

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA**

**IN THE MATTER OF THE
APPLICATION BY PREVAILING
WIND PARK, LLC FOR A PERMIT OF
A WIND ENERGY FACILITY IN BON
HOMME COUNTY, CHARLES MIX
COUNTY AND HUTCHINSON
COUNTY, SOUTH DAKOTA, FOR THE
PREVAILING WIND**

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**STAFF'S FIRST SET OF DATA
REQUESTS TO INTERVENORS**

EL18-026

Below, please find Staff's First Set of Data Requests to Intervenors. Please submit responses by August 22, 2018, at 5:00 pm, or promptly contact Staff to discuss an alternative arrangement.

- 1-1) Provide copies to Staff of all data requests served on Applicant at the time of service.
None served at this time.

- 1-2) Provide copies to Staff of all of your answers to data requests from Applicant at the time they are served on Applicant.
None received at this time.

- 1-3) Refer to SDCL 49-41B-22. Please specify particular aspect/s of the applicant's burden that the individuals granted party status intend to personally testify on.
 - 1) Inaccuracies, errors, and omissions in the applicant's application and supplemental information may cause injury to the environment leading to the economic detriment of some inhabitants and businesses within and near the project as well distressing other activities.
 - 2) The applicant fails to substantially prove that placement of turbines twice as powerful as existing turbines and at distances even closer than existing turbines will not substantially affect the health, safety or welfare of either participating or non-participating inhabitants. Unless health, safety, and welfare have been quantitatively measured prior to construction the amount of substantial impairment can not be measured after. Personal health and well-being will be particularly emphasized.
 - 3) There will likely be no future "orderly development" at all in the footprint of the facility if constructed as proposed.

1-4) Refer to SDCL 49-41B-25. Identify any “terms, conditions, or modifications of the construction, operation, or maintenance” that the Intervenors would recommend the Commission order. Please provide support and explanation for any recommendations.

The “terms, conditions or modifications” that would ameliorate nuisance, health, and negative financial concerns raised by the facility would be to simply deny the permit.

Should the permit be approved, full frequency spectrum analysis should be performed, not just modeling of projected dB(A) levels. The complete sound output needs to be accounted for not just the audible portion as with the dB(A) weighted scale. Dr. Alec Salt and colleagues, Washington University School of Medicine, St. Louis have explained the effects of extremely low frequency sound on the inner ear leading to the distress of sleep disruption, sleep deprivation and subsequent adverse health effects. Larger and more powerful turbines produce an even larger proportion of low frequency noise than earlier smaller models. This needs to be accounted for by someone.

If appropriate sound power level studies are not implemented and standards set and enforced, an alternate condition for safety, health, and welfare would be setbacks of 2 miles from non-participating residences, businesses, churches, cemeteries, and schools with waivers for those so inclined and 1500 foot setbacks from property and right of way lines. All setback measurements need to be made to the tip of the blade when horizontal not to the center of the tower.

Aircraft Detection Lighting Systems should be installed. The air ambulances from the Sioux Falls hospitals make multiple trips to the Wagner hospitals every week at all hours of the day and night through the proposed facility area.

Shadow flicker should be eliminated at non-participating residences and business and should be reduced to 8 hours annually actual following the German model at participating residences so as not to imprison people their homes behind shuttered windows unable to use their own property.

Decommissioning monies should be made available in whole upfront and reevaluated every 2 years to account for inflation and other increasing costs. Decommissioning should include complete removal of all installed components not just visible portions.

1-5) Is there a specific objection (example health, blinking lights, sound) you have with respect to the Project? Please briefly explain.

a. What, if anything, do you feel could be done to remedy that issue?

Concerning sight, sound, health, and safety issues:

If constructed as proposed our horizon will be in constant motion when the wind blows except for about 60 degrees to the north. As someone susceptible to motion sickness and having suffered vertigo episodes within the last few months, this may well be an unbearable situation. Infrasound and low frequency noise from existing turbines may contribute to these issues as per Navy nauseogenic studies but I can not imagine that having larger turbines on all sides could possibly help.

Existing turbine noise is routinely audible at our residence at 1.25 miles distant. Note that applicant's sound study indicates that in 2 of 3 measurements at measuring points 1 and 2 there is audible sound from existing turbines at distances of approximately 2 miles. Again, being completely surrounded by larger turbines will not help the situation.

Both audible sound and inaudible low frequency noise are known to contribute to sleep disruption and sleep deprivation. The distress of sleep deprivation over time is known to cause physiological disruptions of several body systems. We already experience sleep problems. Being surrounded by more and larger turbines can not possibly help.

Possible remedies for these issues could include but are not limited to:

- 1) Not approving the permit.
- 2) Requiring 2 mile setbacks from habitable residences, businesses, churches, cemeteries, etc. with waivers if desired by participating landowners so as to protect by distance from sound, inaudible noise, and sight disruption. All property and right of way line setbacks should be at least 1500 feet for safety from blade fragmentation and ice throw. For risk assessment it should be presumed that a person is always present at the property or right of way line.
- 3) Requiring 2 kilometer setbacks (as many European countries and Australian states have previously required 1000 meters for much smaller turbines as per summary by K. M. B. Haugen, Minnesota Department of Commerce) but from non-participating landowners property lines, along with noise limits of 25-40 dB(A) (again foreign country guidelines adjusted for turbine size per Haugen summary) at non-participating landowner property lines with lower values for measured quiet areas or 5 dB(A) above measured preconstruction background noise levels Leq with 5-15 dB penalties for tonality, impulsiveness, and modulation (Haugen summary) at the property line of non-participants so as not to imprison people in their homes unable to use or enjoy their entire property.
- 4) Further remedies to reduce audible sound and low frequency noise could include shutting down the entire facility from 7:00 pm to 7:00 am so that all inhabitants could sleep peacefully, shutting down all turbines within 2 miles of non-participating residences or 2 kilometers of non-participating owner property lines from 7:00 pm to 7:00 am, using Noise Reducing Operations (NRO) on all turbines from 7:00 pm to 7:00 am, or using NRO on turbines within 2 miles of non-participating residences or 2 kilometers of non-participating landowners property lines 24 hours a day.

Setbacks from property lines are stressed because our practice of animal husbandry requires working afoot on the majority of our property on a daily basis. Measurements to the residence are useless except for sleeping hours. No one should be denied the use of the entirety of their property.

1-6) Please list with specificity the witnesses the Intervenors intend to call. Please include name, address, phone number, credentials and area of expertise.

Potential witness other than self are unknown at this time.

1-7) Do the you intend to take depositions? If so, of whom?

Unknown at this time but doubtful.

21 August 2018
Sherman Fuerniss
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Dated this 8th day of August 2018.



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* **STAFF’S SECOND SET OF DATA
REQUESTS TO SHERMAN FUERNISS**

* **EL18-026**
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Below, please find Staff’s Second Set of Data Requests to Sherman Fuerniss. Please submit responses by October 5, 2018, at 5:00 pm.

- 2-1) Refer to the rebuttal testimony of Mr. Fuerniss, Page 5, subpart (7).
- a) Provide and specifically identify all “misidentifications of land use” that Mr. Fuerniss is aware of.

The land use map in Figure 9 of appendix A of the application indicates that the SE1/4 of the SW 1/4 of section 18E-96-61 in Choteau Creek Township South is a small amount of pasturelands and rangelands with the majority being row or non-row crops in rotation. In reality only the east side of the property has ever been in crops while the west 20 acres are native prairie. The W1/2 and E1/2 of the NE1/4 of the SW1/4 of 18E-96-61 Choteau Creek Township South are also both native prairie as well making 60 contiguous acres of native prairie. It can easily be determined by driving by on the road to south that this is not row or non-row crops land in rotation. My family has owned the SE1/4 of the SW1/4 of section 18E-96-61 for over 50 years.

Mr. Darren Kearney uses the same map on page 166 of his pre-filed testimony and exhibits and I do not find any update elsewhere. Appendix B of the application also indicates the area as “tilled grasslands”. This is incorrect and thus I doubt the trustworthiness of other aspects of the applications as well.

- b) Provide and specifically identify all “misidentifications of participating/nonparticipating residents” that Mr. Fuerniss is aware of.

Figure 5 of the application’s appendix A represents all but the NW1/4 of the NW1/4 of section 11-96-62 Choteau Creek Township South as being leased land for the project area. It also indicates setback waivers around section 11-96-62 Choteau Creek Township South less the NW1/4 of the NW1/4 but does not specify if these are distance or noise waivers.(Although at a Charles Mix County Commissioners meeting this summer Mr. Roland Jurgens stated that projects could not be financed if waivers were used.) Figure 5 would seem to imply that any residences in section 11-96-62 CCTS would be considered participating as the land is represented as being leased to the project.

Figure 9 on page 166 of Mr. Darren Kearney’s pre-filed testimony and exhibits shows two nonparticipating residences in section 11-96-62 CCTS. The residents of the

residence in the center of section 11-96-62 CCTS have other land leased to the project (Figure 5 of appendix A) on which nine turbines are proposed to be built. Perhaps there is a fine line between participating and nonparticipating about which I am confused? Are the residents of the center of section 11-96-62 CCTS nonparticipating residents but participating landowners? Would they be nonparticipating residents due to the fact that no physical part of the facility would be constructed on the leased property on which they reside? If so, would there be something in play here like the definitions of ‘participating and nonparticipating noise receptors’ found in the Ontario Technical Guide to Renewable Energy Approvals, specifically Chapter 3:Required setback for wind turbines (<https://www.ontario.ca/document/technical-guide-renewable-energy-approvals/required-setback-wind-turbines>) which states in part:

“ 2.2.1 Participating vs. Non-participating Receptors Setback distances do not apply to noise receptors (so-called “participating” noise receptors) on a parcel of land where any part of a renewable energy generation facility will be located once the facility is installed, constructed or expanded in accordance with the REA. It must be emphasized that for setback distances not to apply, all or part of the renewable energy generation facility (e.g. turbine, transmission line) must be constructed on the parcel of land. Thus, this does not apply to lease options that do not result in the construction of facility components or other agreements to waive the 550m setback distance in consideration of financial compensation or other arrangements. Further, it should be noted that a temporary structure that does not form part of the operational facility is not considered sufficient to create a participating noise receptor.”

I am not aware of any other situations similar to this in the project area, but again this casts doubt on the application, at least for me.

- c) Has the “misidentifications of participating/nonparticipating residents” that Mr. Fuerniss is aware of been corrected as part of independent review of residences within the Prevailing Wind Park project and verification area attached to Bridget Canty’s rebuttal testimony?

I do not know that the review and verification apply to my concern.

- d) Please explain in detail what consideration should be provided for rural cemeteries. Please provide evidence to support this consideration.

The existing Beethoven wind farm locates one turbine within 1.1 miles of a rural Charles Mix County cemetery and nine within 1 mile (15 within 1.25 miles) including two within 500 ft. of a Hutchinson County rural cemetery. The proposed project would put two turbines less than 1.25 miles from a Hutchinson County rural cemetery, two turbines less than 1.0 mile from a Charles Mix County rural cemetery, three turbines less than 1.0 mile from a Bon Homme County rural cemetery where my Civil War veteran great-grandfather is buried, and two turbines less than 1.0 mile from a Bon Homme County church and cemetery. This ought not to be. The proponents of these facilities seem to care little enough for the living let alone for the living who are mourning the loss of a loved one.

When we laid my father to rest beneath the prairie beside St. Paul Evangelical Lutheran Church, on the western edge of this proposed project, on a clear crisp January

day we could hear the birds singing while the church bells rang. We prayed and sang hymns. We could hear the handfuls of soil thrown by family members as they hit the casket. We stayed talking, crying, laughing and grieving until the last shovelful. If we had had to endure the noise that we sometimes hear at our farm from a distance of 1.25 miles from Beethoven, I would have been angry enough to want to tear someone's head off and spit in their neck. I do not believe a one-mile setback for the amenity of a rural cemetery is too much to ask and an active church should have two miles.

4 October, 2018
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Dated this 28th day of September 2018.



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