

BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION

DOCKET NO. EL 21-018

**IN THE MATTER OF THE APPLICATION BY NORTH BEND WIND PROJECT,
LLC FOR A PERMIT TO CONSTRUCT AND OPERATE THE NORTH BEND
WIND PROJECT IN HYDE COUNTY AND HUGHES COUNTY, SOUTH
DAKOTA**

Direct Testimony of Hilary Morey
On Behalf of the Staff of the South Dakota Public Utilities Commission
February 7th, 2022

1 **Q: State your name.**

2 A: Hilary Morey

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

17 environmental review senior biologist, I coordinate reviews of various

18 development projects within the state of South Dakota to assist

19 developers with compliance with state wildlife laws and to serve as

20 stewards of our state's outdoor resources.

21

22

23

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

2 A: Duties include coordinating environmental review evaluations and drafting
3 responses related to terrestrial and aquatic issues with department staff
4 and represent the Department on state and national committees. I am a
5 co-principal investigator on two State Wildlife Grants that are researching
6 the effects of wind energy development on species of greatest
7 conservation need. I also assist in field work and wildlife surveys where
8 needed.

9
10 **Q: On whose behalf was this testimony prepared?**

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

13
14 **Q: What role does the Department of Game, Fish and Parks have in the
15 permitting process of a wind energy development project?**

16 A: Game, Fish and Parks has no regulatory authority when it comes to
17 permitting wind energy development projects. The agency's role is to
18 consult with developers and provide wildlife survey data, spatial data, peer
19 reviewed literature, and recommendations on how to minimize or avoid
20 potential impacts to wildlife and associated habitats to enable developers
21 to make informed decisions as related to natural resources.

22

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

3 A: Yes, I have reviewed relevant sections of the application and attachments.
4 GFP was contacted by the developer and Western Area Power
5 Administration in January 2021 regarding North Bend Wind. I have also
6 discussed project details with other GFP biologists who have specialized
7 expertise related to wildlife species of concern or the project location.

8

9 **Q: Did the GF&P provide comments and recommendations to North**
10 **Bend about the project area? Please identify who provided those**
11 **comments and provide a brief summary of them.**

12 A: I was initially contacted via e-mail in January 2021 by North Bend Wind
13 regarding the proposed project. North Bend provided summaries of wildlife
14 surveys completed in the project area to GFP (myself) and USFWS and
15 requested a conference call to discuss the project and related wildlife
16 surveys. Shortly after the initial contact with North Bend, Western Area
17 Power Administration (WAPA) contacted GFP with a scoping notice for
18 North Bend Wind and made GFP aware of a virtual public scoping
19 meeting to be held on January 28th, 2021. I attended the virtual public
20 scoping meeting representing GFP and provided oral comments and
21 asked questions about the proposed project, specifically related to prairie
22 grouse and the number of leks in the project area. I replied to the WAPA
23 scoping notice in March 2021 with a letter describing important wildlife

1 habitats (grasslands, wetlands, etc.), information about rare, endangered
2 or threatened species that could occur in the project area,
3 recommendations to avoid and minimize impacts to wildlife and
4 recommendations related to post-construction monitoring. I have included
5 a copy of our comment letter as an exhibit to this testimony (Exhibit_HM-
6 2). GFP was contacted via a website form submission by Western
7 EcoSystems Technology (WEST) Inc. in November 2021 for a search of
8 the South Dakota Natural Heritage Database for threatened, endangered
9 or sensitive species records in the project area and a surrounding 5-mile
10 buffer. I responded to the request by providing a list of species records
11 within the project area and the 5-mile buffer.

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

17 A: Pre-construction wildlife survey data usually incorporates a small snapshot
18 in time (ex. monthly large bird counts) but is used to assess risks for the
19 life of a project (~30 years). Therefore, it is important to perform surveys
20 with a high degree of scientific rigor. The US Fish and Wildlife Service
21 (USFWS) Land-Based Wind Energy Guidelines (hereafter referred to as
22 USFWS guidelines) are intended to encourage scientifically rigorous
23 survey, monitoring, assessment and research designs, produce potentially

1 comparable data across the nation, and improve the ability to predict and
2 resolve effects of wind energy development locally, regionally and
3 nationally. These guidelines, along with GF&P siting recommendations
4 (https://gfp.sd.gov/userdocs/docs/SDSitingGuides_2018-10-17.pdf) are
5 voluntary suggestions (USFWS 2012).

6
7 North Bend's survey methods for Northern long-eared bat habitat
8 assessments, bat acoustic surveys, fixed-point avian use surveys (large
9 and small bird), aerial raptor nest surveys, and eagle nest surveys were
10 reasonable and appropriate because they followed USFWS guidelines.

11
12 Grouse lek surveys conducted by North Bend generally followed SDGFP
13 survey protocols but deviated slightly. Game, Fish and Parks' typical
14 recommendations include: conducting lek counts a minimum of two times
15 (e.g. at least two visits to each lek location) from 15 March- 15 May each
16 year, with at least one count conducted during April 1-30, completing
17 surveys in winds <20 km/hour (~12 mph) with no precipitation and
18 conducting surveys from one half hour before sunrise until 2 hours after
19 sunrise (Runia et al. 2021). These guidelines are intended to outline
20 conditions (weather, timing) to maximize an observer's ability to detect the
21 presence of prairie grouse and lek activity. Peak hen attendance in South
22 Dakota is generally the 1st week of April (Norton 2005), and lek activity can
23 diminish or be more difficult to detect if hens are not present. The 2019 lek

1 survey dates (April 19th-May17th; Table 9-8 in the Application) fell outside
2 of the recommended survey window. The 2016, 2018 and 2020 survey
3 dates were within the recommended survey window. North Bend also
4 reports that surveys were conducted in wind conditions “<24-30 km/hour,”
5 which is above what GFP typically recommends (Appendix C, report pg.
6 18).

7
8 For ground-based surveys, SDGFP further recommends observers
9 acquire permission to access areas where there are few public roads, as
10 limiting observations to publicly accessible roads can diminish observers
11 ability to detect prairie grouse, particularly Sharp-tailed grouse (see
12 methods in Runia et al. 2021 for more detail). Page 19, Appendix C of the
13 application states that ground-based surveys (2019 and 2020) were
14 conducted “by traveling publicly accessible roads (or roads where
15 permission was previously obtained) throughout the Project area”. It is not
16 apparent from the application if or where permission for access to
17 roadless areas was acquired for ground-based lek surveys within the
18 project area.

19
20 **Q: What are the potential impacts to wildlife as a result of the**
21 **construction of a wind project?**

22 **A:** Direct; birds and bats can be killed by turbines due to direct strikes (AWWI
23 2021). Indirect; some species may be displaced from otherwise suitable

1 habitat around turbines and roads (Loesch et al. 2013, Shaffer and Buhl
2 2015, Londe et al. 2022).

3

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

6 A: Permanent loss; habitat is permanently converted to turbine pads, roads
7 or buildings. This is often a small percent of the total project acreage (area
8 defined by wind easements or otherwise defined project boundary).

9 Temporary loss: habitat is disturbed for a time during construction (e.g.
10 widened roads, crane paths) but is restored. Fragmentation: habitat
11 fragmentation is the division of a block of habitat into smaller, and at times
12 into isolated patches. Habitat fragmentation can decrease the overall
13 value of the remaining habitat.

14

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

18 A: Fragmentation results in the direct loss of habitat and diminishes the value
19 of remaining habitat. Habitat fragmentation is the division of large
20 contiguous blocks of habitat into smaller, and in some instances isolated
21 patches. Identification and avoidance of contiguous blocks of habitat,
22 especially in altered landscapes, is an important component of grassland
23 and wetland bird conservation (Bakker 2020).

1

2 **Q: Can you suggest methods to address temporary and permanent**
3 **changes to habitat?**

4 A: Temporary impacts to habitat resulting from construction activities likely
5 can be reclaimed by restoring impacted areas by grading and reseeding.
6 Disturbed areas should be restored using native seed sources to reduce
7 the introduction of new or discourage encroachment of already present
8 exotic and/or invasive species.

9

10 For those areas that are permanently changed, lost grassland or wetland
11 acres could be addressed through consideration of voluntary mitigation
12 options. Disturbed areas again should be restored using native seed
13 sources to reduce the introduction of new or discourage encroachment of
14 already present exotic and/or invasive species. GFP typically recommends
15 that if lost acres are replaced through voluntary mitigation to carry out
16 these replacement activities in close proximity of the project, similar to
17 recommendations from Shaffer et al. (2019).

18

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

21 A: Indirect habitat impacts are also a consideration. Potential indirect impacts
22 created by wind turbines and associated infrastructure raise concerns with
23 habitat fragmentation and potential displacement, especially with regards

1 to breeding grassland and wetland species. Research into the effects of
2 wind energy on habitat avoidance has shown that some species of
3 waterfowl (e.g. Mallard, Blue-winged Teal, Whooping Cranes) and
4 grassland nesting birds (Western Meadowlark, Upland Sand Piper,
5 Savannah Sparrow) will not use grassland or wetland habitat within a
6 certain distance of a wind turbine, or may exhibit reduced densities as
7 compared to control sites (Leddy et al. 1999, Loesch et al. 2013, Shaffer
8 and Buhl 2016, Pearse et al. 2021). Grouse habitat selection, survival, lek
9 persistence and lek attendance may be adversely impacted by close
10 proximity to wind turbines and other project infrastructure (e.g. roads,
11 transmission lines, buildings; Hovick et al. 2014, LeBeau et al. 2020,
12 Londe et al. 2022). However, results from wind energy and grouse
13 research are variable across species and landscapes. Impacts to grouse
14 are not well understood and continue to be studied in South Dakota and
15 across the Midwest and Great Plains States.

16

17 **Q: Did GFP have any wildlife or habitat concerns regarding the**
18 **proposed North Bend project? If yes, what are they?**

19 **A:** Yes. The area of primary interest is the potential impacts to various
20 grassland habitats within the project area and associated wildlife.

21 Grasslands (particularly untilled native prairie) are of high conservation
22 value in South Dakota. Approximately 70% of the native mixed-grass
23 prairie has been lost in eastern South Dakota, and approximately 32% has

1 been lost in western South Dakota (Wright and Wimberly 2013, Bauman
2 et al. 2016). Across the Great Plains Region, it's estimated that less than
3 5% of original tallgrass prairie remains intact (Samson et al. 2004).

4
5 Grassland nesting bird populations have been declining faster than any
6 other bird group in North America (Peterjohn and Sauer 1999, Rosenberg
7 et al. 2019). Many grassland nesting bird species require large tracts of
8 open, contiguous grasslands. Placement of turbines and associated
9 infrastructure (e.g. roads) in large, in-tact grassland parcels can fragment
10 habitat and displace certain species of grassland dependent birds such as
11 prairie grouse, Western Meadowlark, Upland Sand Piper, Grasshopper
12 Sparrow, and Chestnut Collared Longspur (Pruett et al. 2009, Shaffer and
13 Buhl 2016, Bakker 2020). Additionally, Graff et al. (2016) reported higher
14 diversity of species found during spring post-construction mortality
15 monitoring at turbines sited in grasslands (30 species) vs. in croplands (9
16 species) at facilities in North and South Dakota. However, overall mortality
17 rates were similar (1.86 deaths/MW in grasslands vs 2.55 deaths/MW in
18 cropland). While it would be difficult to make recommendations for each
19 individual species of grassland bird that may be affected by a project, GFP
20 considers the presence of prairie grouse (in particular, lek locations) to be
21 indicators of high-quality grassland habitat and a robust ecological
22 community due to their specific habitat needs, particularly large tracts of
23 intact grasslands (Niemuth 2005, Runia et al. 2021).

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Q: Did GFP provide any recommendations to avoid wildlife and habitat impacts from North Bend? If yes, what were they?

A: Yes, GFP provided siting recommendations in our WAPA scoping letter (exhibit_HM-2). The primary recommendations were to site turbines and associated infrastructure in cropland, minimize fragmentation, utilize existing infrastructure, avoid siting turbines in grasslands, and completion of post-construction surveys (either mortality monitoring or post-construction breeding bird surveys). If avoidance of grassland habitats cannot be achieved, GFP recommends a 1 mile no surface occupancy buffer for placement of project infrastructure near prairie grouse (greater prairie chicken and sharp-tailed grouse) leks, and a 2 mile no construction buffer around leks during the breeding season (1 March-30 June; SDGFP 2017).

Some peer-reviewed research has demonstrated negative effects of human disturbance (including wind energy project infrastructure) on prairie grouse habitat use (Hovick et al. 2014, LeBeau 2020; Londe et al. 2022). Conversely, some peer-reviewed research has not been able to detect a negative effect of wind energy project infrastructure on grouse species (LeBeau 2020). GFP recommends a cautious approach, by combining evidence from peer-reviewed publications and data collected by GFP, which indicates the average distance from lek of capture to nest initiation

1 site is approximately 1 mile for both prairie chickens and sharp-tailed
2 grouse hens (Kirschenmann 2008). Given the known data and the
3 potential for negative effects of human disturbance on grouse, we
4 recommend the 1 mile no-surface occupancy buffer around active grouse
5 leks as a way to minimize disturbance of wind energy infrastructure to
6 breeding and nesting grouse (SDGFP 2017).

7

8 **Q: How does SDGFP define whether a grouse lek is active?**

9 A: Game, Fish and Parks considers a grouse lek as “active” if two or more
10 male grouse are present at a location for 2 out of 5 years of appropriately
11 designed and appropriately timed lek surveys (SDGFP 2017). If a lek is
12 surveyed for less than a 5-year period, and activity is detected in only one
13 year, GFP considers a grouse lek as “potentially active”, as the 5-year
14 timeline was not completed. A lek is considered “inactive” if: 1.) no birds
15 were surveyed over the course of 5 years, 2.) less than 2 male grouse
16 were present at a location, or 3.) a lek had only 1 year of activity out of 5
17 years.

18

19 **Q: Did grouse lek studies conducted by North Bend identify any active**
20 **leks within the project area?**

21 A: Yes, North Bend reports a total of 20 grouse leks within the project area
22 and 1-mile survey buffer that were identified during their field studies
23 (Application pg. 9-15 and Appendix C, pg. 19). According to SDGFP’s

1 definition of an active lek and the results presented by North Bend in
2 Table 6 of Appendix C (pg. 21), GFP would consider 11 of these leks as
3 active and 9 of the reported leks as potentially active.

4

5 **Q: Is GFP aware of any potential impacts of wind energy facilities to**
6 **pheasants?**

7 To my knowledge, only one study in North America has been conducted
8 on the effects of wind energy facilities on ring-necked pheasants (Dupuie
9 2018) and was conducted in Iowa. Dupuie (2018) reports that detection of
10 male ring-necked pheasants decreased as turbine density increased and
11 as distance to turbine increased. However, Dupuie (2018) also reports
12 that their findings may not be biologically significant when extrapolated to
13 the population level. In general, there is a lack of research and
14 understanding of the impacts of wind energy infrastructure on ring-necked
15 pheasants.

16

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

18 A: Yes.

19

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

22 A: Grasslands are areas that contain plant species such as graminoids and
23 commonly used for grazing or set aside for conservation purposes. They

1 can also be areas which are planted to a mixture of grasses and legumes
2 for livestock grazing or feed. Native prairie is grassland upon which the
3 soil has not undergone a mechanical disturbance associated with
4 agriculture or any other type of development. Hayland is grassland that is
5 managed by frequent mowing and often contains non-native plant species
6 either intentionally or by encroachment. Pasture is grassland that may
7 contain non-native plant species either intentionally or by encroachment
8 and is managed through grazing. In some instances, hayland and pasture
9 could be native prairie; in other situations, hayland and pasture could be
10 land once cultivated and restored to grassland habitat. Conservation
11 Reserve Program acres (CRP) can be protection of existing grassland or
12 grassland that occurs on land that was once tilled and used for crop
13 production and has now been seeded to herbaceous cover. The CRP
14 program is intended to address soil loss, water quality, and provide wildlife
15 habitat. Cropland could be described as agricultural lands cultivated and
16 used to grow crops such as corn, soybeans, small grains, and others.

17

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

19 A: Yes. Spatial analysis conducted by Bauman et al. (2016) has identified
20 potentially undisturbed lands within the proposed project boundary. This
21 is one of the best available spatial data sets representing the location of
22 untilled native grasslands. The applicant also identified within the

1 application an estimated 21,543 acres of untilled grassland within the
2 project area (pg. 9-2 of the application).

3

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

5 A: Yes. Working grasslands like pasture, hayland, and conservation
6 grassland plantings (e.g. CRP plantings) serve as surrogates for native
7 grasslands. Some grassland dependent species (prairie grouse, Baird's
8 sparrow, Northern Harriers) require grassland patches with relatively tall
9 (12 inches or more) vegetation and accumulation of residual litter
10 characterized by light grazing pressure. Other species (Ferruginous
11 Hawks, Burrowing Owl, Chestnut-collared Longspur) require open
12 expanses of grasslands characterized by short vegetation that is typical of
13 moderate to heavy grazing pressure. Sprague's Pipit, Long-billed Curlew,
14 Bobolink and Dickcissel require grasslands with moderate grass heights
15 and periodic disturbance from grazing, mowing or prescribed fire (Johnson
16 et al. 2010, Bakker 2005, Shaffer and DeLong 2019). Although various
17 patches of grassland habitat can appear in "better" or "worse" condition
18 based on vegetation height and plant species composition, GFP considers
19 all grassland habitat as important for wildlife based on the information
20 presented above. Grassland birds have evolved with a gradation of
21 grazing intensities. Grassland wildlife diversity can be maximized by
22 creating a heterogeneous landscape comprised of short, medium and tall

1 vegetation structures. Grazing (haying and burning) management can
2 provide this variation in vegetative structure.

3

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

10 A: Information from the application indicates that approximately 23,046 acres
11 of the 46,931 acre project area is classified as herbaceous/grassland
12 cover (pg. 9-2). From reviewing the available maps within the application
13 there were efforts to avoid placement of turbines on grasslands as
14 approximately 31 of the proposed 78 turbine locations appear to be
15 positioned in grassland habitats (appendix A; figure 11). During review of
16 the proposed turbine layout compared to the Bauman et al. (2016)
17 potentially undisturbed lands spatial layer, these 31 turbines appear to be
18 located in areas that may contain untilled native prairie .A continued
19 recommendation for wind development is to avoid untilled native prairie
20 habitat to the greatest extent possible. It appears that multiple turbines are
21 being planned in cultivated land (disturbed) which, from a wildlife
22 perspective is a positive siting approach. Avoidance of all grassland
23 habitat will be challenging in this part of the state and in the project area,

1 as a high proportion of the total area is some type of
2 grassland/herbaceous habitat as demonstrated by Table 9-1 of the
3 application, which indicates that the project construction easement is
4 approximately 49% grass/pasture (pg. 9-2).

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

8 A: Yes. Reviewing maps and figures provided with the application, as well as
9 the Bauman et al. (2016) potentially undisturbed lands spatial layer, it
10 appears that the northern portion of the project area that straddles the
11 Hughes-Hyde County line, as well as the southwestern most portion of the
12 project area have the highest level of contiguous blocks of grassland
13 habitat.

14
15 **Q: Based on the information available does the GF&P have concerns**
16 **over the placement of turbines and roads in contiguous blocks of**
17 **grassland?**

18 A: Based on reviewing available information, fragmentation of grassland
19 habitats were avoided/minimized in some of the project area through the
20 proposed layout of the infrastructure of the project. This is a result of
21 primarily utilizing agricultural fields for turbine locations, as well as existing
22 roads. There are other locations of the project area which the placement

1 of turbines will likely create some level of fragmentation of smaller
2 grassland blocks.

3

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

7 A. South Dakota does not have a state mitigation policy for wind energy
8 development. However, there are resources available, such as the Avian
9 Impact Offset Method (Shaffer et al. 2019) which can provide guidance as
10 a starting point for voluntary habitat compensation. GFP also provided
11 recommendations in our WAPA scoping letter that may minimize impacts
12 to natural resources. The applicant provides a list of avoidance,
13 minimization and mitigation measures to be undertaken during and after
14 construction of the proposed facility on pages 9-21 to 9-23 of the
15 application.

16

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

18 A: Mitigation can take multiple forms and can be accomplished in a multitude
19 of ways. It could be an approach which implements an applied
20 management activity/strategy on impacted lands which elevates these
21 lands to a more productive state or higher ecological state (example –
22 grazing management) to an approach which is more sophisticated and
23 detailed using tools developed to calculate acres of habitat to be restored

1 or created based on impacted acres and other relevant research data (e.g.
2 Shaffer et al. 2019). Examples of potential voluntary conservation
3 measures could include (but are not limited to): working with landowners
4 to create grazing management plans to enhance existing grassland
5 habitats and increase forage production for livestock, installation of
6 grazing infrastructure (water lines, fencing, etc.) to assist with rotational
7 grazing, cedar removal in areas where encroachment is a threat to
8 grasslands, conservation easements, prescribed burning plans, etc.

9

10 South Dakota does not have a state mitigation policy nor does the state
11 endorse this particular study and resulting products, however it is worthy
12 of mentioning these tools demonstrating resources available to
13 developers.

14

15 **Q: The GF&P recommended that turbines should not be placed in or**
16 **near wetland basins and special care should be made to avoid areas**
17 **with high concentrations of wetlands. Do you believe that North**
18 **Bend’s proposed turbine layout incorporates this recommendation?**

19 **A:** The application mentions under the wetland and waterbody
20 impacts/mitigation section that project facilities have been sited to avoid
21 both temporary and permanent impacts to wetlands and waterbodies to
22 the extent possible. These are appropriate measures. Reviewing the
23 turbine layout and using NWI wetland information for the project area,

1 some turbines appear to be placed in areas of higher concentrations of
2 wetland basins (specifically in the northeastern portion of the project).
3 However, based on review of recent aerial imagery, many of these
4 wetlands appear to be converted to crop production or reduced in size. It
5 will be challenging to avoid areas of wetland concentrations and other
6 water bodies simply based on the total number of different water bodies
7 present in this part of the state and project area.

8

9 **Q: Are you aware of any other wind farms near this proposed project?**

10 A: Yes. I am aware of projects in the area by reviewing the map of wind
11 projects found on the PUC website indicating projects either in the status
12 of existence, proposed, pending, or under construction. The application
13 also identifies two facilities (Triple H and the South Dakota Wind Energy
14 Center) that are located in proximity to the project area (pg. 6-1; Figure 1
15 in Appendix A). The application estimates that up to 173 turbines and
16 associated access roads will be in operation in the vicinity of the project.

17

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

20 A: As projects are completed and based on location and proximity to other
21 projects, the question of cumulative impacts will become more apparent.
22 Knowing the importance of native prairie tracts and other forms of
23 grassland habitat to several grassland dependent species, continued

1 development on these types of lands could result in reduced or limited
2 habitat value. Placement of turbines in lands currently under cultivation
3 and avoiding (where possible) the various grassland and wetland habitats
4 will help minimize potential cumulative impacts. The potential for
5 cumulative impacts is still poorly understood and is a priority question for
6 the wind and wildlife community (AWWI 2021).

7
8 Our agency will continue to work with wind developers and provide
9 recommendations that we believe will help minimize cumulative impacts.
10 No different than offered to this project, the focus could include, but not
11 limited to, recommendations on avoiding grassland habitats, in particular
12 native prairie remnants, avoidance of high wetland complex areas,
13 maximizing the use of existing corridors for infrastructure, and pre and
14 post construction surveys to assess the proposed project area that may
15 assist in operational decisions.

16
17 **Q: Do any State threatened or endangered species have the potential to**
18 **be impacted by the wind farm?**

19 **A:** The application reported that 16 whooping crane (listed as federally and
20 state endangered) sightings were reported within 10 miles of the project
21 area. SDGFP records indicate that one of those records is located in the
22 northwestern portion of the project area and was last observed in 1997.
23 Impacts to whooping cranes will be addressed in the WAPA

1 Environmental Assessment. A draft of the Environmental Assessment was
2 not yet available to review at the time of filing this testimony. No other
3 state listed species were found in the immediate project area.

4

5 **Q: Are there any GF&P owned lands or other public lands that may be**
6 **impacted by the wind farm?**

7 A: At the time of the application, four turbines, a substation and an
8 interconnection switching station are proposed on a section of School land
9 in the south east portion of the project area (appendix A; Figure 9). School
10 land is owned and managed by the Office of School and Public Lands.
11 These parcels may be leased for grazing or other agricultural purposes;
12 however the hunting rights are retained by the state of South Dakota.
13 Parcels owned by the Office of School and Public Lands are open to the
14 public for hunting, fishing and trapping.

15

16 No Walk-In Areas (properties privately owned but leased by GFP for
17 hunting access) are located within or immediately adjacent to the project
18 area. It does not appear that any Walk-In Areas will be temporarily
19 impacted by construction activities.

20

21 No Game Production Areas are present within the project area and two
22 Game Production Areas (Chapelle Lake, 0.5 miles east and Woodruff
23 Lake, 1.4 miles north west) are located outside of the project area. Game

1 Production Areas are owned by the State of South Dakota and managed
2 by GFP. Waterfowl Production Areas are federally owned public land and
3 managed by the US Fish and Wildlife Service. No Waterfowl Production
4 Areas are located within the project area.

5
6 **Q: Does the GF&P have any recommendations to protect those GF&P**
7 **lands or other public lands?**

8 A: The state does not have an established set-back policy or
9 recommendation for wind turbine placement in proximity to state
10 properties such as Game Production Areas. The State believes that
11 setback policies be established at the local level and at the discretion of
12 the PUC Commission when considering wind energy permits. Game, Fish
13 and Parks is not aware of any local laws or ordinances that establish set-
14 back distances from state properties for this project.

15
16 **Q: If the final turbine locations changed from those provided in the**
17 **proposed turbine layout, could the potential terrestrial environment**
18 **impacts change?**

19 A: Yes.

20
21 **Q: You mentioned the applicant requested data from the Natural**
22 **Heritage Database. What is the South Dakota Natural Heritage**
23 **database? What type of information does it contain?**

1 A: The South Dakota Natural Heritage database tracks species at risk.
2 Species at risk are those that are listed as threatened or endangered at
3 the state or federal level or those that are rare. Rare species are those
4 found at the periphery of their range, those that have isolated populations
5 or those for which we simply do not have extensive information on.

6
7 This database houses and maintains data from a variety of sources
8 including site-specific surveys, research projects and incidental reports of
9 species that cover a time period from 1979 to the present. It is important to
10 note that the absence of data from this database does not preclude a
11 species presence in the proposed project area.

12

13 **Q: In a previous docket (Crowned Ridge, EL 19-003), Game, Fish and**
14 **Parks recommended post-construction prairie grouse lek**
15 **monitoring. Does Game, Fish and Parks have a similar**
16 **recommendation for the North Bend project?**

17 A: Game, Fish and Parks recommended post-construction grouse lek
18 monitoring of potentially active leks less than 1 mile from any wind
19 turbines in the Crowned Ridge project. In response to PUC staff data
20 request 6-3, North Bend Wind indicated they would collaborate with GFP
21 to monitor leks within the project area and any known leks within 5 miles
22 of the project. However, as of the filing of this testimony, GFP has not
23 been provided a monitoring plan or proposal for this work. Game, Fish and

1 Parks staff would be supportive of a post-construction lek monitoring plan
2 and may be able to provide support (staff time) for monitoring efforts.

3

4 **Q: In summary, does GF&P offer any specific permit recommendations**
5 **should the permit be granted?**

6 A: GFP typically recommends at least two years of post-construction
7 mortality monitoring at projects. However Triple H wind facility is less than
8 1 mile from the proposed North Bend Project. As part of the facility permit
9 (EL 19-007) granted to Triple H from the PUC, the applicant is required to
10 undertake a minimum of two years of independently conducted post-
11 construction avian and bat mortality monitoring (Condition 33). Because of
12 the close proximity, similar habitat conditions and existing post-
13 construction mortality monitoring requirements at Triple H, GFP would
14 encourage substituting a post-construction research project to assess
15 impacts to breeding grassland birds at the North Bend Wind Project, in-
16 lieu of mortality monitoring.

17

18 GFP biologists collaborated with biologists from WEST Inc. during the
19 spring of 2021 to develop survey methodology for post-construction
20 grassland bird research. The methodology used at North Bend will be
21 comparable to what was used in Shaffer and Buhl (2015) to assess
22 impacts to breeding grassland birds in North and South Dakota. North
23 Bend Wind Project is located approximately 6 miles west of the South

1 Dakota Wind Energy Center, one of the study sites used by Shaffer and
2 Buhl (2015). Because of this close proximity, GFP believes that grassland
3 bird research at the North Bend Wind Project presents a unique and
4 valuable opportunity to add to wind-wildlife research efforts in the Dakotas.
5 We recommend memorializing this agreement between the two parties in
6 the form of a permit condition.

7

8 **Q: Does this conclude your testimony?**

9 **A:** Yes.

10

11

12

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