

BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION

DOCKET NO. EL18-003

**IN THE MATTER OF THE APPLICATION BY DAKOTAT RANGE I, LLC AND
DAKOTA RANGE II, LLC FOR A PERMIT OF A WIND ENERGY FACILITY IN
GRANT AND CODINGTON COUNTY, SOUTH DAKOTA, FOR DAKOTA
RANGE WIND PROJECT**

Direct Testimony of Tom Kirschenmann
On Behalf of the Staff of the South Dakota Public Utilities Commission
May 4, 2018

1 **Q: State your name.**

2 A: Tom Kirschenmann

3

4 **Q: State your employer.**

5 A: State of South Dakota, Department of Game, Fish, and Parks

6

7 **Q: State the program for which you work.**

8 A: Division of Wildlife, Terrestrial Resource Section

9

10 **Q: State the program roles and your specific job with the department.**

11 A: The role of the Terrestrial Resources section is to study, evaluate, and
12 assist in the management of all wildlife and associated habitats.
13 Management includes game and non-game wildlife populations, habitat
14 management on public lands and technical assistance and habitat
15 development on private lands, population and habitat inventory, and
16 environmental review of local and landscape projects. As the Deputy
17 Director of the Wildlife Division and Chief of the Terrestrial Resources
18 Section, I oversee and am involved with wildlife management and
19 research, as well as habitat management consisting of the department's
20 public lands and private lands programs.

21

22 **Q: Explain the range of duties you perform.**

1 A: Duties include leading the Terrestrial Resources section that includes
2 three program administrators (Wildlife, Habitat, Wildlife Damage) and 23
3 wildlife biologists; coordinate and assist with the Division of Wildlife's
4 Operations at four administrative regions; oversee wildlife research,
5 management, and the establishment of hunting seasons for game
6 species; oversee private lands habitat programs; coordinate
7 environmental review evaluations and responses related to terrestrial
8 issues with department staff; serve as the Department's liaison for several
9 state and federal agencies; and represent the Department on state and
10 national committees.

11

12 **Q: On whose behalf was this testimony prepared?**

13 A: This testimony was prepared on behalf of the Staff of the South Dakota
14 Public Utilities Commission.

15

16 **Q: What role does the Department of Game, Fish and Parks have in the
17 permitting process of a wind energy development project?**

18 A: Game, Fish and Parks has no regulatory authority when it comes to
19 permitting wind energy development projects. The agency's role is to
20 consult with developers and provide recommendations and suggestions
21 on how to minimize or remove potential impacts to wildlife and associated
22 habitats or provide available information to make informed decisions as
23 related to natural resources.

1 **Q: Have you reviewed the Application and attachments? How else did**
2 **you learn details around the proposed project?**

3 A: Yes, relevant sections of the application and attachments and also
4 discussed project details with GFP biologists who had more direct
5 communications with the developer.

6

7 **Q: Did the GF&P provide comments and recommendations to Dakota**
8 **Range about the project area? Please identify who provided those**
9 **comments and provide a brief summary of them.**

10 A: Yes, Silka Kempema, Wildlife Biologist, provided initial comments in July
11 of 2015. During this initial consultation, information and concerns were
12 shared with the applicant. This consultation continued with conference
13 calls, emails, and review of reports and draft documents associated with
14 the proposed project.

15

16 A summary of those consultations include suggestions on the types,
17 timing and number of surveys for grassland birds (songbirds and grouse),
18 survey recommendations for raptors, placement of turbines and
19 associated infrastructure considering the avoidance of untilled native
20 prairie and large contiguous blocks of grasslands and to focus on
21 disturbed lands such as fields currently cultivated, avoidance of activities
22 that will fragment contiguous blocks of grasslands, avoidance of wetland

1 basins or areas of high concentrations of wetlands, pre-construction
2 surveys for bat use and habitats plus post-construction mortality surveys.

3

4 **Q: Do you agree with the comments and recommendations provided to**
5 **Dakota Range by Ms. Kempema? If not, please explain.**

6 A: Yes. These are typical discussion topics and recommendations our
7 Department would share with wind power companies to identify, minimize,
8 or reduce impacts to wildlife and wildlife habitats, especially those projects
9 that are proposed in grassland and wetland habitats.

10

11 **Q: Based on the information provided in the Application, in your opinion**
12 **did Dakota Range utilize the proper studies and wildlife surveys**
13 **necessary to identify potential impacts to the terrestrial**
14 **environment?**

15 A: Consultation with wildlife agencies early in the application process
16 included the recommendation of several types of wildlife surveys to
17 understand the potential impacts and issues that may occur in the project
18 area and were carried out. It is recommended to carry out post-
19 construction mortality monitoring for at least two years.

20

21 **Q: What are the potential impacts to wildlife as a result of the**
22 **construction of a wind project?**

1 A: Direct; birds and bats can be killed by turbines due to direct strikes.
2 Indirect; some species may be displaced from otherwise suitable habitat
3 around turbines and roads. A research project on the effects of wind
4 energy on breeding grassland bird densities in North and South Dakota
5 showed seven of nine species of grassland birds had reduced densities
6 around wind turbines over time (Shaffer and Buhl 2016).

7

8 **Q: What potential impacts to wildlife habitat can result from a wind**
9 **project?**

10 A: Permanent loss; habitat is permanently converted to turbine pads, roads
11 or buildings. This is often a small percent of the total project acreage (area
12 define by wind easements or otherwise defined project boundary).
13 Temporary loss; habitat is disturbed for a time during construction (e.g.
14 widened roads, crane paths) but is restored. Fragmentation; habitat
15 fragmentation is the division of a block of habitat into smaller, and at times
16 into isolated patches. Habitat fragmentation can decrease the overall
17 value of the remaining habitat.

18

19 **Q: Can you suggest methods to address temporary and permanent**
20 **changes to habitat?**

21 A: Temporary impacts to habitat resulting from construction activities likely
22 can be reclaimed by restoring impacted areas by grading and reseeded.
23 Disturbed areas should be restored using native seed sources to reduce

1 the introduction of new or discourage encroachment of already present
2 exotic and/or invasive species.

3

4 For those areas that are permanently changed, lost grassland or wetland
5 acres could be addressed through consideration of mitigation options.
6 Disturbed areas again should be restored using native seed sources to
7 reduce the introduction of new or discourage encroachment of already
8 present exotic and/or invasive species. It would also be recommended
9 that if lost acres are replaced to carry out these replacement activities in
10 the closest possible proximity of the project.

11

12 **Q: Are there any other impacts besides temporary and permanent**
13 **habitat impacts that are likely to occur as a result of the project?**

14 A: Indirect habitat impacts are also a consideration. Potential indirect impacts
15 created by wind turbines and associated infrastructure raise concerns with
16 habitat fragmentation and potential displacement, especially with regards
17 to breeding grassland and wetland species. Research into the effects of
18 wind energy on habitat avoidance has shown that some species will not
19 use grassland or wetland habitat within a certain distance of a wind turbine
20 (Loesch et al. 2013, Shaffer and Buhl 2016).

21

22 **Q: Did GFP have any wildlife or habitat concerns regarding the**
23 **proposed Dakota Range? If yes, what are they?**

1 A: Yes. The area of primary interest is the potential impacts to the various
2 grassland habitats and associated wildlife.

3

4 Q: **Did GFP provide any recommendations to avoid wildlife and habitat
5 impacts from Dakota Range? If yes, what were they?**

6 A: Yes. The primary recommendation was to site turbines and associated
7 infrastructure in cropland or to utilize existing infrastructure and avoid
8 siting turbines in grasslands. Other types of recommendations offered
9 were the utilization of a 1-mile buffer around prairie grouse leks and post-
10 construction surveys for bat and bird mortality which could be used in
11 assisting with operational adjustments in the future.

12

13 Q: **Are there different types of grasslands?**

14 A: Yes.

15

16 Q: **Please describe the following: native prairie, hayland, pasture, CRP,
17 and cropland.**

18 A: Grasslands are areas that contain plants species such as graminoids and
19 are commonly used for grazing or set aside for conservation purposes.
20 They can also be areas which are planted to a mixture of grasses and
21 legumes for livestock grazing or feed. Native prairie is grassland upon
22 which the soil has not undergone a mechanical disturbance associated
23 with agriculture or any other type of development. Hayland is grassland

1 that is managed by frequent mowing and often contains non-native plant
2 species either intentionally or by encroachment. Pasture is grassland that
3 may contain non-native plant species either intentionally or by
4 encroachment and is managed by through grazing. In some instances,
5 hayland and pasture could be native prairie; in other situations, hayland
6 and pasture in particular could be land once cultivated and restored to
7 grassland habitat. Conservation Reserve Program acres (CRP) is
8 grassland that occurs on land that was once tilled and used for crop
9 production and has now been seeded to herbaceous cover to address soil
10 loss, water quality, and provide wildlife habitat. Cropland could be
11 described as agricultural lands cultivated and used to grow crops such as
12 corn, soybeans, small grains, and others.

13

14 **Q: Are there any areas of native prairie in the proposed project?**

15 **A:** Yes. Spatial analysis conducted by Bauman et al. (2016) has identified
16 potentially undisturbed lands [PUDL] within the proposed project
17 boundary. This is one of the best available spatial data sets representing
18 the location of untilled native grasslands. The applicant also identified
19 within the application an estimated 2,953 acres of untilled grassland within
20 the project area.

21

22 **Q: Do grasslands other than native prairie have conservation value?**

1 A: Yes. Given the loss of native prairie, working grasslands like pasture,
2 hayland, and conservation grassland plantings serve as surrogates for
3 native grasslands.

4

5 **Q: To your knowledge, are there grazed grasslands in the project area?**

6 A: Yes.

7

8 **Q: Do grazed grasslands have any conservation value and what is the**
9 **impact to grassland wildlife?**

10 A: All grasslands have a conservation value, including those managed
11 through grazing. Grassland birds require a diversity of grassland types
12 and structure to complete life-cycle requirements. Studies have shown
13 that grassland birds respond primarily not to variation in plant species
14 composition but to the structure that these plants provide. Grassland birds
15 have evolved with a gradation of grazing intensities. Grassland wildlife
16 diversity can be maximized by creating a heterogeneous landscape
17 comprised of short, medium and tall vegetation structures. Grazing
18 (haying and burning) management can provide this variation in vegetative
19 structure. Changes in land management and annual precipitation levels
20 can alter plant species composition and vegetation structure of grassland
21 within a short timeframe.

22

1 **Q: One of the GF&P's recommendations was that efforts should be**
2 **made to avoid placement of turbines and new roads in grasslands,**
3 **especially untilled native prairie. Based on the information in the**
4 **Application and the proposed turbine layout, did Dakota Range**
5 **demonstrate efforts to address this recommendation? Please**
6 **explain.**

7 A: From reviewing the available maps, resources, and other information
8 available there were efforts to avoid placement of turbines on untilled
9 native prairie. It appears that multiple turbines are being planned in
10 cultivated land (disturbed) which from a wildlife perspective is a positive
11 siting approach. Some turbines will likely be placed on other types of
12 grassland habitats (hay and pasture) within the project area. Avoidance of
13 all grassland habitat will be challenging in this part of the state and in the
14 project area as a high proportion of the total area is some type of
15 grassland/herbaceous habitat.

16

17 **Q: One of GF&P's concerns around wind farm development is the**
18 **fragmentation of contiguous blocks of grasslands. Why is**
19 **fragmentation a concern?**

20 A: Fragmentation results in the direct loss of habitat and diminishes the value
21 of remaining habitat. Habitat fragmentation is the division of large
22 contiguous blocks of habitat into smaller, and in some instances isolated
23 patches. Identification of contiguous blocks of habitat, especially in

1 predominantly non-habitat landscapes is an important component of
2 grassland and wetland bird conservation.

3

4 **Q: Are there any areas of contiguous grassland habitat in the proposed**
5 **project?**

6 A: Yes. The northeastern portion of the proposed project area has the
7 highest level of contiguous blocks of grassland habitat.

8

9 **Q: Based on the information available does the GF&P have concerns**
10 **over the placement of turbines and roads in contiguous blocks of**
11 **grassland?**

12 A: Based on reviewing available information, fragmentation of grassland
13 habitats were avoided/minimized in some of the project area through the
14 proposed layout of the infrastructure of the wind farm. This is a result of
15 primarily utilizing tilled agricultural fields for turbine locations. There are
16 other locations of the project area which the placement of service roads to
17 turbines will likely create some level of fragmentation of larger grassland
18 blocks (comprised of different grassland cover types: hay, pasture, etc.).
19 Based on the location of the project area and the existing land-use, it will
20 be challenging not to create some additional fragmentation of grassland
21 habitat, and in some situations larger contiguous blocks comprised of
22 different grassland cover types.

23

1 **Q. Does the state or GF&P have specific mitigation recommendations**
2 **that will minimize or compensate potential impacts from wind energy**
3 **development if they cannot be avoided?**

4 A. At the current time South Dakota does not have a state mitigation policy
5 that can be provided to wind energy developers. However, there are
6 resources available which can provide guidance and suggestions that can
7 be considered as well as self-imposed actions or activities that can
8 minimize natural resource impacts.

9

10 **Q: What are potential mitigation considerations?**

11 A: Mitigation can take multiple forms and can be accomplished in a multitude
12 of ways. It could be an approach which implements an applied
13 management activity/strategy on impacted lands which elevates these
14 lands to a more productive state or higher ecological state (example –
15 grazing management) to an approach which is more sophisticated and
16 detailed using tools developed to calculate acres of habitat to be restored
17 or created based on impacted acres and other relevant research data
18 (example – decision support tool). Two examples that are available
19 specifically for wind energy projects is a decision support tool based off
20 the research conducted by Loesch et al. (2013) that considers breeding
21 waterfowl and another which focuses on breeding grassland songbirds
22 resulting from research findings of Shaffer and Buhl (2016). As stated
23 earlier South Dakota does not have a state mitigation policy nor does the

1 state endorse either study and resulting products, however it is worthy of
2 mentioning these tools demonstrating resources available to developers
3 and managers.

4

5 **Q: Does the GF&P have any thoughts regarding the potential for**
6 **cumulative impacts the Project may have?**

7 A: As projects are completed and based on location and proximity to other
8 projects, the question of cumulative impacts will become more apparent.
9 Knowing the importance of native prairie tracts and other forms of
10 grassland habitat to several grassland dependent species, continued
11 development on these types of lands could result in reduced or limited
12 habitat value. Placement of turbines in lands currently under cultivation
13 and avoiding where possible the different varieties of grassland and
14 wetland habitats will help minimize potential cumulative impacts.

15

16 Our agency will continue to work with wind developers and provide
17 recommendations that we believe will help minimize cumulative impacts.
18 No different than offered to this project, the focus could include, but not
19 limited to, recommendations on avoiding grassland habitats, in particular
20 native prairie remnants, avoidance of high wetland complex areas,
21 maximize the use of existing corridors for infrastructure, and pre and post
22 construction surveys to assess the proposed project area that may assist
23 in operational decisions.

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Q: Do any State threatened or endangered species have the potential to be impacted by the wind farm?

A: There is the chance that the state and federal endangered Whooping Crane could occur in the project area. The other state listed species present is the Northern River Otter and there are not likely to be impacts to this species from the proposed wind farm.

Q: Does this conclude your testimony?

A: Yes.

Bauman, P., J. Blastick, C. Grewing, and A. J. Smart. 2014. Quantifying undisturbed land on South Dakota's prairie coteau. SDSU Extension.

Bauman, P., B. L. Carlson, and T. Butler. 2016. Quantifying undisturbed (native) lands in eastern South Dakota:2013. South Dakota State University.

Loesch, C. R., J. A. Walker, R. E. Reynolds, J. S. Gleason, N. D. Niemuth, S. E. Stephens, and M. A. Erickson. 2013. Effect of wind energy development on breeding duck densities in the Prairie Pothole Region. The Journal of Wildlife Management 77:587-598.

Shaffer, J. A., and D. A. Buhl. 2016. Effects of wind-energy facilities on breeding grassland bird distributions. Conservation Biology 30:59-71.