

BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION

DOCKET NO. EL24-023

**IN THE MATTER OF THE APPLICATION BY DEUEL HARVEST WIND
ENERGY SOUTH, LLC FOR ENERGY FACILITY PERMITS OF A WIND
ENERGY FACILITY AND A 345 KV TRANSMISSION FACILITY IN DEUEL
COUNTY, SOUTH DAKOTA, FOR THE SOUTH DEUEL WIND PROJECT**

Direct Testimony of Chad Switzer
On Behalf of the Staff of the South Dakota Public Utilities Commission
November 13, 2024

1 **Q: State your name.**

2 A: Chad Switzer.

3

4 **Q: State your employer.**

5 A: State of South Dakota, Department of Game, Fish, and Parks (GF&P).

6

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

8 A: Division of Wildlife.

9

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

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

22

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

1 A: Duties include providing a major role in budgeting, planning,
2 development, implementation of strategic plans, and policy/rule
3 development. Serve as a liaison between the division and the public,
4 working with various boards, commissions, and user groups. Directly
5 supervise and oversee regional field operations (four regional
6 supervisors), licensing (one program administrator), federal grants (two
7 grant coordinators), GIS and database intelligence program (one
8 coordinator), and one division staff specialist. Operational management
9 includes staff and programs managing wildlife populations, harvest/season
10 structure activities, wildlife damage, public land management, outreach
11 and outdoor education at two Outdoor Campus facilities, and private land
12 habitat and access programs. Assists with the creation of department
13 reports, briefs, and documentation for the executive and legislative
14 branches, GFP Commission, public, and other interested user groups.

15

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

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

19

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

22 A: Game, Fish and Parks has no regulatory authority when it comes to
23 permitting wind energy development projects. The agencies' role is to

1 consult with developers and provide recommendations and suggestions
2 on how to avoid, minimize or mitigate impacts of wind energy development
3 to wildlife and associated habitats and provide available information to
4 make informed decisions as related to natural resources.

5
6 **Q: Have you reviewed the Application, attachments, and Deuel
7 Harvest's responses to PUC Staff data requests?**

8 A: Yes, relevant sections of the application and attachments and also
9 received briefings provided by GFP biologists.

10

11 **Q: Did the GF&P provide comments and recommendations to Deuel
12 Harvest about the project area? Please identify who provided those
13 comments and provide a brief summary of them.**

14 A: Yes, Hilary Morey, former Senior Wildlife Biologist responded to an inquiry
15 from Invenergy, (on behalf of the developers of Deuel Harvest) to provide
16 information on listed, proposed, and candidate threatened or endangered
17 species, or sensitive environmental areas in or near the project area. Mrs.
18 Morey conducted a search of the South Dakota Natural Heritage database
19 within the proposed project boundary. Mrs. Morey's response to
20 developers in October of 2022 included records of the Hornyhead chub
21 and Blackside Darter, both fish species of greatest conservation need.
22 The response also included information about the project area and
23 concerns over sensitive species and sensitive environmental areas. Mrs.

1 Morey also provided comments at meetings and during conference calls
2 with Invenergy.

3 A summary of those comments included suggestions on the types, timing
4 and number of surveys for grassland birds (songbirds and grouse), survey
5 recommendations for raptors, placement of turbines and associated
6 infrastructure considering the avoidance of untilled native prairie and large
7 contiguous blocks of grasslands and to focus on disturbed lands such as
8 fields currently cultivated. Game, Fish & Parks also suggested avoidance
9 of activities that will fragment contiguous blocks of grasslands, avoidance
10 of wetland basins or areas of high concentrations of wetlands, pre-
11 construction surveys for bat use and habitats plus post-construction
12 mortality surveys, and recommendations on transmission line placement.

13

14 **Q: Do you agree with the comments and recommendations provided to**
15 **Deuel Harvest by Mrs. Morey? If not, please explain.**

16 A: Yes. These are standard recommendations and comments our
17 Department would provide to wind power companies to identify, minimize,
18 or reduce impacts to wildlife and wildlife habitats, especially those projects
19 that are proposed in grassland and wetland habitats.

20

21 **Q: Based on the information provided in the Application, in your opinion**
22 **did Deuel Harvest utilize the proper studies and wildlife surveys**

1 **necessary to identify potential impacts to the terrestrial**
2 **environment?**

3 A: Yes.

4

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

6 A: Yes.

7

8 **Q: Please define the following: native prairie, hayland, pasture, CRP,**
9 **grassland, cropland and agriculture.**

10 A: Grasslands are areas that contain plant species such as graminoids and
11 commonly used for grazing or set aside for conservation purposes. They
12 can also be areas which are planted to a mixture of grasses and legumes
13 for livestock grazing or feed. Native prairie is grassland upon which the
14 soil has not undergone a mechanical disturbance associated with
15 agriculture or any other type of development. Hayland is grassland that is
16 managed by frequent mowing and often contains non-native plant species
17 either intentionally or by encroachment. Pasture is grassland that may
18 contain non-native plant species either intentionally or by encroachment
19 and is managed by through grazing. Rangeland is similar to pasture;
20 however, these areas are often larger and less invaded by exotic plant
21 species. In some instances, hayland, pasture, and rangeland could be
22 native prairie; in other situations, hayland and pasture in particular could
23 be land once cultivated and restored to grassland habitat. CRP is

1 grassland that occurs on land that was once tilled and used for crop
2 production. These lands are often not as productive as other cropland
3 and grassland restoration is intentional.

4

5 **Q: What are remnant prairie tracts?**

6 A: Remnant prairie tracts are pieces of native prairie remaining in a
7 landscape that is dominated by tillage agriculture that have never been
8 tilled or have never undergone other mechanical disturbances for
9 agriculture or other purposes. Prairie is a naturally occurring ecosystem in
10 central North America characterized by certain precipitation levels, grazing
11 pressure and fire. Dominant plant forms characteristic of and adapted to
12 these environmental conditions include native grass, forb, and sedge
13 species.

14

15 **Q: Do remnant prairie tracts have high conservation value?**

16 A: Yes.

17

18 **Q: Why do remnant prairie tracts have high conservation value?**

19 A: North American prairies (tallgrass, mixed-grass, and shortgrass),
20 especially those with higher precipitation levels have had a long history of
21 being converted to cropland. Once tilled, this system cannot be fully
22 restored. In the Prairie Coteau ecoregion, 1 million acres of potentially
23 undisturbed lands (e.g. prairie) remain (Bauman et al. 2014) and represent

1 some of the last remaining areas of native prairie habitat. There are
2 several endemic grassland bird species that require native prairie. Many of
3 these populations are rare or declining and one of the main reasons for
4 their decline is habitat loss.

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

7 A: Yes.

8
9 **Q: Do grazed grasslands have any conservation value?**

10 A: All grasslands have a conservation value when considering both wildlife
11 and livestock. Grasslands (native prairie, restored/replanted grasslands,
12 pastures, hayland, etc.) provide habitat that can and will be used by
13 grassland birds and waterfowl. Management activities, in particular
14 managed grazing, can help maintain healthy grassland habitats or
15 enhance its current state. Various grazing strategies can also determine
16 which bird species and other wildlife will use individual tracts.

17
18 **Q: Briefly explain the role of grazing on grasslands.**

19 A: Grazing provides different plant heights that result in different types of
20 wildlife cover, allows for nutrient recycling, and helps to maintain
21 grassland especially in areas with higher levels of precipitations. Grazing
22 can be used as a management activity to either manage for a specific
23 diversity or to manage unwanted plant species.

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Q: One of the GF&P’s recommendations was that efforts should be made to avoid placement of turbines and new roads in grasslands, especially untilled native prairie. Based on the information in the Application and the proposed turbine layout, did Deuel Harvest demonstrate efforts to address this recommendation?

A: From reviewing the maps, resources, and other information available there were efforts to avoid placement of turbines on untilled native prairie. It appears that in some instances the placement of the turbine is on the edge of native prairie and other land use types which is also a positive approach. Some turbines were placed on other types of grassland habitats that are classified as herbaceous cover (hay and pasture) within the project area; these too are important grassland habitats to many wildlife species. Avoidance of all grassland habitat will be challenging in this part of the state and in the project area as a high proportion of the total area is some type of grassland/herbaceous habitat (~50%). Placement of turbines in cultivated land (disturbed) is a positive siting approach.

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

1 A. At this current time South Dakota does not have a state mitigation policy
2 that can be provided to wind energy developers. However, there are
3 resources available which can provide guidance and suggestions that can
4 be considered as well as self-imposed actions or activities that can
5 minimize impacts to wildlife and wildlife habitat.

6

7 **Q: Beyond avoidance, initial consultation with GF&P recommended that**
8 **impacts to native prairie and wetlands should be mitigated. What**
9 **does mitigation mean?**

10 A: In its broader context, mitigation can be an enhancement, restoration,
11 creation and/or a preservation project or activity that serves to offset
12 unavoidable impacts to a resource. It can also be measures taken in the
13 design, materials, timing, layout/siting locations and all associated
14 infrastructure during construction and operation.

15

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

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

1 data (example – decision support tool). Two examples that are available
2 specifically for wind energy projects is a research study conducted by
3 Loesch et al. (2013) that considers breeding waterfowl and another which
4 focuses on breeding grassland songbirds resulting from research findings
5 of Shaffer and Buhl (2016). As stated earlier, South Dakota does not have
6 a state mitigation policy nor does the state endorse either study and
7 resulting products, however it is worthy of mentioning these studies that
8 demonstrate available options to developers and land managers.

9

10 **Q: Can you explain the difference between temporary and permanent**
11 **habitat impacts and suggested methods to address these changes?**

12

13 A: There will be temporary and permanent losses of grassland and
14 potentially wetland habitats resulting from the construction of turbine pads,
15 roads, and other associated infrastructure. Construction of a wind farm
16 often requires wider roads, crane paths, laydown yards, etc., to erect
17 turbines. These construction activities will have temporary impacts that
18 likely can be reclaimed by restoring impacted areas by grading and
19 reseeding. Disturbed areas should be restored using native seed sources
20 to reduce the introduction of new or discourage encroachment of already
21 present exotic and/or invasive species.

22

1 For those areas that are permanently changed, it is a typical
2 recommendation for lost grassland or wetland acres to be replaced.
3 Disturbed areas again should be restored using native seed sources to
4 reduce the introduction of new or discourage encroachment of already
5 present exotic and/or invasive species. It would also be recommended to
6 replace lost acreage within the Prairie Coteau ecoregion.

7
8 **Q: Are there any other impacts besides temporary and permanent
9 habitat impacts that are likely to occur as a result of the project?**

10 A: Indirect habitat impacts are also a consideration. Indirect impacts caused
11 by wind turbines and associated infrastructure raise concerns with habitat
12 fragmentation and potential displacement, especially with regards to
13 breeding grassland and wetland species. Research into the effects of
14 wind energy on habitat avoidance has shown that some species will use
15 grassland or wetland habitats to a lesser extent within a certain distance of
16 a wind turbine (Loesch et al. 2013, Shaffer and Buhl 2016).

17
18 **Q: One of GF&P's concerns involved the fragmentation of contiguous
19 blocks of grasslands. Why is 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.

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Q: The GF&P recommended avoiding the placement of turbines and roads in contiguous blocks of grassland. Based on the information provided in the Application, did Deuel Harvest address this recommendation?

A: Based on reviewing available information, fragmentation of grassland habitats were avoided/minimized in some of the project area through the proposed layout of the infrastructure of the wind farm. This is a result of using existing roads, placing new roads along edges or through cultivated lands, and following existing corridors (roads) for power lines. Based on the location of the project area and the existing land-use, it will be challenging not to create some additional fragmentation of grassland habitat.

Q: If fragmentation of contiguous blocks of grasslands couldn't be avoided, the GF&P recommended the impacts should then be mitigated. Does the GF&P have any recommendations on adequate types of mitigation measures Deuel Harvest should undertake to offset any adverse impacts due to fragmentation? Please explain.

A: As stated earlier, the state does not have a mitigation policy, however other resources and approaches exist that could be considered to help minimize the impacts of additional fragmentation.

1 **Q: The GF&P recommended that turbines should not be placed in or**
2 **near wetland basins and special care should be made to avoid areas**
3 **with high concentrations of wetlands. Do you believe that Deuel**
4 **Harvest's proposed turbine layout incorporates this**
5 **recommendation?**

6 A: The application mentions under mitigation measures for wildlife that
7 wetlands will be avoided or minimize disturbance of individual wetlands
8 during project construction as well as identifying wetland boundaries by
9 delineating them prior to construction. These are appropriate measures.
10 No turbines are planned in wetland basins. It will be challenging to avoid
11 areas of high wetland concentrations because of the number of wetland
12 acres and basins found in this part of state and project area.

13
14 **Q: Are you aware of any other wind farms near this proposed project?**

15 A: Yes. I am aware of projects in the area by reviewing the map of wind
16 projects found on the PUC website indicating projects either in the status
17 of existence, proposed, pending, or under construction.

18
19 **Q: Does the GF&P have any thoughts regarding the potential for**
20 **cumulative impacts the Project may have in relation to other**
21 **projects?**

22 A: Native prairie grasslands continue to decline in eastern South Dakota.
23 Knowing the importance of these native prairie tracts to several grassland

1 dependent species, continued development on these types of lands could
2 result in reduced or limited habitat value, and possibly reduced densities
3 of these species. Placement of turbines in lands currently under
4 cultivation and avoiding, where possible, the different varieties of
5 grassland and wetland habitats will help minimize potential cumulative
6 impacts. Species sensitive to habitat fragmentation may show different
7 responses based on the landscape context (e.g. areas surrounded by
8 grasslands or areas surrounded by cropland or other development).

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

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

20 A: No.

21

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

1 A: There is one Game Production Areas within the project area boundary.
2 There is one walk-in-area parcel within the project area. These properties
3 are privately owned and an agreement with GFP opens them to free public
4 access for hunting.

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. Set-back policies have been
11 established at local levels by local government entities and in some
12 instances have been suggested as the potential set-back distance from
13 state properties. At this time, it is the GF&P's belief that these types of
14 policies be established at the local level and at the discretion of the PUC
15 to impose such set-backs when considering wind energy permits.

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

20 A: Yes.

21

1 **Q: You mentioned the applicant requesting data from the Natural**
2 **Heritage Database. What is the South Dakota Natural Heritage**
3 **database? What type of information does it contain?**

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

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

15

16 **Q: In summary, does GF&P offer any specific permit**
17 **recommendations/conditions should the permit be granted?**

18 A: The GF&P recommends two years of post-construction avian and bat
19 mortality monitoring. A similar condition has been ordered by the
20 Commission in past wind farm dockets and if applied for this project would
21 be consistent and addresses our recommendation stated earlier in the
22 testimony. If such a condition is included, we would recommend a copy of

1 the report to be shared with the US Fish and Wildlife Service, SD Game,
2 Fish and Parks, and the Commission.

3

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

5 A: Yes.

6

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

10 Collins, J., and G. Jones. 2009. Differences in Bat Activity in Relation to Bat
11 Detector Height: Implications for Bat Surveys at Proposed Windfarm Sites.
12 *Acta Chiropterologica* 11:343-350.

13 Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation
14 Manual. Technical Report Y-87-1, U.S. Army Engineer Water-ways
15 Experiment Station, Vicksburg, MS.

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

20 National Research Council. 2007. Methods and metrics for wildlife studies.
21 Pages 279-348 in *Environmental impacts of wind-energy projects*. The
22 National Academies Press, Washington D.C.

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

3 U.S. Army Corps of Engineers. 2010. Regional supplement to the Corps of
4 Engineers wetland delineation manual: Midwest region (Version 2.0).
5 Wakely, J.S. R.W. Lichvar, and C.V. Noble, eds. ERDC/EL TR-10-16.
6 Vicksburg, MS: U.S. Army Engineer Research and Development Center.

7 U.S. Fish and Wildlife Service. 2012. Land-Based Wind Energy Guidelines
8 (WEG). Available online at: [https://www.fws.gov/ecological-services/es-](https://www.fws.gov/ecological-services/es-library/pdfs/WEG_final.pdf)
9 [library/pdfs/WEG_final.pdf](https://www.fws.gov/ecological-services/es-library/pdfs/WEG_final.pdf).

10 Weller, T. J., and J. A. Baldwin. 2012. Using echolocation monitoring to model
11 bat occupancy and inform mitigations at wind energy facilities. *The Journal*
12 *of Wildlife Management* 76:619-631.