

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF SOUTH DAKOTA

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

SD PUC DOCKET EL21-018

**PRE-FILED TESTIMONY OF MICHAEL BOLLWEG, INDIVIDUALLY  
AND ON BEHALF OF JUDI BOLLWEG, TUMBLEWEED LODGE, LLC,  
AND BOLLWEG FAMILY, LLLP**

**Q. State your name.**

A. Michael Bollweg.

**Q. State your occupation.**

A. I am a farmer. I also manage a hunting lodge.

**Q. What is your educational background.**

A. I graduated from South Dakota State University in 1996 with a Bachelor of Science degree in agriculture. My resume/background is attached hereto as Exhibit A.

**Q. Who are you providing testimony on behalf of today?**

A. I am testifying on behalf of myself, Judi Bollweg, Bollweg Family, LLLP, and Tumbleweed Lodge. Judi Bollweg has provided me with a special power of attorney allowing me to speak on her behalf. (See Exhibit B.)

**Q. Where do you live?**

A. I live in Hughes County, South Dakota, at 20152 321<sup>st</sup> Avenue, Harrold, South Dakota 57563.

**Q. How long have you been farming?**

A. I have worked for our farming operation for 34 years. I have worked in all aspects of the farming operation on my own behalf, on behalf of Bollweg Farms, and on behalf of my mother, Judi Bollweg.

**Q. How much land do you farm?**

A. Approximately 3,910 acres.

**Q. Where is the land you farm located?**

A. The land we farm is generally located as follows:

- SE<sup>1</sup>/<sub>4</sub> of Section 2, Township 112, Range 74 – 160 acres

- N½ of the NW¼ of Section 14, Township 112, Range 74 – 70 acres
- S½ of Section 23, Township 112, Range 74 – 320 acres
- SE¼ of Section 24, Township 112, Range 74 – 160 acres
- NE¼ of Section 21, Township 111, Range 74 – 160 acres
- S½ of the SE¼ of Section 16, Township 111, Range 74 – 80 acres
- SW¼ of Section 11, Township 111, Range 74 – 160 acres

**Q. What crops do you grow?**

A. Wheat, sunflowers, soy beans, corn, grain sorghum, and cover crops.

**Q. What is the name of the hunting lodge you manage?**

A. Tumbleweed Lodge.

**Q. Where is Tumbleweed Lodge?**

A. It is located in Hughes County, South Dakota.

**Q. What is the lodge's main purpose?**

A. The lodge provides hunting opportunities for clients from all over the country.

**Q. When did Tumbleweed Lodge open?**

A. Tumbleweed Lodge has been hosting hunting guests since the early 1980s. The preserves began in 1988.

**Q. Tell us more about Tumbleweed Lodge.**

A. It is a family business. It has 40 employees (all but one who are from South Dakota). The business has consistently paid South Dakota sales and tourism tax, and has generated license sales and fees for South Dakota Game, Fish, and Parks. Financial details can be found in Exhibit C, which is **confidential**. It promotes South Dakota's proud heritage of hunting. In 2011 it was recognized as one of the top 10 hunting lodges in the World. It is one of the

the oldest, most established upland hunting preserves in the state. We hosted the annual Governor's Hunt for 15 years. In 2014 Governor Dugaard presented us with the Brent Wilbur Habitat Award; "to a landowner who has reached the highest standards of conservation stewardship in managing their lands for the benefit of South Dakota's diverse wildlife resources." We were recognized as one of the Top 20 Wing Shooting Destinations in the world (in A Wingshooter's World). Our business model will continue for generations. Our employees are the backbone of our operation and they rely on our family as a significant source of their income. Our economic impact spans across the entire state of South Dakota. Irresponsible turbine locations will have a crippling effect on our operation as guests have clearly stated they will not return. We average nearly 400 guests each season and most would tell you they come here to avoid the blinking lights, concrete jungles, and incessant noise. We are firmly tied to the area, land, and State of South Dakota. We are not a developer building the system and then selling the business.

**Q. How much hunting land does Tumbleweed Lodge have?**

A. There are multiple hunting areas. Of the 3,910 acres, 2,800 acres are in preserve:

- Tumbleweed North is a preserve that consists of 2,400 acres located as follows:
  - \* S½ of Section 33, Township 112, Range 74 – 320 acres
  - \* S½ of Section 34, Township 112, Range 74 – 320 acres
  - \* Section 3, Township 111, Range 74 – 640 acres
  - \* Section 4, Township 111, Range 74 – 640 acres
  - \* W½ of Section 9, Township 111, Range 74 – 320 acres
  - \* NE¼ of Section 10, Township 111, Range 74 – 160 acres
- Tumbleweed South is a preserve that consists of 400 acres located as follows:



- \* N½ of Section 27, Township 111, Range 74 – 320 acres
- \* N½ of SE¼ of Section 27, Township 111, Range 4 – 80 acres
- Gregg Outlot consists of 66 acres and is adjacent to West Bend. The legal description is NE¼ of Section 9, Township 108, Range 74. (Not near the proposed project.)
- Bollweg Outlot consists of 10 acres and is adjacent to West Bend. The legal description is NW¼SW¼ of Section 10, Township 108, Range 74. (Not near the proposed project.)

**Q. What other family businesses have you been involved in?**

A. In addition to farming and managing the hunting lodge, I spent a substantial part of my career working for Bollweg Spraying. Bollweg Spraying was owned and operated by my late father, Donald Bollweg. My father was an aerial applicator. He operated numerous spray planes. While working for Bollweg Spraying I provided ground support for the pilots. I also determined which crop protection to use for the various applications. While working for Bollweg Spraying I learned practical and safe spraying practices. For example, my father and I laid out farm fields to be two miles long to minimize the amount of turning the planes had to make to spray the fields. My family has always had the entrepreneur spirit and a steward of the land. I was heavily involved with the inception and growth of Harrold Grain Co. taking active rolls in grain grading, marketing, and loadout operations before we sold it. I was also involved in our construction business which involved digging/laying waterlines for area farm operations. It also included major land development in which we would clean up the rocks and blow dirt filled fences of overgrazed, eroded lands and develop productive crop land, riparian buffers along waterways and establish new tree belts.

**Q. Do you use aerial spraying in your farming operation?**

- A. Yes. Use of agricultural chemicals is necessary for the profitable operation of our farm. These need to be used safely and efficiently. Because many of the chemical applications to our fields come late in the season it is necessary to use planes to spray mature crops that are too tall to spray with ground rigs.

**Q. What do you spray for?**

- A. Currently it is necessary to spray our wheat and sunflowers. Those fields are currently subject to several threats. One example is the fungal pathogen fusarium graminearum. Fusarium graminearum causes head blight in wheat. Crop pests such as the red sunflower seed weevil and head moths are a threat to sunflowers. It should be noted that the current threats to our crops may change; pests and diseases evolve. The threats of tomorrow may not actually exist but as evolution occurs new threats appear that require new technology. During extreme wet conditions when ground application isn't an option, aerial application is your only option for all crops.

**Q. What proposed turbines will cause problems for the pilots spraying your fields?**

- A. I am asking that the PUC deny the applications for turbines/towers #6, 8, 9, 14, 15, 20, 21, and 22. Tower #6 in particular will have an effect upon Tumbleweed Lodge.

**Q. Why are these towers problematic?**

- A. These towers effectively box in our fields making it dangerous and/or impossible to spray them.

**Q. Why would it be dangerous or impossible to spray them?**

- A. Because of the space needed for the planes to turn around. I belong to a trade organization (the SDAA) which has retained an expert who had determined what the normal turn around is for agricultural sprayers. These are the typical safe and normal turn around areas used by

spray planes which typically spray our fields. The towers that are proposed are well within the safe ingress and egress areas of our fields. The height of the proposed towers is nearly 500 feet, and an aeronautical study done by the FAA to go up to 600 feet was requested. The study was conducted at the request of ENGIE-North Bend and it states the proposed heights up to 625 feet. FAA Aeronautical Study No. (ASN) 2021-WTE-1926-OE. Signature Control No: 482124683-492930030 (Exhibit D).

**Q. If you are unable to spray your fields, what will the result be?**

A. We will lose money. Based upon my training in agronomy and my practical work as a farmer for 34 years, there is a real financial cost to my loss of the ability to farm the lands. The current costs of losing the rights to protect our fields from pests and disease could run in the hundreds of dollars per/acre. The evolution of pests and diseases could increase the costs of the problems and increase the need to be able to spray our fields by aircraft.

**Q. If only turbines 14 and 15 were removed, would that provide a safe east/west flight pattern on SW 1/4 Section 11-111-74 and a safe north/south flight pattern on NE 1/4 Section 10-111-74?**

A. Please see Cody Christensen's expert report and supplements (Exhibits E, F and G) regarding concerns with regard to proposed towers 8, 9, 14, 15, 20-22. His report was provided after the initial assessment the PUC is referencing on page 8 of 84. There is still a threat with a north/south pattern. If north-south spraying patterns are blocked by neighboring turbines applicators will be forced to fly east-west. There are commercial bee keepers in the area who like to place their hives by sun flower fields. Applicators try to spray later in the day when the bees have returned to their hives so they are not killed. Flying east-west later in the day will cause the pilots to be looking into the sunset while flying. Crop

dusting is done close to the ground and flying looking into the sunset increases the chance of having a plane crash. The same goes for morning spraying when the bees are less active; flying into the sunrise is a concern as well. Removing towers 14 and 15 would greatly reduce the dangers of an east/west flight pattern on the SW<sup>1</sup>/<sub>4</sub> section 11. Removing towers 14 and 15 will not eliminate the dangers to apply products in a north/south pattern on section 10. Tower 21 wouldn't affect an east/west application however it still poses a serious threat in a north/south application eliminating the ability to spray north/south. I anticipate Tower 20 would be a threat with regard to being in the way of the turning radius. These fields need to be sprayed in either direction or it poses a hardship. Terry Barber will testify that ag pilots still need to make a "clean up" pass on all edges of the field as previously mentioned. A letter from the NAAA (National Agricultural Aviation Association) is attached as Exhibit H and it discusses their conclusions for required distances for aircraft to safely turn. The safe distance from turbines to spray is 9,585 feet or 1.82 miles.

**Q. What effect will proposed tower #6 have on Tumbleweed Lodge?**

- A. Our determination that tower #6 poses a threat to the operation is based on the following:
- I am not aware of any studies that exist concerning tolerable amounts of either shadow flicker or audible noise operation to wildlife. Studies might be successful concerning how humans are affected but would not be transferable to the effects upon wildlife; wildlife have senses and abilities well beyond what humans possess. My objections are based upon real life, in the testimony of Corbin Korzan and recommendations of various wildlife governmental organizations tasked with protecting our natural resources. Mr. Korzan's observations of the effect of the towers on his family's lodge operation are more fully discussed below.

- I have been involved in the hunting lodge business for decades. I try to pay attention to matters that might affect wild game. I looked at various studies, including recommendations of the federal government, showing concern for the effects of turbines on prairie chickens and sharp tail grouse.
- Wind Energy and Wildlife Resource Management in Iowa: Avoiding Potential Conflicts (attached as Exhibit I). Relevant excerpts from this study are as follows:
  - o An emerging concern for birds is wind turbines placed within or very near large expanses of grassland. In some western states, ground-nesting lesser prairie-chickens have been found to abandon their nesting grounds when wind turbines were erected and operated nearby. It is quite likely that Iowa's greater prairie-chickens, a state endangered species requiring large expanses of unbroken habitat, would exhibit similar behavior. Many other ground-nesting grassland birds have yet to be studied, but some of these species already are in steep decline nationwide and cannot risk another factor that might potentially threaten their survival. Avoid placement of turbines in or near areas where highly "area-sensitive" wildlife species, such as prairie-chickens, are known. Area-sensitive species require expansive, unfragmented habitat. For prairie-chickens in particular, a separation distance of at least 5 miles from all known leks (breeding grounds) is strongly recommended.
- The Siting Guidelines for Wind Power Projects in South Dakota (attached as Exhibit J).



- The Prairie Grouse Management Plan for South Dakota 2017-2021 (attached as Exhibit K). Relevant excerpts from this study are as follows:
  - o Avoid activities near (~ 2 mi) lek sites that could interrupt lekking and nesting activity from March 1–July 30. If disruptive activities cannot be avoided, limit disruptive activities to three hours after sunrise to one hour before sunset. Disruptive activities could include but are not limited to well drilling and operation (water or energy development), burying pipeline or other utilities, building roads, vehicle traffic, direct disruption by human presence, wind tower construction and operation, or low flights by air craft or drones. (p. 17)
  - o Avoid development (e.g., roads, power lines, structures, energy development) in grasslands within occupied range, especially within 1 mi of lek sites. Where development occurs within occupied range, leks within 5 mi of development should be monitored indefinitely. (p. 17)
  - o The impacts of wind energy on greater prairie-chickens are generally equivocal and the impacts on sharp-tailed grouse have not been studied. Greater prairie-chicken lek persistence was ~0.5 for leks <0.62 mi from a turbine, ~0.9 for leks 1.86 mi from a turbine, and >0.95 for leks ≥3.73 mi from a turbine during the 3-year post-construction period for a study in Kansas (Winder et al. 2015a). The rate of lek abandonment was 3× higher for leks <4.97 mi from a

turbine compared to leks  $\geq 4.97$  mi from a turbine (22% vs 8%) supporting the USFWS's 4.97-mi buffer zone for wind energy development (Manville 2004). The increased rate of lek abandonment within 4.97 mi of wind turbines is concerning because female prairie-chicken activity centers are nearly always centered within 3.1 mi of active leks (Winder et al. 2015b).

- o There is also evidence that other forms of development within occupied habitat could have a negative impact on prairie grouse. Greater prairie-chickens were found to avoid power lines by 330 ft in Oklahoma (Pruett et al. 2009). A habitat-based greater prairie-chicken lek site model revealed a weak avoidance effect of roads at a 3.1-mi scale in Kansas (Gregory et al. 2011). A similar modeling effort in Minnesota suggests road density at a 2-mile scale was a negative predictor of lek presence (USFWS HAPET 2010). Significantly more roads occurred within 1,640 and 3,280 ft of inactive sharp-tailed grouse leks when compared to active leks in Minnesota (Hanowski et al. 2000). (p. 19)

- All three of the above describe displacement distances of nesting birds as well as recommendations.
- The testimony of Corbin Korzan of Kimball, South Dakota. His family experienced firsthand the negative impact on his property when wind turbines were placed close to their land. They were forced to sell when the pheasants/upland game disappeared.



- When Applicant's representatives were pressed at a Hughes County meeting what the purpose of the indemnity clause would be if no harm is claimed, Engie representatives Casey Willis and Brett Koeneke both conceded that noise and shadow flicker do indeed pose a negative harmful effect. This can be found in the enclosed transcript of the meeting held on June 7, 2021 (Exhibit L). After being pressed for the truth by Commissioner Brown, Brett Koenecke and Casey Willis ultimately conceded in the public meeting there are indeed negative effects.
- There are lek locations on and near our property. They are discussed in the North Bend Wind Project Field Studies Summary 2016 – 2020 at pages 18-21 (Exhibit M). Lek Location 21 is on Bollweg property. I believe it to be active. Lek Location 14 is only a ½ mile from our property that is in preserve. Towers 6, 8, and 10 appear to be within a ½ mile from it. Tower 9 is right on top of it, tower 15 a ¼ mile from it. Lek Location 15 is within a few hundred feet of our farm property located in Section 16/21. Tower 27 is located right on top of it.
- Manville, A. M., II. 2004. Prairie grouse leks and wind turbines: U.S. Fish and Wildlife Service justification for a 5-mi buffer from leks; additional grassland songbird recommendations. Division of Migratory Bird Management, USFWS, Arlington, VA, peer-reviewed briefing paper. This briefing paper is attached as Exhibit N. This briefing paper discusses notes the following:
  - o Given continuing uncertainties about structural impacts on prairie grouse, especially the lack of data regarding impacts from wind facilities, and the clearly declining trends in prairie grouse

populations, we urge a precautionary approach by industry and recommend a 5-mile buffer where feasible.

- o While we acknowledge that much research continues on prairie grouse and the impacts of tall structures, including wind turbines – and thus much of the data have yet to be peer reviewed and published – several studies and their recommendations have been published and are used as the basis for our 5-mile recommendation. Most compelling was the recommendation by Connelly et al. (2000:978) calling for protection of breeding habitats within 11.2 mi (18 km) of the leks of migratory populations of Sage-grouse (see discussion beyond). See also Giesen and Connelly (1993) beyond for a discussion of management guidelines for Columbian Sharp-tailed grouse.
- o We believe it is important to clarify that avoidance of vertical structures by grassland and sage-steppe-obligate wildlife is not a new issue, and the Service's recommendations are not merely reactive to current recommendations promoting wind power development nationwide. Concerns were brought to the Division of Migratory Bird Management as early as 2000 regarding the possible impacts of wind turbines on prairie grouse, including noise, habitat disruption, disturbance, fragmentation, and increased predator access (R. Reynolds and N. Niemuth, FWS Habitat and Population Evaluation Team, Bismark, ND 2000 pers. comm.). Much research

has also been conducted on the impacts of high-tension power transmission and electric distribution lines on prairie grouse, providing a detailed body of literature on a related structural issue (e.g., Connelly et al. 2000, Braun et al. 2002, Hagen 2003, Wolfe et al. 2003a and 2003b, Pitman 2003, Hagen et al. 2004, Patten et al. 2004, and Connelly et al. 2004).

- o Because range wide, the majority of remaining LPCH populations are fragmented and isolated into “islands” of unfragmented, open prairie, thus we assert that a 5-mile buffer from a lek is recommended to protect the wind power industry from later determinations that construction activities could significantly impact important LPCH populations and habitat corridors needed for future recovery.
- o Hagen et al. (2004:79), in “guidelines for managing lesser prairie-chicken populations and their habitats,” recommended that wind turbines and other tall vertical structures be constructed >1.25 mi (2 km) from known or potentially occupied LPCH habitat, at a minimum. This recommended area represents a buffer beyond already existing LPCH home ranges (Figure 2). If wind facilities must be placed in known LPCH habitats, Hagen et al. (2004) suggested they be positioned along prairie edge or clustered in sites with other disturbances.

- o Sage-Grouse. they recommended protecting sagebrush and herbaceous understory within 2 mi (3.2 km) of all occupied leks. For non-migratory populations, leks should be considered the center of year-round activity and treated as the focal points for management activities. For non-migratory populations where sagebrush is not uniformly distributed, suitable habitats should all be protected out to 3.1 mi (5 km) from all occupied leks.
- o C. Braun (2004 pers. comm.) Wind generators, he indicated, were quite tall and could be seen and avoided by Sage-grouse for long distances. Noise (especially humming), motion, and height all may negatively affect Sage-grouse, although he indicated we still don't know the specific effects. Braun therefore felt that FWS could defend our 5-mile recommendation even though definitive data showing impacts are still being collected.
- o Service's Recommendation for 5-Mile Buffer from Leks. The intent of the Service's recommendation for a 5-mile zone of protection is to buffer against increased mortality (both human-caused and natural), against habitat degradation and fragmentation, and against disturbance. In considering our recommendation, FWS recognizes major declines in populations and habitats of prairie grouse. All species of prairie grouse are in varying stages of decline – some populations declining precipitously -- requiring a major focus on direct human impacts, disturbance from structures, and

fragmentation of habitats. While wind plants are new additions to prairie grouse habitats in the Midwest and West, cumulative impacts from human development and exploitation must be assessed with great care and considerable detail. To reverse these declines will take significant commitment from industry, the Service, and other stakeholders. We view the voluntary nature of our guidance and specifically our 5-mile recommendation as a reasonable effort needed to conserve these important resources.

- In addition, the PUC's own witness, Tom Kirschenmann, testified on May 10, 2019 (a copy of which is enclosed as Exhibit O) concerning the effect of the wind turbines upon grouse and prairie chicken. Mr. Kirschenmann is the Director for the state Wildlife Division in the South Dakota Game, Fisher, and Parks Department. His directive was to study, evaluate, and assist in the management of all wildlife and associated habitats. When he testified, he was the Deputy Director of Wildlife Division and Chief of the Terrestrial Resources Section.
- Mr. Kirschenmann provided testimony as to potential impact to wildlife as the result of the construction of a wind project. (pp.6-7). He testified that there was direct and indirect impact upon birds and bats. He referred to a study, Shaffer, J.A., and D.A. Buhl. 2016. Effects of wind-energy facilities on breeding grassland bird distributions. *Conservation Biology* 30:50-71 that showed that 7 of 9 species of grassland birds had reduced densities around wind turbines over time. This study is attached to his testimony.

- He noted that there was research into the effects of wind energy on habitat avoidance which has shown that some species will not use grassland or wetland habitat within a certain distance of a wind turbine (p. 8 citing 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, and Shaffer and Buhl 2016). Both articles are attached to his testimony.
- Mr. Kirschenmann recommended that there was a need to monitor confirmed leks less than 1 mile from proposed turbines (p.20). This is certainly less restrictive than the 5 miles recommended by the A.M. Manville briefing paper discussed above, but regardless turbine 6 is within the 1 mile referenced by Mr. Kirschenmann.

**Q. What other concerns do you have if the PUC allows the project to move forward as is?**

A. Prairie chickens and sharp tail grouse populations will be affected. Both are indigenous to the region. Materials submitted to the PUC by ENGIE reference prairie chicken leks (breeding grounds). We have ground that has native sharp tail grouse habitat and prairie chicken habitat, and we promote our lodge as having an opportunity for our clients to hunt those birds. I have read many studies on the needs of sharp tail grouse and prairie chickens and have read the testimony of Tom Kirschenmann, a wildlife specialist for the South Dakota Department of Game, Fish and Parks (Exhibit O). The studies he references are the studies that I as a lodge owner, in developing hunting habitat, would use in attempting to develop our hunting lodge. The PUC used him as an expert witness (Exhibit O). He testified on May 10, 2019, concerning the effect of the wind turbines upon prairie chicken and sharp tail grouse. His directive was to study, evaluate, and assist in the management of all wildlife



and associated habitats. When he testified he was the Deputy Director of Wildlife Division and Chief of the Terrestrial Resources Section. He provided testimony as to potential impact to wildlife as the result of the construction of a wind project (pp. 6-7). He testified there was a direct and indirect impact upon birds and bats. He referred to a study (Shaffer and Buhl, 2016; attached as Exhibit P) that showed that 7 of 9 species of grassland birds had reduced densities around wind turbines over time. He noted there was research into the effects of wind energy on habitat avoidance; some species will not use grassland or wetland habitat within a certain distance of a wind turbine (pp. 8) citing Loesch et al. 2013 (Exhibit Q), and Shaffer and Buhl, 2016 (Exhibit P). Mr. Kirschenmann recommended that there was a need to monitor confirmed leks less than 1 mile from a proposed turbine (pp. 20). This is certainly less restrictive than the 5 miles recommended by the federal study. Regardless, turbine 6 is within the 1-mile referenced by Mr. Kirschenmann. I believe that his testimony and research is consistent with my observations in developing habitat.

**Q. If these birds are hunted, won't the populations shrink anyway?**

A. The Prairie Grouse Management Plan for South Dakota 2017-2021 (Exhibit K) compiled by the South Dakota Department of Game, Fish, and Parks discusses hunting and its effect on birds. It reads as follows:

**HUNTING SEASON STRUCTURE AND AUTHORITY**

Hunting is currently authorized from the third Saturday of September through the first Sunday in January (Administrative Rule 41:06:09:01) with a combined daily bag of three prairie grouse (Administrative Rule 41:06:09:03). The season and bag limit is set by the SDGFP commission on a 3-year cycle with the next two cycles occurring in 2017 and 2020.



*The current hunting season structure has very little impact on the long-term population.* Hunting mortality is thought to be mostly compensatory because prairie grouse are short-lived, have high reproductive potential, and are subject to a relatively low harvest rate. Only 2 out of 195 marked female prairie grouse were harvested by hunters during a 3-year study in Hyde and Hand counties (unpublished data from Runia and Solem 2015). Only 17 out of 209 marked adult prairie grouse were harvested during a 3-year study on the FPNG (Kirschenmann 2008). Hunter harvest would have very little, if any, impact on the population at these observed harvest rates (Powell et al. 2011). Prairie grouse have a large distribution in SD and local populations likely respond to environmental and local habitat conditions.

Prairie grouse hunting is most popular during the first few weeks of the season based on license sales and field staff observation. During the first few weeks of the season, prairie grouse are loosely scattered across the landscape in small coveys and family groups which is favorable for hunting. As the season progresses, flock sizes increase and hunting success generally declines sharply. Prairie grouse hunting pressure declines after the first few weeks in response to lower success and as hunters shift effort to other upland game such as pheasants. Some broods may not be fully grown if the season started earlier in the season, and a later start date could sacrifice some of the most productive days of the season. An earlier start date could also make it more difficult to differentiate between prairie grouse and young pheasants. The current bag limit is thought to be socially and biologically acceptable. For these reasons, the SDGFP does not foresee any major recommended changes to the current hunting season structure. The SDGFP will continue to monitor the

population, examine hunting statistics, and review public and SDGFP staff input when developing hunting season recommendations.

**Q. What have other lodge owners observed after turbines have been constructed near their hunting grounds?**

A. I was a board member of the South Dakota Game Bird Association which become inactive. However, last year it was resurrected of sorts as a new organization was established called the South Dakota Upland Outfitters Association in which I am a member. Corbin Korzan's father, Curt Korzan, was the president up to the time of his death. I work with many of the operators of other lodges and exchange information to make our operations better. In particular, I spoke with Corbin Korzan who told me of the detrimental effects of turbines to his family's hunting grounds. The turbines, in effect, drove the pheasants out of the grounds. It also drove out deer and other wildlife. His testimony is based upon his observations and experience, that the addition of turbines resulted in his family having to abandon prime hunting ground.

**Q. Does your property contain whooping crane stopover sites?**

A. Yes. I have enjoyed seeing them and watching their spring dancing displays. They have been officially recognized by the US Fish and Wildlife and SDGFP in the SW<sup>1</sup>/<sub>4</sub> of Section 9, Township 111, Range 74. Supporting documentation from the South Dakota Department of Game, Fish and Parks is attached as Exhibit Z.

**Q. Will the proposed towers affect the whooping crane stopover sites?**

A. Yes. I am attaching a map filed by ENGIE (Exhibit R) on the North Bend Wind Project regarding incidental whooping crane observations in Hyde and Hughes County, South Dakota. In the map, there are red dots representing where whooping cranes were observed.

Besides the location we've been aware of in Section 9, we also recognize ENGIE-North Bend has made a determination whooping crane activity has also been observed in Section 16, Township 111, Range 74. There is a red dot representing the observation of whooping crane activity located in the middle of Section 16, Township 111, Range 74. When you overlap the proposed wind turbine locations it is smack dab in between proposed towers 27 and 19 (see a second map dated 6/4/2021 as Exhibit S). Whooping cranes are an endangered species. I have reviewed several articles regarding whooping cranes. They are as follows:

- Whooping Cranes and Wind Development - An Issue Paper. By Regions 2 and 6, U.S. Fish and Wildlife Service. April 2009. (Exhibit T)
- Whooping Cranes Steer Clear of Wind Turbines When Selecting Stopover Sites. Ecological Society of America. March 11, 2021. (Exhibit U)
- Wind Turbines Deter Whooping Cranes from Stopover Sites, Study Confirms. Ecological Applications. March 2021. (Exhibit V)
- Heterogeneity in Migration Strategies of Whooping Cranes. Aaron T. Pearce, Kristine L. Metzger, David A. Brandt, Mark T. Bidwell, Mary J. Harner, David M. Baasch, and Wade Harrell. The Condor, Ornithological Applications. Volume 122, 2020, pp. 1-15. (Exhibit W)
- Derby, C. E., M. M. Welsch, and T. D. Thorn. 2018. Whooping crane and sandhill crane monitoring at five wind energy facilities. Proceedings of the North American Crane Workshop 14:26-34. (Exhibit X)

My family has worked to preserve a thriving population of grouse, prairie chickens, Hungarian partridge, bald eagles, whooping cranes, etc. Our operations have spanned over four decades and as stated above, Governor Daugaard presented us with the elite Brent

Wilbur Habitat Award.

**Q. What else would you like to add?**

A. I would like to add the following:

- I dispute ENGIE's claim that the lek on our property is inactive. The lek may have been inactive at the time of their study, however I farm near that location each spring and have seen first hand the drumming grounds more years than not in the springtime. So much so, we maintain an area of native grass/water/waterway near the location in the western part of our preserve. Despite being labeled as inactive, that doesn't mean there isn't a grouse population in that location. They've been spotted at the location, they just weren't actively strutting for a partner. We have hunters who harvest grouse on that ground.
- Our land and our guests benefit from the leks located on our land and adjacent to it. Similar to regional populations of deer (or other upland game) benefit from the protection of our hundreds of acres of trees planted or ponds developed on our properties.

**Q. Have you been following what is occurring in other counties/hearings involving ENGIE and its representatives?**

A. Yes. On August 10, 2021, there was a hearing of the Hyde County Commissioners involving ENGIE representative Casey Willis. At the concern of a landowner, Doug Knox, Casey Willis agreed to removed turbine #47 from consideration after hearing from the Knox family. Doug Knox pointed out his concerns in particular were the effects it would have on the wildlife supported by their farm and the livestock farm yard. I can only conclude Casey Willis recognizes these concerns to the point he approved the removal of #47 from

consideration during that meeting. This continues to support my concerns that wind turbines erected close to wildlife populations, especially those of us that rely on a managed population as a source of income, will have a negative impact on said population. The transcript of this hearing is attached as Exhibit Y.

Dated this 31 of JANUARY, 2022.

  
MICHAEL BOLLWEG