified, he is aware of one turbine fire on all of Invenergy's wind farms,
24 and that fire burned itself out. Turbines are constructed of fiberglass and steel,
25 which are not highly flammable materials. Further, Deuel Harvest will take steps
26 to reduce the risk of fire at the Project. Deuel Harvest will acquire turbines from
27 reputable suppliers. With respect to Project maintenance activities, a rigorous hot
28 works program (a program to reduce risks associated with an activity, such as
29 welding, which provides an ignition source) is adhered to whenever any open
30 flames or heat sources are introduced in a tower. All up tower entries require a
31 fire extinguisher be taken up the tower. All employees are trained annually on
32 use. Additionally, Deuel Harvest will coordinate fire emergency plans and hold
33 emergency response drills at the Project with local fire departments both before
34 the Project becomes operational and annually thereafter.

35
36 **Q. Does Commission Staff have an opinion on Ms. Lichty's concerns and requests?**

37 A. While the Commission has considered similar issues in prior wind energy facility
38 dockets, Ms. Lichty's evidence to support her claims may be different. Commission Staff

1 will consider the evidence, if any, provided by Ms. Lichty before offering a
2 recommendation.

3
4 **XV. COMMISSION STAFF'S PERMIT RECOMMENDATION**

5
6 **Q. Does Commission Staff recommend the Application be denied because of**
7 **Commission Staff's issues and concerns?**

8 A. Not at this time. Because Sweetland has the opportunity to address outstanding issues
9 on rebuttal and, to an extent, through the evidentiary hearing, Commission Staff
10 reserves any position on granting the permit until such time as we have a complete
11 record upon which to base Commission Staff's position. Commission Staff would also
12 note that some of the outstanding issues may be addressed through conditions should
13 the Commission grant a permit.

14
15 **Q. Does this conclude your testimony?**

16 A. Yes, this concludes my written testimony. However, I will supplement my written
17 testimony with oral testimony at the hearing to respond to Sweetland's rebuttal
18 testimony, Intervenor testimony, and responses to discovery.

19